

For The Serious User Of Personal Computers

COMPUTIST

Issue 63

January 1988

USA \$3.75

Canada & Mexico \$7.00

All Others \$8.75

🍏 RDEX *Features:*

Infocom games & Lower-case — By Greg Poulos

Infocom games & 80 columns — By Aapo Puskala

The Product Monitor? — By Jeff Hurlburt

Deprotecting with an altered DOS 3.3 disk — By Michele Jackson

Graphics and your Word Processor — By Peter J. Wall

Put 2400 A.D. on a 3^{1/2}" disk — By Richard S. Thompson

Editor Creator — By Bob Igo

Deactivating Signature Checks — By Edward Teach

Ultima V Character Editor — By Eric Delbridge

2400 A.D. Quick Mapper — By Paul A. Johnson

Short Programs — By Doc Devious

🍏 RDEX *Softkeys:*

🍏 Algebra volume 3 🍏 Algebra volume 4 🍏 Bard's Tale II (gs) 🍏 BC's Quest for Tires 🍏 Car Builder 🍏 Create with Garfield
🍏 Deadline 🍏 Enchanter 🍏 Following Written Directions 🍏 Galaxy Math Facts: Decimals, Fractions 🍏 The Game 🍏 J & S
Grade Book v5.4.1 🍏 Killed until Dead 🍏 Kings Quest I 🍏 King's Quest II (gs) 🍏 King's Quest III (gs) 🍏 Let's go Fishing
🍏 Magic Spells 🍏 Monatan Reading Program 🍏 Operation Frog 🍏 PSAT/SAT Analogies 🍏 PSAT Word Attack Skills
🍏 Rampage 🍏 Rainbow Painter 🍏 RAMBO First Blood part II 🍏 Reading Skills Two 🍏 SAT Word Attack Skills 🍏 Scrabble
🍏 Secrets of Science Island 🍏 Skate or Die (gs) 🍏 Sorceror 🍏 Space Eggs 🍏 Starcross 🍏 Strategies for Test Taking 🍏 Take
1 Deluxe 🍏 Transylvania Enhanced Edition 🍏 Vocabulary Baseball 🍏 Word Master 🍏 Zany Golf (gs) 🍏 Zork II, III

IBM RDEX: *Softkey:* ■ Chuck Yeager's Advanced Flight Simulator v1.0 ■ dBase III v1.10
■ Memory/Shifter ■ Printmaster ■ Ultima II

COMPUTIST
PO Box 110846-T
Tacoma, WA 98411

BULK RATE
U.S. Postage

PAID

Tacoma, WA
Permit No. 269

You have a LEGAL RIGHT to an unlocked backup copy of your commercial software

Our editorial policy is that we do NOT condone software piracy, but we do believe that users are entitled to backup commercial disks they have purchased.

In addition to the security of a backup disk, the removal of copy-protection gives the user the option of modifying programs to meet his or her needs.

Furthermore, the copyright laws guarantee your right to such a DEPROTECTED backup copy:

... "It is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or *adaptation* of that computer program provided:

1) that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner, or

2) that such new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful.

Any exact copies prepared in accordance with the provisions of this section may be leased, sold, or otherwise transferred, along with the copy from which such copies were prepared, only as part of the lease, sale, or other transfer of all rights in the program. Adaptations so prepared may be transferred only with the authorization of the copyright owner."

United States Code title 17, §117

COMPUTIST

Editor: Charles R. Haight
Circulation: Karen Fitzpatrick
Advertising, call: (206) 474-5750
Publisher: SoftKey Publishing
Printing: Valco Graphics & Printing

● Address all advertising inquiries to: COMPUTIST; Advertising Department; PO Box 110816; Tacoma, WA 98411

● Mail all RDEX letters to:
COMPUTIST
Apple-RDEX or IBM-RDEX
PO Box 110846-K
Tacoma, WA 98411

● COMPUTIST does NOT purchase editorial material. The entire editorial content consists of information submitted to COMPUTIST for publication in the shared interests of all COMPUTISTS.

● Unsolicited material (manuscripts, letters to the editor, softkeys, A.P.T.s, playing tips, questions, etc.) are assumed to be submitted as letters-to-the-RDEX-editor for publication with all and exclusive rights belonging to COMPUTIST.

● Entire contents copyright 1988 by SoftKey Publishing. All rights reserved. Copying done for other than personal or internal reference (without express written permission from the publisher) is prohibited.

● The volunteer and paid editorial staff assume no liability or responsibility for the products advertised in the magazine. Any opinions expressed by the authors are not necessarily those of COMPUTIST magazine, its staff or SoftKey Publishing.

● Apple® is a trademark of Apple Computers. IBM® is the IBM trademark.

SUBSCRIPTIONS: Rates (for 12 issues):
U.S.—\$32 U.S. 1st Class—\$45
Canada/Mex.—\$45 Other Foreign—\$75

● Send subscription inquiries to: COMPUTIST; Subscription Department; PO Box 110846-T; Tacoma, WA 98411

● For Domestic Dealer rates: Call (206) 474-5750 for more information.

● Change Of Address: Please allow 4 weeks for change of address to take effect. On postal form 3576 supply your new address and your most recent address label.

● Issues missed due to non-receipt of change of address may be acquired at the regular back issue rate.

● We are not responsible for missing issues 90 days after mailing date. If you do not receive one issue each month, call or write.

**Attention Apple-users:
Why type those
l-o-n-g listings when
you can just Upgrade
your present sub. to a
Mag/5 1/4" Disk Combo
subscription**

■ You may upgrade your current subscription to a magazine & disk combination by sending \$5.50 (\$6.50 foreign) per remaining issue.

Time to renew?

■ Check your mailing label to see if you need to renew your subscription.

Use the order form on this page to renew, and don't forget to send your most current mailing label to help expedite your renewal

Moving soon?

■ If you're moving, let us know at least 30 days in advance.

■ Issues missed due to non-receipt of Change-of-Address may be acquired at the regular back issue rates.

■ Remember, the Post Office does not forward third class mail unless requested. COMPUTIST is not responsible for replacing issues lost while forwarding order is in effect.

Subscribe

to

Computist

■ Yes, I want to subscribe to COMPUTIST. Enclosed are funds for an annual (12 issue) subscription.

- I am... A new subscriber
 Renewing my current subscription
 Changing my address (please include last mail label)
 I have... an Apple IIe, IIgs or IIc computer
 an IBM computer

- Apple-IBM subscription...
 U.S. - \$32
 U.S./Canada/Mexico First Class - \$45
 All other Foreign - \$75

- Apple mag-disk combination subscription...
 U.S./Canada/Mexico First Class plus Library Disk - \$100
 All other Foreign plus Library Disk - \$140

Name _____ ID# _____

Address _____

City _____ State _____ Zip _____

Country _____ Phone _____

  _____ Exp. _____

Signature _____ CP63

U.S. Funds drawn on U.S. bank. Allow 4-8 weeks for first issue. Mail to: COMPUTIST PO Box 110846-T Tacoma, WA 98411 (206) 474-5750

Notes 'n things.....

■ But it's IMPORTANT

And it's not going to wait. OK, here's a procedural change for submitting material/sending letters.

Send softkeys and other info/articles on disk but *don't include a hardcopy/printout* unless the nature of the material requires it. (IE. Info about printer codes with a sample printout or drawings with explanations.)

The normal path for submissions is first in-first out. I have been receiving disks and letters in a reasonably steady stream. I usually have enough material on hand for the current issue and about 1/4 of the next. So, if you just received this issue (#63) and you send a softkey to RDEX now, it would go in the issue after next (#65).

But some things shouldn't have to wait. So if you have questions, need help, spot some bugs or other timely info, send the text on disk (as usual) and *include a hardcopy/printout*. This will allow me to get your requests for help into the current issue so that you can receive an answer sooner.

■ To all hardware hackers

Help! We have reached the point, in our hardware endeavors, where we need to make prototype boards. But I can't get the chemicals/light/timer to work right and I'm ready to throw in the towel. Can someone out there help? I have the preliminary board artwork (2:1) and both positive and negative transparencies (1:1).

We need to make a prototype to check the board layout and to resolve some circuitry options. If all goes well, then we're going to be seeing some real neat hardware articles with full "How it works" explanations, complete schematics and boards. And remember, our goal was to keep it "dirt cheap" so everyone could afford to build it.

We're also interested in finding someone who can make up a couple hundred of the boards after we make sure we have the final layout.

If you are into making boards or know of someone who is, we need to hear from you.

BUGS:

COMPUTIST #53, page 30. Softkey for Microzines. See page 8, Carl D. Purdy, column 3 (bottom).

COMPUTIST #56, page 13. 5 Second Fastboot into Locksmith Fastcopy. See page 24, Bob Igo, Miscellaneous Notes.

COMPUTIST #58, page 32. Computing for 1-3 year olds, listing 1. See page 8, Jason Chao.

COMPUTIST #59, page 7. Softkey for King's Quest I. See page 10, Kelly Edmondson.

COMPUTIST #60, page 10. Softkey for Springboard Publisher. See page 14, Joseph P. Karwoski.

COMPUTIST #62, page 31. ProDOS IOB 5.25. See page 7, Bill Jetzer.

Robert W. Brown	9
Jason Chao	8
John T. Chiao	10
J. K. Davidson	11
Eric Delbridge	32
Doc Devious	34
Kelly Edmondson	10
Rob Fiduccia	15
C. E. Garrett	14
S Todd Grant	9
Clay Harrell	17
Jeff Hurlburt	12
Bob Igo	23
Michele Jackson	17
Bill Jetzer	7
Paul A. Johnson	33
Joseph P. Karwoski	14
Edgar Lasky	10
Brandon LaCava	22
Stephen Lau	26
Dick Lavalley	7
Mike Luker	11
Don McClelland	32
Mike Neuliep	22
Jack R. Nissel	29
Lenny Nole	9
Stanley Planton	21
Greg Poulos	11
Carl D. Prudy	8
Aapo Puskala	11
Harry M. Randel	14
Mark Ruskin	14
Henry Savage	7
Robert F. Smith	15
Solo 7	11
Edward Teach	26,30
Bob Thanski	10
Richard S. Thompson	22
Frank Thornton	8
Brian Walker	25
Peter J. Wall	19
John E. Wanner	8
Zorro	33

IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM

L. Brenkus	45
The Computer Pike	44
Ralph	44
The Lone Victor	44

🍏 Softkeys:

Algebra volume 3.....	29
Algebra volume 4.....	29
Bard's Tale II (gs).....	26
BC's Quest for Tires.....	11
Car Builder.....	22
Create with Garfield.....	17
Deadline.....	9
Enchanter.....	9
Following Written Directions.....	30
Galaxy Math Facts:	
Decimals.....	30
Fractions.....	30
The Game.....	30
J & S Grade Book v5.4.1.....	7
Killed until Dead.....	27
Kings Quest I.....	10
King's Quest II (gs).....	26
King's Quest III (gs).....	26
Let's go Fishing.....	21
Magic Spells.....	32
Monatan Reading Program.....	8
Operation Frog.....	14
PSAT/SAT Analogies.....	29
PSAT Word Attack Skills.....	29
Rampage.....	9
Rainbow Painter.....	17
RAMBO First Blood part II.....	17
Reading Skills Two.....	31
SAT Word Attack Skills.....	29
Scrabble.....	30
Secrets of Science Island.....	30
Skate or Die (gs).....	26
Sorcerer.....	9
Space Eggs.....	25
Starcross.....	9
Stickers.....	17
Strategies for Test Taking.....	30
Take 1 Deluxe.....	10
Transylvania Enhanced.....	26
Vocabulary Baseball.....	30
Word Master.....	30
Zany Golf (gs).....	26
Zork II, III.....	9

🍏 A.P.T.o:

Deathlord.....	16
Demons Winter.....	10
Leisure Suit Larry.....	22
Microwave.....	9

🍏 Playing Tips:

AutoDuel.....	37
Bard's Tale.....	9
Bruce Lee.....	9
Deathlord.....	15
Hacker.....	22
Leisure Suit Larry.....	27
Maniac Mansion.....	33
Taipan.....	9
Ultima V.....	16,22,33,35
Wasteland.....	9
Wings of Fury.....	17
Wizardry.....	9

🍏 Notes:

ProDOS IOB bug.....	7
Note on Wasteland Tip.....	8
Free Thexder Upgrade.....	10
Publish it & importing graphics.....	14
Addendum to Davidson & Associates.....	26
A fix for Controller Writer.....	32
Ultima V APT caution.....	34
Giveaways for Ultima V.....	35
Sound bugs in Ultima V.....	36
Bit copy of Airheart.....	37

IBM Softkeys:

Chuck Yeager's Advanced Flight Simulator v1.0.....	44
dBase III v1.10.....	44
Memory/Shifter.....	45
Printmaster.....	45
Ultima II.....	45

Editorial.....	4
Bugs.....	4
Most Wanted Softkeys.....	37

🍏 Features:

Infocom games & Lower-case	11
Greg Poulos shows how to modify all Infocom games for lower-case.	
Infocom games & 80 columns	11
Aapo Puskala shows how to get 80 columns on those older Infocom games.	
The Product Monitor.....	12
Jeff Hurlburt reports on some games, a dirty mouse and a clean one.	
Deprotecting with...	
An altered DOS 3.3 disk	17
Michele Jackson tells about another deprotection tool.	
Graphics and your Word Processor ...	19
Peter J. Wall teaches your word processor a neat trick; how to print graphics.	
Put 2400 A.D. on a 3 1/2" disk	22
With Richard S. Thompson's easy step by step instructions.	
Editor Creator	23
Bob Igo's "lazy way" to write new game editors.	
Deactivating Signature Checks	27
Edward Teach takes a close look at how to recognize and defeat this annoyance.	
Ultima V Character Editor	32
Eric Delbridge has a quick way to strengthen your party.	
2400 A.D. Quick Mapper	33
A quick course in cartography by Paul A. Johnson.	
Short Programs	36
Doc Devious lists some short programs collected from here and there.	



Readers Data

For serious users of Apple computers: II, II+, //c, //e, //gs, Macintosh

New COMPUTIST readers using Apple IIs are advised to read this page carefully to avoid frustration when attempting to follow a softkey or entering the programs printed in this issue.

What is a softkey, anyway?

Softkey is a term which we coined to describe a procedure that removes, or at least circumvents, any copy-protection on a particular disk. Once a softkey procedure has been performed, the resulting backup copy can usually be copied by the normal copy programs (for example: COPYA, on the DOS 3.3 System Master disk).

Commands and control keys

Commands which a reader is required to perform are set apart by being in boldface and on a separate line. The **RETURN** key must be pressed at the end of every such command unless otherwise specified. Control characters are specially boxed. An example of both is:

6 **Ⓚ**

Press **6**. Next, place one finger on the **Ⓚ** key and then press **P**. Don't forget to press **RETURN**.

Other special combination keypresses include **ⓀRESET** or **ⓀRESET**. In the former, press and hold down **Ⓚ** then press **RESET**. In the latter, press and hold down both **Ⓚ** and **Ⓚ** then press **RESET**.

Software recommendations

The Starter Kit contains most of the programs that you need to "Get started". In addition, we recommend that you acquire the following:

- Applesoft program editor such as "Global Program Line Editor (GPLE)".
- Assembler such as the "S-C Assembler" from S-C software or "Merlin/Big Mac".
- Bit-copy program such as "Copy II Plus", "Locksmith" or "Essential Data Duplicator (EDD)".
- Text-editor (that produces normal sequential text files) such as "Applewriter II", "Magic Window II" or "Screenwriter II".
- "COPYA", "FID" and "MUFFIN" from the DOS 3.3 System Master disk are also useful.

Super IOB and Controllers

This powerful deprotection utility (in the COMPUTIST Starter Kit) and its various Controllers are used in many softkeys. (It is also on each Super IOB Collection disk.)

Reset into the Monitor

Softkeys occasionally require the user to stop the execution of a copy-protected program and directly enter the Apple's system monitor. Check the following list to see what hardware you will need to obtain this ability.

Apple II+, //e, compatibles: 1) Place an Integer BASIC ROM card in one of the Apple slots. 2) Use a non-maskable interrupt (NMI) card such as *Replay* or *Wildcard*.

Apple II+, compatibles: 1) Install an F8 ROM with a modified reset-vector on the computer's motherboard as detailed in the "Modified ROM's" article (COMPUTIST #6 or Book Of Softkeys III) or the "Dual ROM's" article (COMPUTIST #19).

Apple //e, //c: Install a modified CD ROM on the computer's motherboard. Cutting Edge Ent. (Box 43234 Ren Cen Station-HC; Detroit, MI 48243) sells a hardware device that will give you this important ability but it will void an Apple //c warranty.

Apple //gs: If you have the 2.x ROM, there is a hidden classic desk accessory (CDA) that allows you to enter the monitor. In order to install the new CDA, you should enter the monitor before running any protected programs (CALL -151) and press "# **RETURN**". This will turn on two hidden CDAs, *Memory Peeker* and *Visit Monitor*. Thereafter press **ⓀESC** to go to the Desk Accessories menu. Select "Visit Monitor" and there you are. Use **ⓀY** to exit.

Recommended literature:

- *Apple II Reference Manual*
- *DOS 3.3 manual*
- *Beneath Apple DOS & Beneath Apple ProDOS*, by Don Worth and Pieter Lechner, from Quality Software

Keying in Applesoft programs:

BASIC programs are printed in a format that is designed to minimize errors for readers who key in these programs. If you type:

10HOME:REMCLEAR SCREEN

The LIST will look like:

10 HOME : REM CLEAR SCREEN

...because Applesoft inserts spaces into a program listing before and after every command word or mathematical operator. These spaces don't pose a problem except when they are inside of quotes or after a DATA command. There are two types of spaces: those that have to be keyed and those that don't. Spaces that

must be typed appear in COMPUTIST as delta characters (δ). All other spaces are there for easier reading. NOTE: If you want your checksums (See **Computing checksums**) to match up, only type spaces within quotes or after DATA statements if they are shown as delta (δ) characters.

Keying In Hexdumps

Machine language programs are printed in COMPUTIST as hexdumps, sometimes also as source code. Hexdumps are the shortest and easiest format to type in. You must first enter the monitor:

CALL -151

Key in the hexdump exactly as it appears in the magazine, ignoring the four-digit checksum (δ and four digits) at the end of each line. When finished, return to BASIC with:

3DOG

BSAVE the program with the filename, address and length parameters given in the article.

The source code is printed to help explain a program's operation. To enter it, you need an "Assembler". Most of the source code is in *S-C Assembler* format. If you use a different assembler, you will have to translate pieces of the source code into something your assembler will understand.

Computing checksums

Checksums are 4-digit hexadecimal numbers which tell if you typed a program correctly. There are two types of checksums: one created by the *CHECKBIN* program (for machine language programs) and the other created by the *CHECKSOFT* program (for BASIC programs). Both are on the "Starter Kit".

If your checksums do not match the published checksums then the line where the first checksum differs is incorrect.

CHECKSOFT instructions: Install Checksoft (BRUN CHECKSOFT) then LOAD your program. Press **Ⓚ** to get the checksums. Correct the program line where the checksums differ.

CHECKBIN instructions: Enter the monitor (CALL -151), install Checkbin at some out of the way place (BRUN CHECKBIN, A\$6000), and then LOAD your program. Get the checksums by typing the Starting address, a period and the Ending address of the file followed by a **ⓀY**.

SSSS.EEEE **ⓀY**

Correct the lines at which the checksums differ. RDEXed

EXchange



etc... who want all their software backed up and COPYA-able

Writing to the RDEX editor

RDEX stands for: Reader's Data EXchange. That means that when you send in articles, softkeys, APTs, etc., you are submitting them for FREE publication in this magazine. RDEX does NOT purchase submissions nor do we verify data submitted by readers. We print what you write. If you discover any errors, please let us know.

● Remember that your letters or parts of them may be used in RDEX even if not addressed to the RDEX editor. Correspondence that gets published may be edited for clarity, grammar and space requirements.

● Because of the great number of letters we receive and the ephemeral and unpredictable appearance of our part-time staff, any response to your queries will appear only in RDEX, so it would be more appropriate for you to present technical questions to the readers and ask for their responses which will then be placed in the Apple-RDEX.

● Whenever possible, send your articles and letters on disk as standard text files. When we get your letter-article in a text file, it is immediately uploaded into the most current RDEX file. We will return your disks, whenever possible, with the current library disk copied onto it. Conventional letters must be typed in by us... when we have the time.

● When you send your material on disk, try to use a disk formatted for Apple DOS 3.3. It makes things a lot easier for us.

● When writing to request help, be sure to include ALL relevant information. The more information you include, the easier it is to figure out what is the matter. If you want your address to be printed, please say so in your letter. Otherwise, it will not be printed and all responses with come thru the RDEX editor.

● When writing to one of the RDEX authors. Write your letter and seal it in an envelope. Put your return address, the authors name (as it appears in RDEX) and the correct postage on the envelope. Put this envelope into another and send it to RDEX. We will put the correct address on your letter and drop it into the mailbox.

● Address your letters, articles, to:

COMPUTIST
R D E X Editor
PO Box 110846-K
Tacoma, WA 98411

Bill Jetzer

PRODOS IOB notes

I have just received the advanced release pages of my ProDOS IOB article and noticed a few bugs. In line 2010 of the controllers, the "CD = WR" is not needed. Apparently I had corrected the bug in the article but neglected to make the changes in the controller files accompanying the article. Also, you seem to have forgotten to print the machine language portion of the program. It is, however, included on the library disk. Speaking of the library disk: unless you tell people to convert the files to ProDOS, somebody is going to run the program from DOS 3.3 and complain that it doesn't work.

You're absolutely right on all counts. Here's the missing code.

..... RDEXed

IOB.OBJ.5.25

0300:	A9 02 20 5B FB A9 16 85	\$3D2D
0308:	24 AD 4A 03 20 E5 FD AD	\$20CD
0310:	49 03 20 DA FD 20 00 BF	\$AEAC
0318:	00 45 03 B0 31 EE 49 03	\$A165
0320:	D0 03 EE 4A 03 EE 48 03	\$7786
0328:	EE 48 03 AD 48 03 C9 00	\$05BD
0330:	B0 12 AD 4A 03 CD 4C 03	\$2650
0338:	90 C6 AD 49 03 CD 4B 03	\$5FFD
0340:	F0 BE 90 BC 60 03 00 00	\$DE53
0348:	00 00 00 00 00 00 AA C9	\$F66D
0350:	27 D0 0B AD 18 03 C9 80	\$3CF3
0358:	D0 04 A9 01 F0 03 4C 12	\$0E16
0360:	D4 20 3A FF AD 48 03 85	\$6647
0368:	EC A0 00 98 85 EB 91 EB	\$C649
0370:	C8 D0 FB E6 EB 91 EB C8	\$1CF9
0378:	D0 FB F0 A1 A0 00 84 FA	\$8877
0380:	84 FC AD 8B C0 AD 8B C0	\$074E
0388:	B1 FA 48 B1 FC 91 FA 68	\$6C3E
0390:	91 FC C8 D0 F3 E6 FD E6	\$EFED
0398:	FB C6 FE D0 EB AD 4D 03	\$DE04
03A0:	49 01 8D 4D 03 AD 8A C0	\$2F53
03A8:	60	\$6D9F

Dick Lavalley

Softkey for...

J & S Grade Book v5.4.1

J & S Software

Requirements

- Apple with RAMdisk
- ProDOS 1.1.1
- BASIC.SYSTEM
- ProDOS file copier (Copy II Plus or similar)
- Empty formatted ProDOS disk with volume /TEST

J & S Grade Book has a non-standard ProDOS format with modified PRODOS and BASIC.SYSTEM files. This modified PRODOS does not re-boot upon reset thereby giving us an entry point. By using a RAMdisk to copy files to or from a disk, the protected RWTS isn't a problem. The J & S Grade Book disk is full (0 blocks free) and only room for PRODOS 1.1.1 (30 blocks), because higher versions of PRODOS are greater than 30 blocks.

1 Boot a ProDOS copier and copy its file to your RAMdisk.

2 Remove the ProDOS copier disk and boot the protected disk.

3 Hit reset and you should be in modified BASIC.

PREFIX/RAM5 or other RAM volume
-UTIL.SYSTEM or other copier

4 Copy all the files from the protected disk to your RAMdisk, with the exception of PRODOS and BASIC.SYSTEM.

5 Reboot your copier program and remove the disk.

6 Insert the formatted ProDOS disk with volume /TEST and copy all the protected files from your RAMdisk to the /TEST disk.

7 Copy unmodified PRODOS 1.1.1 and BASIC.SYSTEM to the /TEST disk from another disk.

8 Boot BASIC and insert the /TEST disk.

UNLOCK SWITCH1.1

BLOAD SWITCH1.1, A\$300

CALL-151

enter the monitor

300:60

return to BASIC

BSAVE SWITCH1.1, A\$300

LOCK SWITCH1.1

All Done!

Henry Savage

I'm having trouble with the instant

recall PGM in COMPUTIST #26. The controller has an error in line 10010, a missing semi-colon after the “). Are there any bugs in this program that appear in later issues? My IOB program bombs just as soon as I start it. I get a disk error on the screen.

I *The semi-colon is optional in this particular case and there aren't any errors marked in my desk copy of COMPUTIST #26. So my best guess is; If the error message that you're getting is a DOS "file not found" error, then you need to insure that the disk with the Instant Recall RWTS is in the drive. You get the RWTS in the first 6 steps of the softkey. Anytime you use a swap controller, you must have the appropriate RWTS already captured.*

..... RDEXed

Jason Chao

There is a typographical error in the article by Kathleen Herrmann in COMPUTIST #58, page 32. There is an extra open-parenthesis in line 220 of BASIC listing 1. The line should read “220 NN = INT (RND (1) * FC + 1)

By the way, you sell Star Trek - The Kobayashi Alternative, but I have never seen a softkey for the program in COMPUTIST. I have seen a copy that was copy-protected. Does it belong on your most wanted list?

I *Only if someone requests it. RDEXed*

Frank Thornton

Q I would like to know if there is any written documentation for the COMPUTIST Starter Kit. I have dumped the disk instructions to the printer but find it is not all that clear in terms of how to operate the various programs. If this is available I would like to have more information on the use of these programs. Your prompt attention to this matter would be greatly appreciated.

I *The DOC files contain all the information we have on each program. If you could be more specific as to what parts are unclear or which program you don't understand, I'm sure that I or one of our readers could expand on the DOC files.*

..... RDEXed

John E. Wanner

It was with some sincere surprise that I receive the COMPUTIST #61 prerelease of my article and the companion disk. I sent that off a couple of months ago with the thought that you might print excerpts occasionally and was pleasantly surprised to find essentially the whole thing in print. Hopefully it will be useful to a

number of gamers out there. I'm currently working on Questron II and will submit something somewhat similar although probably a bit shorter in the near future.

As I know you've heard from your many customers before, *keep up the excellent work!* Yours is the only magazine that publishes information necessary (for those of us who aren't hackers) to back up our disks and I, for one, would be willing to accept a pretty hefty subscription cost increase if it were the only way to keep you publishing. Sometimes I get the impression it's almost a one-person clearinghouse operation.

I *As I keep saying, "If you send it, I'll print it". And you're right, only two of us spend full days here, the rest are volunteer part-timers*

..... RDEXed

Note on Wasteland Tip

Anyway, I spotted a small glitch in my article which those who play the game have probably already dealt with. I didn't mention explicitly that the Wasteland program writes the results of the player's actions to disks, that's the reason for making so many copies of the program. *Each time a player wants to repeat an operation, like raiding an arsenal, she/he must insert a fresh disk with that part of the scenario on it.*

Carl D. Purdy

Softkey for...

Monatan Reading Program

Program Design International

■ Requirements

- Utility to copy files
- A way to break into the monitor (NMI such as Wildcard etc.)
- Fast DOS (Optional)

This softkey was given to me by a friend named Otis Thompson from Dillon, MT. I want to make sure he gets credit for the work as this softkey is not mine.

Only the BASIC programs are encoded, so they won't run when copied to a normal disk.

1 Initialize a disk (using Beagle Brothers Pronto DOS or other fast DOS if you have one).

2 Use a file copy utility (I used Copy II Plus) to copy all of the files from the original disk to the fast DOS disk.

If you want you can use COPYA. The only difference is that you will have a slow DOS on your unlocked copy of the disk.

3 Boot the ORIGINAL disk until the HELLO program is loaded. It is loaded when

you see the kid at the chalk board. Break into the monitor. Don't be alarmed if you are doing this in the middle of the screen somewhere.

D6:00

RESET

TEXT

PRINT PEEK (104)

PRINT PEEK (103)

*clear run flag
return to BASIC
clear scrn margins
Prog. start hi-byte
Prog. start lo-byte*

Write down these values. You should get 97 (\$61) and 01 (\$01). This can be done from the monitor by checking locations \$68 and \$67.

4 The HELLO program is in a safe part of memory, so boot a slave disk (no HELLO program).

5 You should now be in BASIC. Poke 104 & 103 with the values previously obtained, then list the program.

POKE 104,97

POKE 103,1

LIST

6 Now that we can see that the program is in memory, we can start to fix it so that it can be saved. The problem is that the end of the program is not properly set. To fix it, enter the monitor and list the memory at the program location. Keep listing (more L's) until you find the end of the program. You are looking for 00 00. The two zeros are at \$66F1 for (my copy of) the HELLO program. Put the hi-byte (\$66) in \$B0 and the lo-byte + 1 (\$F2) in location \$AF (\$AF.B0 is the end of program marker). Then return to BASIC.

CALL- 151

6100L

AF: F2 66

SC

7 Insert your copy disk and SAVE the HELLO program.

SAVE HELLO

8 Now go back to the original and boot it again. This time let the program load to the point that it says "START LESSON WOULD YOU LIKE SILENT OPERATION" etc. At this point PROG.S has been loaded. Repeat the previous steps taken to save the HELLO program. The end of the program should be at \$6313. The name of the file for step 7 is PROG.S.

9 Go back to the original again and boot it. Let it run till you are asked for your name. PROG.G is now in memory. Follow the above steps to copy the last program. The end of the program should be at \$81B3. Use PROG.G for the file name in step 7.

That should do it. The copy should be completely unlocked.

I found an error in a softkey that I sent to you back in COMPUTIST #53, page 30 for

Microzine. It says "Then on track \$09, change the HELLO program..." It should read "Then on track \$01, sector \$09, change the HELLO program..." I am sure that most folks figured this out for themselves. Thanks for a great mag. I have learned more in the last year thru your magazine than in the previous 6 years I have worked with micros. I am largely self taught and your publication has been great.

Lenny Nole

② I recently became a new subscriber to your magazine, and like other newcomers, I'm having trouble catching on to everything I read, but I will persevere. I have some questions.

1. Is there a way that I can print the doc's on the disk?
2. Is there a softkey for MasterType's Writer by Scarborough Systems?
3. How can I get my girlfriend more interested in computing?
4. Can someone help me get started on Ultima III? I don't want to know the whole game, just an editor for adding enough gold to heal my characters and maybe a couple of starter hints. Thank you for a Great Magazine!

1. There is an option to print the DOC files on the Starter Kit menu (v2.0). If you have an earlier version, use a word processing program to read the files. Clean up the text before printing. You could also send \$2 and get the latest version of the Starter Kit disk. 2. Not at present but perhaps someone could make one. 3. I think I'll leave this one for the readers or maybe Dear Abby. 4. Jim S. Hart wrote a Dungeon & Encounter Editor for Ultima III (COMPUTIST #48, bug in COMPUTIST #52) that's just what you need.

I'm real interested in how you readers are going to answer question #3.

..... RDEXed

Robert W Brown

Softkey for...

Rampage

Activision

■ Requirements

- DOS 3.3 System disk
- COPYA
- Sector editor

1 Boot your DOS 3.3 system disk.

2 Tell DOS to ignore checksum and epilog errors and use COPYA to copy the disk.

POKE 47426,24

RUN COPYA

3 Make the following sector edits to the copy you just made.

Trk	Sct	Byte(s)	From	To
\$00	\$0D	\$41-80	A9 56...	all EA's
		\$81-82	25 FC	A9 FF

That's it.

Never Ending Story is on your Most Wanted list. My disk has no copy protection on it. Keep up the good work. Your magazine is the best part of the month.

S Todd Grant

Softkey for...

Deadline
Enchanter
Sorcerer
Starcross
Zork II
Zork III
Infocom

1 Boot a DOS 3.3 disk.

2 Make some changes to DOS and use COPYA to copy the disk.

CALL -151
B925:18 60
B988:18 60
BE48:18
B8FB:29 00
RUN COPYA

3 Sector edit the copy.

Trk	Sct	Byte(s)	From	To
\$00	\$02	5B	?	AD
		FB-FC	?	29 00

A.P.T. for...

Microwave

Cavalier

To have only one monster, boot Microwave and press **RESET** as soon the title page appears.

CALL -151
8146:00
8100G

to continue game

Playing Tips for...

Bruce Lee

Datasoft

This is how to get some extra falls in Bruce Lee. More than halfway through the game, (IE. a few rooms after the one with three ways you can take in the center) there is a room with a red design shaped like an "8" in the lower right hand corner. Run over this design and you will get an extra fall. Exit this room to the left, then reenter it and get another fall. You can get up to five extra men.

Playing Tips for...

Bard's Tale

Electronic Arts

Playing Tips for...

Wizardry

Sir-Tech

To duplicate gold and items in Bard's Tale:

1 Add character "X" and character "Y".

2 Trade whatever you want to duplicate from "X" to "Y".

3 Remove "Y".

4 Turn the computer off.

This works in Wizardry too, but you have to take "X" into the dungeon before you (RESET) and recover him. It might also work on later Bard's Tale scenarios but I don't know.

Playing Tips for...

Taipan

Avalanche

As soon as possible, borrow 1 from Elder Brother Wu. When you repay him, give him more than you owe. Now Brother Wu is in debt to you, and will owe more and more interest as time passes. Keep giving him as much as you can to speed up the process. Retire a billionaire, a trillionaire, or if you can stand it, a scientific notatonaire!

Playing Tips for...

Wasteland

Electronic Arts

Save that Broken Toaster! This item can be found in the Quartz Graveyard. When any of your characters reach an IQ of 20, go to a library and new skills will be available to you. These skills, Electronics and Toaster Repair,

are not mentioned in the instruction book, and perhaps other skills become available at even higher IQs. Now, if anyone figures out how to actually use Toaster Repair to fix the toaster, let me know

Edgar Lasky

A.P.T. for...

Demons Winter

SSI

Requirements

- Sector Editor
- Backup copy of Disk B (don't use original)

The character data for Demons Winter is on Disk B.

Character #	1	2	3	4	5
Track	16	17	17	17	17
Sector	0F	00	00	0C	0D

00-09	Name
0A	Level
0B	Class
0C	Movement-Speed
0D	Strength
0E	Intelligence
0F	Endurance
10	Skill
11	Hit Points
12	Max Hit Points at this time
13	Spell Points
14	Max Spell Points at this time
17	Health
18-30	Skills (01 for ones you want)
39	Max Hit Points
1A	Movement
1B	Max Spell Points

Gold and food are found on track 17, sector 0B.

0A	Gold-3rd digit
0B	2nd digit
0C	1st digit
0D	Food

John T. Chiao

The November issue of A+ magazine contained an article of interest to all Thexder IIgs game owners. A free upgrade is available (version 2.7) which contains great joystick support as well as a continue mode which will allow you to continue from the last level completed or to continue from the highest level completed rather than force you to start from the beginning. The only drawback is that the disk is copy protected requiring a Key Disk.

To obtain the free upgrade send the original disk along with your name and address to Thexder, 40033 Sierra Way, Oakhurst, CA. 93644. There is no charge for shipping and handling.

Kelly Edmondson

Bug in the Softkey for...

King's Quest I

Sierra On-Line

I just received COMPUTIST #59, Sept. 1988. I tried the softkey for Kings Quest I as it is printed on your magazine, it did not work on my copy. I think there is a misprint in the softkey by Leigh Rowan-Kelly. In the edit, AE is shifted forward by one place. The edit should be:

Block	Byte(s)	From	To
\$A0	\$B7-C1	22 00 00 00 22	22 00 00 00 AF
		00 00 00 AE 00	00 00 00 AE 00
		00	00

My thanks to Leigh Rowan-Kelly and your magazine, I knew it wouldn't take long for Kings Quest I to be broken. Love your magazine and keep up the good work.

Bob Thanski

Softkey for...

Take 1 Deluxe

Baudville

Recently I read in one of the Apple magazines that Baudville has deprotected its in-house software. So I ordered Take 1 Deluxe for my Honors Chemistry classes. When the package from Baudville arrived, I tore it open and removed the Take 1 Deluxe program, it copied easily with Copy II Plus. I then booted the copy and, alas, the drive head made some horrendous grinding noises. It was obvious that copy protection remained on the update.

Scanning my COMPUTIST library, I found Clay Harrell's softkey for the first version of Take 1 in COMPUTIST #25. Was it possible that Baudville did not change its protection? The program had not changed radically in the update.

Using Clay's lucid explanation of how the BNE instruction worked, I used the sector editor from Copy II Plus to scan for the bytes 20 44 DC (JSR \$DC 44). That was the code that began the disk check for the original Take 1. I found four. Two I ignored because they have no CMP code associated with them. It is the CMP with the BNE that causes the program to loop if the proper value is not stored at location \$2D.

The two BNE's that I NOPped were the two Clay had in his softkey. Ay track \$00, sector \$06, I found:

```
20 44 DC JSR DC44
A5 2D LDA 2D
C9 00 CMP #00
D0 F7 BNE 0E0A EA these 2 bytes
```

And at track \$00, sector \$0F:

```
4C 20 44 JMP 4420
D0 A5 2D JML (2DA5)
C9 FF CMP #FF
D0 F7 BNE 0E01 EA these 2 bytes
```

I booted the disk after NOPping the two D0 F7's. The program did not load. I used the sector editor to find A5 2D (LDA 2D). The location that had both a CMP and BNE associated with it. BINGO! It was on Track \$00, Sector \$0B. It's disassembly looks like this.

```
20 44 DC JSR DC44
B0 0B BCS 0ED2
A5 2D LDA 2D
C9 0F CMP #0F
D0 05 BNE 0E02 EA these 2 bytes
```

I replaced the D0 05 with EA EA and booted the disk. The program loaded. The disk was unprotected.

The Fast Way

1 Copy the Take 1 disk with COPY A or Copy II Plus. The address and data marks are normal.

2 Use your sector editor on track \$00, sector \$06 and search for A5 2D C9 00 D0 F7 and replace the D0 F7 with EA EA.

3 Search track \$00, sector #0F for DC A5 2D C9 FF D0 F7. Replace the D0 05 with EA EA.

4 Search track \$00, sector \$0B for A5 2D C9 0F D0 05. Replace the D0 05 with EA EA.

Boot your deprotected disk and enjoy the program.

I have used this program with my Honors Chemistry students and they have produced some rather good movies. It helps to have the graphics disks which contain the "actors and various actions". I used Science Shape Library #2 and the Business Animation Library #3.

I know it takes time to explain how a disk is deprotected. If you who contribute your softkeys, can explain what you do, it helps people like me to follow the logic and risk some efforts of our own. I have learned a great deal about Apple computers and how to check for protection schemes from the many contributors to COMPUTIST.

☹ I have tried the Softkey in COMPUTIST #60 by Doodlebug for Crossword Magic 4.0, the controller only reads track \$00 through sector \$0F and then gives a DRIVE ERROR when it stops. Help!

All of you at COMPUTIST do a great job. Thanks for what you do to make it easier and better for us to deprotect our programs. Your magazine is the only one I read from cover to cover. Keep up the good work!

I Remember, it's all of you who send info to RDEX that deserve the kudos. My part is to edit the info into a standard format for easy readability. You writers do the real work. My thanks to all of you who take the time to write. . . . RDEXed

SOLO 7

Softkey for...

BC's Quest for Tires

Sierra On-Line

The softkey listed in COMPUTIST #25 is a long one and you must hit **RESET** to drop into Applesoft while booting (not an easy thing to do with this program). This program has a top score list so that after a game is done you can list your name and score on the disk (I hate to use this feature with my original disk). The problem I had on all my copies is that after a game is done the program would bomb into the monitor. I then followed the softkey for all Sierra On-Line software in Book of Softkeys Vol. II pg. 110. This softkey works just fine and lets me enter my top scores with out bombing after a game, this method is also a lot faster.

- 1 COPYA the original disk.
- 2 Use a sector editor with a disk search function (I used Copy II plus 7.1) to look for CE 03. I found the code on track \$06, sector \$06 on my disk. Change the CE 03 to 60 AD and write the sector back to disk.

Trk	Sct	Byte(s)	From	To
\$06	\$06	\$00	CE 03	60 AD

Mike Luker

You began offering a starter kit to your subscribers after I renewed my subscription last year. I just recently renewed and expected to receive the starter kit. Am I wrong, or didn't you say that each subscriber would get a starter kit free when they subscribed?

I For those of you who missed the editorial in COMPUTIST #57. 1. New subscribers receive the starter kit automatically. 2. Subscribers may request the starter kit when they renew (if they have never received it) and it will be sent at no charge. 3. Subscribers not near renewal, who don't want to wait, can send \$2 and we will send them a Starter Kit. Like the saying goes, "It's easy once you know how". RDEXed

J K Davidson

Can someone give us some help with Infocom? Copy II Plus no longer has Infocom or Zorks listed. IOB yield's "Disk Error" etc.

I Well, we'll see what the readers say. Perhaps you could be more specific. What Infocom program or which of the Zorks is troubling you?

RDEXed

Greg Poulos

Modify all Infocom games for lower-case.

Many years ago, there was a file floating around that explained how to modify Infocom games to produce lower case characters during game play. The procedure outlined in that file worked beautifully on Infocom's first releases. But, alas, times changed and Infocom moved things around on the disk. In the newer versions of their games, you are able to select 40 or 80 column output. Anyone who has tried the well-known old techniques to get lower case has probably come up with zero success.

Well, I did some searching and found that although the location of the code may have jumped around a bit, the code that changes the output is the exact same on all Infocom games. The reason Infocom makes all the 40 column output in upper case, is because they think there are still people that have no lower case chip in their Apple. Somebody ought to tell them that 99% of Apple-owners have lower case.

There are three chunks of code that must be altered to create a nice-looking lower case output.

The first routine prints the ever-familiar inverse bar at the top of the screen. This contains your location and either your score, number-of-moves or the time. This routine must be altered to not print in inverse, for as we all now, inverse lower case characters don't agree with the Apple, although in 80 columns you get inverse/lower case. The only thing you lose if you decide to make the modification is the pretty inverse bar (even in 80 columns).

The next routine is a big one. This is the routine that actually converts all the characters to upper case. It is eleven bytes long (decimal) and will have to be completely NOPed out with eleven EA's.

The final routine determines the size of the window at the top of the screen for the text to scroll under. This is currently one line (the

inverse bar). For easier readability, you'll want to change this to two lines, so there's a blank line in between the location description, score, etc., and the actual game text itself.

So with all the explanation out of the way, let's get to work. You must first have a cracked copy of the game (obviously). Nowadays, Infocom only protects their two-sided, 128K games like Trinity, but in case you have an old Zork or something, deprotect it first. (See Book of Softkey Vol.I).

Run a sector editor (like the one in Copy II Plus) that has search capability. Insert your Infocom disk.

The "Inverse" Routine: Search for A9 3F 85 32 A9 10 (somewhere on the first two or three tracks, probably), and change the 3F to FF.

The "Window" Routine: Search for A9 01 85 22 85 E0 and change the 01 to 02. Note: 02 is recommended. You may change this to a higher number to get a wider gap.

The "Upper Case" Routine: Search for C9 60 90 0B C9 80 B0 07. Once these are found, put the cursor on the first byte (the first C9) and enter eleven (11) EA's. In otherwords, EA EA EA EA EA EA EA EA EA EA.

Note: If you cannot find the "Window" routine, search for A9 01 85 22 instead.

That's all there is to it. Something you might try doing is allowing the inverse bar in 80 columns, but making it normal in 40 columns. I haven't been able to do this as of yet.

Aapo Puskala

80 columns for Infocom games

Everyone, who has a monitor and an Apple IIe with a 80-column card or an Apple IIc probably hates playing Infocom text adventures with only 40 columns. It appears that older games don't recognize 80 columns, but newer ones do. If you own both old and new games, you can play the older game with 80 columns.

Boot with a game that supports 80 columns, and when asked for 80 columns, swap the disks with the older game. Press 'Y' and start playing!

"Do I have to do that every time I want to play an adventure that doesn't support 80 columns?", you ask. No, you don't. All you have to do is copy the DOS from an Infocom disk that supports 80 columns to a disk that doesn't. That can be done with almost any copier; Just copy tracks \$00, \$01 and \$02 over the corresponding tracks of the older game and you're finished!

Warning! Do not destroy the DOS from the original disk! Use a backup copy.

Note: \$VERIFY says that the disk is damaged, but I haven't noticed any problems.

Jeff Hurlburt

The PRODUCT MONITOR

Ratings

- ☆☆☆☆☆ SUPERB
- ☆☆☆☆ EXCELLENT
- ☆☆☆ VERY GOOD
- ☆☆ GOOD
- ☆ FAIR
- ☹ POOR
- ☹☹ BAD
- ☹☹☹ DEFECTIVE

Jigsaw

\$39.95
Britannica

☆☆☆

■ **Requires:**

- 512K Apple IIgs
- one 3½" drive

On a rainy afternoon nothing hits the spot like a good jigsaw puzzle, especially when it's in full-color super-res. Britannica's "Jigsaw" comes in two boxes, like pieces of a puzzle, shrunk-wrapped into a single package. From the "Program" box comes fold-out directions and the program diskette; the "Image" box packs a diskette of twenty-four standard (unpacked, type \$C1) pictures ranging from easy "Alphabet" through fantasy castles, NASA photos, and works of art. Additional "Image" packs are planned; and, of course, any favorites from your own pic collection are candidates. (In fact, Britannica is offering \$100 for any user-submitted pictures it accepts for publication.)

Once a screen is loaded from any on-line drive the program waits for a click and then scrambles the picture into equally-sized square pieces and starts a timer. Depending upon difficulty setting, you can take on an easy eight or fifteen-piece challenge (just right for young

children) or the rougher forty or sixty-four-piece formats.

Since all of the picture is always on the screen, you 'move' pieces by exchanging. Thus, clicking on piece X and then on piece Y moves X to Y's position and Y to X's position. A sound cue ("Ole!") signals correct placement—very helpful, since a piece must not only fit with its neighbors, but also be at the correct screen location. Both "% Complete" and "Elapsed Time" are displayed above the picture; and you may at any time call up the target picture for comparison, at the price of a time penalty for each look.

"Jigsaw" maintains the best five times for each format (e.g. eight pieces, fifteen pieces, etc.) NOT for each picture, the way it should. Still, for the dedicated jigsaw fan, completing the puzzle is 'the thing'. Clever, yet simple, "Jigsaw" is like having an endless stack of colorful challenges; and you don't even have to turn over the pieces to start!

Tetris

includes II+, IIe, IIgs diskettes

\$39.95
Spectrum Holobyte

☆☆☆

■ **Requires:**

- 48K II+, 128K IIe, or 512 K IIgs
- one 5¼" or 3½" drive
- joystick optional (II+, IIe versions)

As any three year-old will tell you, there's just no end to the neat things one can do with blocks. Spectrum's "Tetris" employs just four character-sized squares to generate pieces in seven different shapes (e.g. a "T", a square, left and right "L's, etc.); and then delivers a fast-paced test of coordination and sense of spatial relations.

Originally from the U.S.S.R. and, thus, dubbed "The Soviet Challenge", "Tetris" is a new wrinkle in the old fitting-stuff-together problem. This time the 'stuff' (randomly generated shapes) drifts down, one piece at a time, into a 10-square wide X 20-square deep pit. When a piece lands, on the bottom or atop another piece, it glues into place and another starts to drop. Your problem is to control lateral movement and rotation to form complete rows of blocks. (For instance, a single "I" piece dropping into place lengthwise could finish four complete rows.) Flipping or slowing a falling piece is not allowed; but, once a piece is 'lined up' the way you want it, you can force an immediate drop.

Completed rows disappear (anything above

moves down); so you have more room in the pit for new pieces. On the other hand, for every so many rows zapped, drop time decreases (from a leisurely thirteen seconds at Level 0 to one second at Level 9). Eventually, despite your best efforts, a stack of pieces reaches the top of the pit preventing further drops and play ends.

"Tetris" awards points for each piece that lands, depending upon drop time, with a bonus for each row of blocks removed. To spur competition, all versions maintain a "Top Ten Comrades" high scores roster on diskette; and on the IIgs you can set up multi-player tournaments. In the the latter, a settable time limit option is available; and up to four "comrades" face the same difficulty level and sequence of pieces.

Set against nicely drawn Russian landscape, sports, and space backdrops, "Tetris" is an attractive package, which, in a curious way, also manages to be instructive. No doubt, the game would be an excellent sharpening-up exercise for fighter pilots, great for developing arcade responses, and very good for helping children with orientation difficulties. Notable weaknesses are keyboard-only controls on the IIgs, no music in the II+/IIe versions, and a somewhat flaccid IIgs folk music score. Yes, Comrade, there IS room for improvement; but don't let this keep you from tackling a novel, highly entertaining challenge.

Mouse Cleaner 360

\$16.95
Ergotron

☆☆☆

The first time a friend brought over Ergotron's "Mouse Cleaner 360" and suggested that our mouse needed cleaning, I was skeptical. After all, how dirty could little Herman get in just a few months of running around on a nice clean mousepad? Turning the retainer ring and removing the ball only seemed to confirm my suspicions: here was yet another excursion into frillsville. Apart from a mote of dust, even the rubber treads on the three metal wheels seemed free of contamination. "Ahem," Mr. Clean informed me, "the IIgs mouse doesn't have RUBBER TREADS on its sensor wheels." The 'treads', as a bit of fingernail scraping revealed, were an accumulation of gunk and lint!

It's surprising just how easily one can become accustomed to steadily degraded mouse response. Slightly out-of-round sensor wheels making marginally mushy contact do not produce the kind of precipitous control problem that screams for attention; yet, the contrast,

once the little bugger is cleaned, is startling. No, "Mouse Cleaner 360" will not vanquish a year's accumulation of gunk. For a 'tread class' cleaning job you must resort to, at least, some laborious scraping and wiping. What Ergotron's magical system will do is keep a clean mouse clean, free of gunk, and responsive.

"Mouse Cleaner 360" 'works', not just because it really removes dirt, oils, and lint, but also because it is easy to use. You simply squirt a few drops of cleaner onto the "360" velcro ball, pop it into the mouse, and move it around (in a circular motion) on the cleaning track. Using a small chamois, you then wipe the inside to finish up. (Since the alcohol cleaning solution could damage the rubber sensor ball, you clean it using your own gentle detergent solution.) Supplied in a handy plastic case, the kit includes two velcro balls (1" for IIGs and 7/8" for smaller mice), cleaning track, chamois, a bottle of cleaning solution, and a pair of stick-on velcro fasteners, in case you want to mount the cleaning track on a convenient surface. A frill? Not hardly! If you own a mouse, Ergotron's "Mouse Cleaner 360" is a necessity.

Turbo Mouse ADB 3.0

For Apple IIGs, Mac SE, Mac II
\$169.95 Kensington



Just a few years ago someone said: "Golly, if I turn this trackball over and roll it on a pad, I can translate hand pointing and drawing motions into usable computer inputs!" Now, proving with a vengeance that "what goes around comes around", Kensington proclaims that it has "turned mouse technology upside-down" to deliver touch-and-point convenience and reclaim precious space from rampant rodents.

Rendered in Apple platinum, the new "Turbo Mouse ADB" boasts a mere 4.5" X 5" footprint, twin click-action switches placed on either side of the easy-rolling 2" ball, and the kind of elegant lines that make it 'at home' on your desktop or the console of the starship Enterprise II. Better yet, the drop-in/tump-out control ball and flush-mounted switch plates guarantee easy cleaning, for continued good looks and reliable operation.

"Turbo Mouse" comes with a standard male/male ADB chord and two sockets to let you place the unit anywhere in the computer-keyboard-mouse Desktop Bus chain. Kensington also supplies a handy stick-on pocket for comfortable "retirement" of your

"old" mouse; but it can retain its place at the end of the ADB chain (e.g. plugged into "Turbo Mouse") where it remains fully functional.

Removing the four bottom screws reveals the optical encoders—"Turbo Mouse" senses movement by counting lines on right-angle mounted wheels— and, among other components, a General Instruments PIC 1670 microcomputer IC! Thanks to its brain, "Turbo Mouse" can detect small, quick control ball movements and, changing resolution on-the-fly, propel the on-screen cursor for easy access to any portion of a display. Other built-in smarts include both standard and locking (click-on/click-off) mouse 'buttons'— very nice for running through long menus— and a "chording" feature (both buttons pressed) to output a selected Command key. You set the latter (to CMD-N, CMD-O, etc.) and left or right placement of the locking button via slide switches accessed through a back panel. On a Mac, "Turbo Mouse" can also respond to Kensington's "Custom Control Software" utility, for tailoring cursor and double-click speeds.

Just how much time Herman will actually spend snuggled up in your mouse pocket depends upon how you use your computer. Though "Turbo Mouse" resolution is very good, for tasks like free-hand drawing, the ability to perform precise cursor moves is less important than movement 'naturalness'. Working with a standard mouse comes much closer to holding a pencil than does rolling a ball. Otherwise, "Turbo Mouse" compactness, freedom from the need for constant pickup-and-move repositioning, and an end to the bother of mouse cable kinking all emerge as very attractive advantages. When it comes to hopping around a word processor document, moving pieces on a chessboard screen, or clicking choices in an adventure game, "Turbo Mouse" is the clear winner.

NOTE: After shipping the first few batches of its IIGs, Apple made some changes to the ADB controller, but failed to notify developers, or anyone else, of the full extent of the modifications. Kensington tested "Turbo Mouse ADB" on Mac's and newer IIGs's. (If you got your IIGs this Christmas, don't worry.) Only when complaints started coming in was it discovered that, on IIGs models with the older ADB controller, "Turbo Mouse ADB" will not perform correctly. Symptoms include absence of speed sensing, failure of the "chording" function to send a complete KB instruction, no response to IIGs mouse speed settings, and unequal left-right vs. right-left response. According to Kensington's product manager, a fix for 'old IIGs' owners (and prospective owners) of "Turbo Mouse" should be ready soon. Expect a report in the next issue or so.

Strip Poker II

\$34.95

Artworx



Requires:

- 512K Apple IIGs
- one 3 1/2" drive

If, as an old Madison Avenue adage puts it, "Sex sells", then strip poker is a 'natural' for IIGs super-res. In the Artworx version, you get two opponents, Suzi and Melissa, who, to quote the box blurb: "are willing and able to bet it all for the chance to beat the pants off you." "All", of course, is every last stitch, reached in several progressively more revealing frames, each showing Suzi or Melissa in a different pose.

The game is standard five-card poker with your opponent shown in the upper two thirds of the screen. Her comments (e.g. "How did you talk me into this?", etc.), your cards, and clickable play options appear near the bottom. Bets and raises range from \$5-\$25 with each article of clothing (hers or yours) valued at \$100. The program takes care of all record-keeping, player balances, undressing, and redressing (should a player win back a piece of clothing). Naturally, when you or your opponent are out of clothes, you're out of luck, and the game ends.

Featuring digitized 320-mode graphics and a few special-situation digitized voice tracks (e.g. "It's showtime!"), "Strip Poker II" probably rates a mild "R" for content and "easy" for difficulty. Still, while neither Suzi nor Melissa plays especially strong poker, they do play differently. Bet carelessly and either CAN beat you, especially should you let yourself become distracted (by something or other).

FAST FRAMES, UPDATES, ETC.

Revenge of Chessmaster?

As fate would have it, just after sending in my "Sargon V"/Mac review (and complaining about the dearth of IIGs chess software), Baywoof the Board Basher brought over a pre-release version of Software Country's "Chessmaster 2500"/IIGs. Could this be the long-awaited 'blow for the forces of Good'? (Stay tuned for a review as soon as S.C. ships the finished product.)

More Four

For 1-4 players, Accolade's new mini-golf simulation (\$34.95 for 512K IIs) is the sort of game you keep on the 'front burner', ready for parties or any time visitors want to "play something on the computer". With an option for individual hole practice, "Mini-Putt" offers "Classic" and "Deluxe" plus two more nine-hole super-res courses positively packed with hazards. Most of the display is a top-down view of your ball and immediate surroundings; but just moving the mouse shifts screens for easy walk-through of all or part of any hole. Smaller inserts present a hole map, the "Mean-18"-type Power/Accuracy shooting gauge, and an animated golfer figure. Though arrows, rather than artwork, indicate location and direction of slopes, the rotating windmills, mazes, 'river' water traps, narrow bridges, castles, and much more are all here in colorful detail together with realistic ball action and sound effects. Count on a solid challenge (like, would you believe 19 on a par 3?) and many hours of lively competition. (Also, you can bet your best golf shoes, a "Famous Mini-Putt Courses" volume is in the works.)

Bonk!!

A nice side-effect of programmer experimentation with a new machine is the plethora of high-quality shareware. One such product is J. Tierney's "Bounce-It!", a super-res mouse-driven IIs version of dear old "Brick Out" complete with sound effects. For a modest \$10 'keeper fee', you get an on-diskette "Hall of Fame" (top eight scores) roster, player-settable speed and paddle size, and nine levels of stiff competition. As one player commented (just after starting his twentieth contest): "It's a good thing this game isn't addictive."

Vendors

ACCOLADE: 20813 Stevens Creek Blvd., Cupertino, CA 95014 (408-446-5757)
ARTWORX SOFTWARE: 1844 Penfield Road, Penfield, NY 14526 (716-385-6120)
BRITANNICA SOFTWARE: 345 Fourth Street, San Francisco, CA 94107 (415-546-1866)
ERGOTRON: 1621 E. 79th St., Minneapolis, MN 55420 (612-452-8135)
J.R. TIERNEY: P.O. Box 1303, Ridgewood, NJ 07451
KENSINGTON MICROWARE: 251 Park Avenue South, New York, NY 10010 (800-535-4242, in NY call 212-475-5200)
SPECTRUM-HOLOBYTE: 2061 Challenger Dr., Alameda, CA (415-522-3584)

C. E. Garrett

☹ I recieved my starter kit today and almost immediately ran into a snag. I was following the instructions for making a back-up copy using Super IOB. I had the starter kit disc in a 5 1/4" drive installed as Slot #6, drive #1. I wished to copy to a 3 1/2" disk installed as Slot #5, drive #1. When I pressed a key to commence formatting the target disk, I received the "Initialization Error" alert on my monitor screen. I subsequently was able to make a back up disk by using only the 5 1/4" drive. Is it not possible to copy from one size disk to another size using this program?

📧 *Sorry, no can do. Super IOB is a whole disk copier. Also, it's a bad idea to copy from one size disk to another. In one direction, it won't fit and in the other, it puts a straight-jacket on the larger medium since the format and file data are copied intact. The file formats (DOS 3.3) and valid track/sectors are different for 5 1/4" and 3 1/2" disks. Use a file copier to copy from a 5 1/4" disk to a 3 1/2" disk. RDEXed*

Harry M. Randel

Back in May of this year I dropped you a line requesting help regarding the Einstein Compiler. I was desperate, because it affected my method of teaching elementary school computer courses and I had two (2) original Einstein disks — both damaged.

Since then I have received help from several COMPUTIST readers, including one anonymous letter with disk. The letter reads, *Harry. Hope the enclosed disk is helpful. Would have signed this letter, but believe in the old adage that "No good deed ever goes unpunished"! Sincerely yours,*

Thanks for creating and supporting so "wonderful a family" and for their help. My efforts in elementary education are proceeding as planned - programs are compiled - and the students have to work to create the programs, rather than just LIST and copy.

📧 *Your sort of problems and the solutions for them are a big part of what the Readers Data Exchange is all about. Thanks for writing and letting us know how things came out.*

..... RDEXed

Mark Ruskin

I'm writing with a tidbit I've found that has to do with the Publish It program from Timeworks. The manual says you can import graphics from other graphics programs such as

Dazzle Draw. In trying to import graphics from Paint 8/16 I had trouble even listing my Paint 8/16 files. I found that the end file type for the graphics with Publish It in hires is \$2000. In double hires it's \$4000. My Paint 8/16 graphics had an end file type in hires of \$1FF8. In double hires it's \$3FF8. The difference in either programs graphics is not much but I found that a difference of one digit in either mode will stop Publish It from accessing the file.

To fix it isn't hard but it is a pain. All I did was BLOAD the file from Paint 8/16 and then BSAVE (file name), A\$2000,L\$4000. After doing this I could use my own graphic creations from Paint 8/16. For some reason Publish It will only access files with exact file lengths of \$2000 or \$4000 in the two hires modes.

Joseph P. Karwoski

I find this magazine is the best I have. I always go to back issues to learn another trick. Keep up the great work!

There is a typo in the softkey for Springboard Publisher (COMPUTIST #60, page 10). The explanation is excellent, but the search key/sector edit is incorrect. The key is shown as A2 06 AD 3E but it should be A2 06 A0 3E.

Softkey for...

Operation Frog

Scholastic

Requirements

- Apple IIe,IIs
- Copy II Plus
- COPYA
- 2 blank disks

1 Boot your DOS 3.3 system disk and use COPYA to copy the original to the first blank disk.

RUN COPYA

☐

70

CALL-151

B925:18 60

B988:18 60

☐

RUN

Note: This will encounter an error and then stop, don't worry, you are half-way home.

2 Format the second disk using "HELLO" as the hello program, and then delete "HELLO".

3 Copy all the files from the first disk to this new disk (I use Copy II Plus, File Copy).

Note: When you catalog the two disks you will find that the blocks are not the same. I found this to be true for the last 3 files on the disk, this is where the error occurred.

4 Using Copy II Plus in Patched DOS 3.3, I found where these files are located track \$19-1D. Sector copy these tracks to your disk, the disk with the larger blocks in the catalog.

5 Re-do step #1 using the disk you just copied "to".

Note: You will not get an error this time.

6 Re-do step #2.

7 Copy all the files to this new disk.

You now have a copyable copy!

By the way, the intro screen is named "PICTR.SCHOLASTIC3". You may change it by creating another screen (High Res) and saving it with this name. My screen now tells me that this is a back-up copy and that it is illegal to make another copy.

I This is a real weird softkey. Would someone explain what is going on?

..... RDEXed

Robert F. Smith

P I've tried deprotecting an early edition of "Where in the World is Carmen Sandiego" using the softkey by Ronald Wilson (COMPUTIST #25, pg 25) and the IIGs CDA, "Visit Monitor" (COMPUTIST #56, pg 7, "Apple IIGs Secret Weapon", Castano de la Serna). I very carefully checked and rechecked any codes I entered but the routine did not work. BRUNning the file "Carmen Sandiego" resulted in a blank screen with two multicolored lines (Graphics?) near the top and a locked-up keyboard. Any suggestions? Combining the two routines seems like a natural. The F8 ROM's command is replaced by "2000<0000. 07FFM" and the "M" command by **[C] [ESC]** to get to the Monitor via the desk accessory. Any help would be appreciated.

Rob Fiduccia

Playing Tips for...

Deathlord

ECA

This game has everything you want and some things you'll wish that they didn't put in. This game is very large in all ways. I'm very glad to say that I won the game, and let me tell you, it was harder then any game I've played. If you have the game, you know how hard it is to start, just imagine winning.

Map of Deathlord

Note: The numbers and letters are land. The squares (lines) are where the disk drive runs. Kodan is island #3. Hell Island (where Deathlord lives) is letter "G". For the rest of the islands, you can see what is on them. Letters "E" and "F" are uninhabited. If you enter a square, and cast the spell "Konpasu" and it says BELOW, that means that there is land in that square, so sail round in the square (don't exit it) and you will soon find land. Identical numbers indicate that the disk runs but it is the same continent.

		1								
								G		
						2				
	D									C
				3	3					
				3			9			
	4									
									F	
						5				
										B
		A						6		
								6		
						E				
				7	7					
										8

Special items list

Here is a list of the 6 items you need and where to find them. The order of the list is: *Item, Location (continent): notes.*

• **Sunspear, 1:** Two Rivers is the town where you can get it, Senju has it but you need to give him one Blue Crystal.

• **Lantern, West 7:** You can get this item in the ruins Greenbanks. It is in one of the graves. Search.

• **Sharktooth, A:** You find this in the volcano that once was a town. It is hidden in the dark in a tomb, To the south-east of town.

• **Emerald Rod, 5:** In the Palace of Sultans, enter from the west end, and search the south wall right after the guards post.

• **Ruby Ring, C:** If you enter the castle, go south after you find the King, keep looking until you find a golem guarding a magic curtain. Cast the spell "UGOKU" and if you are lucky, you will end up on the other side. If this is so, don't attack him.

• **Blue Crystal, A:** Find the hut to the north of this island. Enter from the east end. Go a little in until you find a hut to the south, enter and keep going south, through the fake stone and then search the bushes.

Complete giveaways

• The Sharktooth will make island "G" appear. If you go there without it, the island will not be there.

• The Sunspear is the only weapon which can hurt Deathlord, spells have no effect.

• The Blue Crystal can be used to pass through Rakhmon's curtain. If you don't have it, you can't pass through.

• The Lantern is the only item that will give you light on the plane of darkness in Deathlord's underground castle. Light spells just fizz. If you don't have this, you won't get very far.

• The Ruby Ring will let you pass through fire without getting burned. It is needed on the plain of fire in Deathlord's castle. There is plenty of fire to kill you if you don't have it.

• The Emerald Rod will let you pass through acid without getting hurt. It is needed on the plain of acid in Deathlord's castle.

• Here are 5 of the 7 words, YOKUSEI, NIKUMU, SIEYOKU, FUSHIN, OSORERU. I'm sorry if you have some.

• When you find a gate in Deathlord's castle that will not open by smashing, I say you yell out one of the words

• There is a dungeon behind the castle on island "C". It looks like normal mountains. There is a square of trees in front of it. Get on it and type "EM".

• If you were wondering, when your character's age is 40-60, his/her attributes starts to lessen, it isn't very important. I thought you may like to know that because the manual doesn't mention it.

• After you kill Deathlord with the Sunspear, make sure you get the mystic item he has, and DON'T DROP it.

• If you entered a town and have gotten an item, then exit the town, dungeon, castle etc. It saves what you did. So if you exit with the Ruby Ring, it will not be there again because it is saved to the disk that you have it. Now make another disk, both side A and side B that have never been played on. If you insert the disk before you enter a town, dungeon etc. it will be like new. Now before you exit, TAKE IT OUT and put the original in, so it doesn't save your actions and you'll have a fresh copy all the time. So never exit a town, dungeon etc. with the copy disk and you'll never have to worry if you drop the Ruby Ring, just go back and get it.

• To be very safe about death, when you're in a dungeon (this also goes for castles, towns, and that kind of place) or a new place or a difficult one, save. Now takeout the disk. Now if you get killed for any reason, it will not be saved to the disk for it isn't in the drive. If you get killed without warning, you'll be placed where the game was last saved. I find this better then turning the power off quickly, and don't worry, your drive will not get hurt if there is no disk in it.

A.P.T. for...

Deathlord

ECA

Requirements

- Character playing disk
- COMPUTIST Starter Kit (you need DOS ALTERER and DISKEDIT)

Deathlord is a very tough game (even if you cheat) as you will see. The steps I give explain how to do the APT in the simplest and fastest way.

Part 1

1 Boot the Starter Kit disk and RUN "DOS ALTERER". The scenario disks have abnormal address and data marks so DOS must be changed to read and write to them.

2 Choose #1 from the menu. Change the address field to D5 AA D6 instead of D5 AA 96 and also change DE AA to DE B7 and press return.

3 Choose #2 from the menu. Change D5 AA AD to D5 AE AD and change DE AA to EA AA and press return.

4 Choose #8 from the menu. Name the text file "DL". Insert your save disk and press return to save it.

Part 2

1 Boot the Starter Kit disk and "LOAD" DISKEDIT into memory by typing "2D" **RETURN**.

2 Insert your save disk and type "EXEC DL".

3 Then type "3D0G" to exit the monitor.

4 Type "RUN".

Now you can read the scenario disk, but you must do all of part 2 every time you wish to edit your characters. If you want, you can make a program that does it all, just remember to have DISKEDIT on the disk.

Note: Before you make any changes, your party must disperse. So if you're in a dungeon, and need hit points, you must quit. Boot the main disk, go to CHARACTER OPTIONS and choose "Disperse Existing Group". Then after you make your changes and play, you'll be outside the town Kawa on the island Kodan, not the last saved place.

Character Attribute Notes

- All values are in hex. (IE. 255 decimal = FF hex, 99 decimal = 63 hex.) If you're not into hex numbers, just use FF and 63, they're the best.
- Your hit points (in hex) take up 2 bytes. The

hi-byte is in the first location shown and the lo-byte is in the second location. (IE. If your first characters hit points were 124 (\$007C), location \$08 would have the value 7C and location \$20 would have the value 00. If his hit points were 576 (\$0240), then location \$20 would have the value 02 and location \$08 would contain the value 40.)

- The highest that hit points can be is \$FFFF, which is 65,535 in decimal. The game will display just zeros, but you do have 65,535 hits points.

- It seems that if you have that much hit points, battle is slower. Also, when you walk through fire, acid, etc., it will be a little slower too. It's not a big problem.

- If your level is higher then 23 then you'll have all the spells. If your level is 99 (\$63 hex) then your spells will last longer and do more damage. Higher levels than that don't seem to make much difference.

- All single byte values can be from \$00-\$FF. I suggest you use \$63 (99 in decimal) for the highest value, or you may get confused.

- Values for Character's health are: \$00 = Healthy, \$02 = Starving, \$40 = Dead, \$04 = Poisoned, \$08 = Diseased, \$C0 = Stoned.

- Character alignments are: \$00 = Good, \$01 = Neutral, \$02 = Evil. So now your Ninja can be in your party. Give him the byte value 00 or 01. You can mix any alignment now, just change them all to 00 or 01, not 02 or you won't be able to do some things and your quest will be harder.

- The values for sex are \$00 for male and \$01 for female. Sex seems to have no real purpose in the game.

Attribute	Character ±						
	1	2	3	4	5	6	set
Hit Points	20/08	21/09	22/0A	23/0B	24/0C	25/0D	05
Level	98	99	9A	9B	9C	9D	05
Strength	C8	C9	CA	CB	CC	CD	05
Constitution	E0	E1	E2	E3	E4	E5	05
Size	F8	F9	FA	FB	FC	FD	05
Intelligence	10	11	12	13	14	15	04
Dexterity	28	29	2A	2B	2C	2D	04
Charisma	40	41	42	43	44	45	04
Power	58	59	5A	5B	5C	5D	04
Health	D8	D9	DA	DB	DC	DD	06
Food	48	49	4A	4B	4C	4D	03
Age	30	31	32	33	34	35	03
Alignment	18	19	1A	1B	1C	1D	03
Sex	00	01	02	03	04	05	03

I left out gold, weapons, armor and magic items. I will let you know this; gold will soon become a pain because you'll have so much and nothing to do with it. Weapons, armor and items, you'll pick up fast too.

I hope this APT helps. If you are a beginner and it seems just to hard to do, remember to take it very slow and read everything twice. So go ahead... find Deathlord and let him have it.

Playing Tips for...

Ultima V

Origin

Ultima V, the fifth sequel to the Ultima series, is the biggest and surely the best of all, I think. Lord British has disappeared on an expedition to the newly discovered Underworld which is equal to Britannia. You must find Lord British and return his lost belongings. These tips will help you on your journey.

- The password for the Resistance side is "DAWN"
- The password for the Oppression side is "IMPERA"
- To destroy the Shards and Shadowlords go to the flames and yell the Shadowlord's name and when he is on the flame, use the shard.

Shards principle	Shadowlord	Flame location
Falsehood	FAULINEI	The Lycaeum
Cowardice	NOSFENTOR	Serpent's Hold
Hatred	ASTAFOTH	Empath Abbey

- When you are walking on Britannia, try flipping the disk and when it spins again, the Underworld will be in the direction you are walking. You can get items (hint) and return to Britannia anytime by flipping back the disk, but when you are attacked or Hold up Camp, you must flip to Britannia. It works the exact opposite when in the Underworld. *Note: Doing this could mess up your disk, so use a backup.*

- To get Lord British's magic carpet go to the forth level in this kingdom, get a cannon and blast the guard and the door to the tower in the middle. Next, you'll see a rug right by the entrance, GET it and use it. If you play around with it, you'll see what it can do.

- Go to Jhelom and go to the north-west tower and ask a wizard named Goeth about the moon gates, but type it like this "SETAG NOOM". One other thing, he knows one Word of Power.

- Ask the Lord of Empath Abbey about his "GRAPPLE".

- Mix ash, silk, mandrake and nightshade and be on level 6 and say "REL XEN BET" while in combat and cast it on a foe and see what happens. Don't cast it on a daemon.

- Lord British's crown is on Blackthorn's roof in the middle tower, it prevents spells from being cast, but be prepared for some combat and have one skull key if you want it.

- Go to Jhelom and exit the secret door in the lower tower to the north-east and walk south until you see a dead tree. Search it!

- Try going to Lord British's chambers and sitting in the chair by the piano and play these keys: 6789878767653 and watch the room.

- Skull Keys can be found in Minoc in the tree north-west of town. 'Search' the tree every other day

Playing Tips for...

Wings of Fury Briderbund

• The best way to disable an island is to be equipped with rockets and fly high over the island to see where things are. When you feel like you're in a good place to attack, dive down and destroy all the barracks. Let all the soldiers flee to the gun dug-outs. Attack one of the dug-outs and circle to shoot the soldiers running. Get them before they get to another gun. Finish off the dugouts this way. There aren't more than three gun dug-outs on an island. This works better than destroying a dug-out and when the soldiers come running out from the barracks having to do it again. You don't have to concern yourself with the soldiers coming out of the barracks as they will all occupy a gun.

• The best way to handle a dog fight with two planes is to circle around in one place and when a plane goes off to the east or west go after him. When you're chasing him, don't move the plane up and down, you'll lose vital speed. Both planes won't go in the same direction. So when one plane breaks off, the other will go the other way or will be still in its loop and you'll have some time to catch the plane that broke off before the other plane gets on your tail.

☐ Does anyone have a program to map out dungeons, castles, towns, for Deathlord?

☐ Can someone tell me what to do in Mindshadow after I get the map and it leads to the rusty trunk and I get the rum?

☐ Does someone have a softkey for the great high-res graphics program Blazing Paddles by Baudville? I don't see it on the most wanted list and would like to add it. I have had no luck with copying it.

I The program was softkeyed in *COMPUTIST* #31, page 23 and in *COMPUTIST* #35, page 4. *RDEXed*

☐ Does anyone have a program to edit Ultima IV towns and even dungeons?

I A land editor/mapper is in *COMPUTIST* #33, page 16 (bug in *COMPUTIST* #37, page 6). A town mapper is in *COMPUTIST* #47, page 10. *RDEXed*

Michele Jackson

Deprotecting with an Altered DOS 3.3 disk

■ Requirements

- 64K Apple Computer
- DOS 3.3 System Master w/COPYA & FID

As a reader of *COMPUTIST* I have picked up many valuable tips from the magazine and from the Book of Softkeys, Volume I. By assembling bits and pieces gleaned from these publications I have put together a disk that helps me deprotect many difficult programs. I have no knowledge of machine language and very little knowledge of how DOS 3.3 and PRODOS do their thing. All of the information below was learned from *COMPUTIST*. I must applaud the magazine for enabling a novice like myself to deprotect many programs that stump other more experienced users in my area.

The altered disk

A handy tool that should be in every disk library is an altered DOS 3.3 disk with commonly used utilities. This disk will assist in deprotecting many DOS 3.3 disks and programs written in PASCAL. To make such a disk use the instructions below.

1 Boot a normal DOS 3.3 disk and make some changes to DOS.

CALL -151
B925:18 60 Ignore end of data marks
B988:18 60 Ignore end of address marks
BE48:18 Ignore errors
B942:18 Disable DOS error checking routine
3D0G Return to BASIC

2 After making these alterations INIT a new disk. The new disk will have the altered DOS.

3 Use Master Create to make this disk a master disk.

4 Copy COPYA and FID to this new disk. I used KEY-CAT by Beagle Brothers as my HELLO program.

I have found this disk to be invaluable in deprotecting many disks that don't respond well to nibble copiers. This disk will COPYA most protected disks allowing the copy to be changed using a sector editor. You can use FID to catalog the protected disk and to copy the programs to a blank disk with a normal DOS.

Here are two softkeys using this disk, Create with Garfield and Rambo, First Blood Part II. Have fun!

Softkey for...

Create with Garfield DLM

This is a cute program that makes cartoons which can be printed. Here's how to deprotect it.

1 Init a DOS 3.3 disk. Make the greeting program name GARFIELD.

INIT GARFIELD

2 Use Master Create (from the DOS 3.3 System disk) to make this disk a master.

3 Boot the altered DOS disk and use FID to copy the programs from the original to the master disk from step 2.

You can add a fast DOS like DiversaDOS to speed things up a little. Have fun making cartoons.

Softkey for...

RAMBO First Blood Part II Mindscape, Inc.

I first tried several nibble copiers on this disk. They all copied it without indication of error but the copies just rebooted continuously. Also, the copies could not be read with the sector editor on Copy II Plus. The altered DOS disk did the trick. By changing the bytes that gave the command to reboot to the command for no operation I was able to make a working copy. Here are the instructions.

1 Boot the altered DOS disk and use COPYA to make a copy of RAMBO.

2 Using a sector editor with search capabilities find 4C 00 C6. They should be on track \$00. Change these bytes to EA EA EA. Play RAMBO.

Clay Harrell

Softkey for...

Stickers **Rainbow Painter** Springboard

■ Requirements

- Any Apple Computer
- A Sector Editor
- COPYA from the DOS 3.3 System Master
- A blank disk

I used Senior PROM v3.0 (hardware) to develop this softkey.

Both Stickers and Rainbow Painter are top quality graphics program for children from the same publisher as "Newsroom". The programs work nicely with icons and a joystick, and are easy to use. Stickers lets kids paint "stickers" of animals in a puzzle fashion. Rainbow Painter is a MacPaint for kids.

Unfortunately, both programs are copy protected and backups can not be easily

produced with a bit copier. Fortunately, both programs use the same copy protection, just implemented slightly different. Since it is not advisable to let any children use an original disk, it must be deprotected to allow backups.

The first step I took in deprotecting these programs was to try copying the disks with COPYA. Of course this didn't work, so I tried defeating the epilogue byte check routines (at \$B925 and \$B988) and copying the disk. This let me copy only the DOS tracks (\$00-02).

Remember, a DOS disk has unique beginning (prologue) and unique ending (epilogue) bytes that tell DOS where each sector starts and ends on a track. If these unique bytes are changed from a normal DOS format, a DOS copier (such as COPYA) can not find the sectors on a track and can not copy the disk (this is a VERY common copy protection scheme). The ending bytes are merely double checks on a sector, as DOS knows how much data it should read for the sector. You can easily copy a disk with modified epilogue bytes by defeating the ending (epilogue) byte check routine in DOS and copying the disk with COPYA. Hence if we put an "18 60" at locations \$B925 and \$B988, this defeats the ending (epilogue) byte checks and we can copy the DOS tracks on Stickers. The Senior PROM has an option to do this automatically, and using its copy program I could easily copy tracks \$00-02.

Unfortunately, the rest of the disk (tracks \$03-22) have modified beginning (prologue) bytes, so we have to actually know what these prologue bytes are to copy the disk to a normal DOS 3.3 format. I used the nibble read option in the Senior PROM to examine track \$03, and determined the address prologue bytes were changed from D5 AA 96 to BB AA 96. Using the Senior PROMS "Alter Prolog Bytes" and the Copy option (Super IOB would also work), I could easily convert tracks \$03-22 to a normal DOS 3.3 format. Except for track \$0A.

A nibble read of track \$0A using the Senior PROM sector editor gave the indication that this track was a nibble count track, or in some other way connected with the copy protection. It was easy to identify this track as copy protection related. First, it was in a different format than all the other tracks, and it was void of any data. This was easy to tell from the hi-res picture the Senior PROM nibble read provided on track \$0A: The hi-res screen was almost completely white. This indicates the track contained mostly \$FF's, which means it was empty. Obviously, there was no data on this track, so there was nothing to copy to our normal DOS copy of Stickers.

After converting the disk to COPYA format, I sector edited track \$00, sector \$03, bytes \$25-26 and bytes \$88-89 to 18 60 on the copy. This is the same thing as described above by putting an 18 60 at locations \$B925 and \$B988, but doing it permanently to DOS. I then

tried to boot the copy. Immediately after loading DOS, both Stickers and Rainbow Painter went to track \$0A to verify its format. If the check failed, memory is cleared and the BASIC prompt appears.

The way to remove this protection is to copy normal DOS 3.3 onto tracks \$00-02 of the copies. It turns out the DOS used by Stickers and Rainbow Painter is identical to normal DOS 3.3 except for the track \$0A disk check routine, and the modified prolog and epilog bytes. Copying normal DOS onto the copy not only defeats the track \$0A check, but also corrects the modified prolog and epilog bytes to a normal DOS format.

The easiest way to copy normal DOS onto the backup copies is to initialize a DOS disk using INIT STICKERS or INIT RAINBOW PAINTER from DOS 3.3, and then convert tracks \$03-09, and \$0B-22 to normal DOS 3.3 format over the initialized disks. This is very easy with the Senior PROM using the "Alter Prolog Bytes" and Copy utilities.

At this point, there is a slight deviation in deprotecting Stickers. The startup program name on the Stickers disk has some control character in it. Because of this, I changed the startup program name on track \$11, sector \$0F, byte \$0E to STICKERS, followed by 16 spaces. Originally it said STICKERS! BY JOE LINHOFF, partially in control characters (that's why the 16 spaces). Since its difficult to type in control characters when INITING the disk, change the startup program name to just STICKERS using a sector editor. Rainbow Painter did not have this protection.

Now the disks will boot, display the title page, and the disk drive will grind and ask for the original disk. Obviously, there is more to deprotecting these programs. Using the Senior PROM, I interrupted the program during the disk grind and viewed the prologue bytes in DOS at location \$B954. The program had changed them to BB AA 96, instead of the normal D5 AA 96.

The next thing I did was to search memory using the Senior PROM for "8D 55 B9", which is a STA \$B955 instruction. This would be the typical instruction to change location \$B955 to the BB AA 96 header. At location \$8161 in Stickers I found this routine:

```

8161 A9 D5   LDA #$D5
8163 A0 ED   LDY #$ED
8165 4C 6F 81 JMP $816F
8168 A9 BB   LDA #$BB
816A A0 DE   LDY #$DE
816C 4C 6F 81 JMP $816F
816F 8D 55 B9 STA $B955
8172 8C 91 B9 STY $B991
8175 60     RTS
    
```

There was also an almost identical routine in Rainbow Painter at location \$9A7A and at \$620E (though they were not both in memory at the same time).

This routine would swap between the D5 AA 96 and BB AA 96 prologue bytes, and between ED AA and DE AA epilogue bytes. It's easy to defeat this protection by putting NOP's (no instructions) at locations \$816F-8174 in Stickers, and at \$9A7A-9A7E and \$620E-6217 in Rainbow Painter. Then the prologue bytes would always be the normal D5 AA 96 and the epilogue bytes DE AA. I used the Senior PROM disk search utility to find this code on the Stickers disk (the same code was found in two places) and put the NOP instructions (the EA's) at track \$1F, sector \$0B, bytes \$73-78, and on track \$1E, sector \$0B, bytes \$92-97. On the Rainbow Painter disk, the NOP's go at track \$07, sector \$0D, bytes \$92-9B, and at track \$07, sector \$04, bytes \$7E-83.

At this point the Rainbow Painter disk would boot fine and ran perfectly. It was completely deprotected.

Something interesting about this routine in Stickers: If you did not specify the correct address (\$8161) to disassemble at in the Monitor (using the "L" command), the code looked like garbage (i.e. "8150L" would make the code at \$8161 look like garbage). This memory protection technique is called "false disassembly", and is meant to make it difficult to find code for a random looker. Since we found the code in a sane, orthodox manner (instead of just trying to stumbling upon it), this protection technique proved worthless.

However, on the Stickers disk the disk drive grinding noises were gone, but the program still asked for the original Stickers disk. Obviously there was some more secondary protection. Returning to the code at \$8161 provided the answer. Some instructions earlier at location \$813F was the actual routine that did the disk check. Here is the code:

```

813F 20 1D 81 JSR $811D
8142 B0 0F   BCS $8153
8144 A0 00   LDY #000
8146 B9 90 0B LDA $0B90,Y
8149 F0 0A   BEQ $8155
814B D9 1B 9B CMP $9B1B,Y
814E D0 03   BNE $8153
8150 C8     INY
8151 D0 F3   BNE $8153
8153 38     SEC
8154 60     RTS
8155 18     CLC
8156 60     RTS
    
```

This routine did the disk check using BB AA 96 as the prologue bytes (JSR \$811D), and if an error occurred, branched to \$8153 which set the carry bit and returned to the calling routine. The carry bit is used as a flag here to signal an error. If it is set, an error occurred; if it was clear all went correctly. At location \$8144, memory at \$B90 is compared to \$9B1B, and if not the same, the carry bit is set and the routine exited.

To defeat this code, change location \$8153 from 38 (set the carry), to 18 (clear the carry). This way the carry bit is always clear no matter if the disk checks, or if memory does not compare. This code was on track \$1F, sector \$0B, byte \$57, and track \$1E, sector \$0B, byte \$25.

This completely removed the copy protection from Stickers.

In cookbook fashion

1 Boot your DOS 3.3 System Master (or a fast DOS like Diversi-DOS) and insert a blank disk in the drive.

INIT STICKERS *for Stickers*
INIT RAINBOW PAINTER *for Rainbow Painter*

2 Insert a DOS 3.3 System Master disk and run COPYA.

RUN COPYA

3 Stop the program at the SLOT prompt.

Ⓢ

4 Enter the monitor and tell COPYA to only copy tracks \$03-22.

CALL-151
2B0:A9 02 8D D1 02 8D D2 02 60
2DC:20 B0 02 A9 FF
2E6:F8
3A1:18
B925:18 60
B988:18 60
3D0G

Note: the \$02 entered above at location \$2B1 is the starting track of \$03 minus one that COPYA will start copying at.

5 Change COPYA to read the Stickers disk and write in normal DOS format.

DEL 10,70
DEL 246,250
197 POKE 47445,187
258 POKE 47445,213
RUN

6 Copy the original Stickers or Rainbow Painter disk to the initialized disk from step 1. *Note: on track \$0A, the drive will grind 32 times (twice for each of the 16 sectors). Ignore this.*

7 Reboot normal DOS. Use your favorite sector editor to make the following changes to the copy.

Stickers

Trk	Sct	Byte(s)	From	To
\$1F	\$0B	\$73	8D 55 B9 8C 91	EA EA EA EA EA
			B9	EA
		\$57	38	18
\$1E	\$0B	92	8D 55 B9 8C 91	

	B9	EA EA EA EA EA
		EA
\$25	38	18
\$11 \$0F \$0E	see note	see note

Note: You also need to change the hello file name on track \$11, sector \$0F, byte \$0E from "STICKERS! BY JOELINHOFF" to "STICKERS" (followed by 16 spaces).

Rainbow Painter

Trk	Sct	Byte(s)	From	To
\$07	\$0D	\$92	A9 DE 8D 91 B9	EA EA EA EA EA
			A9 BB 8D 55 B9	EA EA EA EA EA
\$07	\$04	\$7E	8D 55 B9 8C 91	EA EA EA EA EA
			B9	EA

Don't forget to write the changed sectors out to your now unprotected copy. You're all done!

Peter J. Wall

Output Graphics Grabber and Print Shop files via your word processor

The Managing Editor's contributions to COMPUTIST have impressed me since I first took the magazine (around Super IOB ver. 1.0 days). Graphics Grabber seemed another great utility. Who doesn't need a little block of graphics to dress up a video output now and again? Then I thought, "How nice to be able to output the same graphics block imbedded in the text of my word processor files". A little graph here and there, or maybe a letter head logo? So, I looked at the way the G.G. stored the graphics on file and the way my Epson printer printed in the "bit image mode" and, after a couple of weeks spare time (!) work, devised a combination of a machine code and Applesoft programs that did the job.

I was led then to make the program more general. Mainly because half way through the project I acquired a new Epson #8133 interface card which presented an easy "fix" and it seemed to be cheating to not try for a general solution. Especially as, by that time, I had learned a little about the problem. This #8133 card allows for hex values to be output as their ASCII representation. That is a byte of the value of decimal 11 is output when "\$0B" is encountered after the appropriate control code.

In our day to day business we use half a dozen different brands of printer, so I reasoned I could apply the general solution to suit them (and their specialized interfaces) in one "blow". The problem proved more difficult than I first imagined.

First, I should reiterate (for those like me who forgot soon after reading the manual) how a dot matrix printer works in the bit image mode. Each dot is printed by one of nine "wires" which are vertically aligned. Eight of these wires are "fired" by a "true" bit (logical "1") in a byte sent while in the bit image mode. An equivalent of nine "vertical" bits advance leaves the characters separated by the normal "line separator" blank bit.

A sequence of these bytes taken from a DOS text file, converted from horizontal to vertical format and sent to the printer while keeping the line advance to only 8 bits should give a contiguous representation of the HIRES graphics screen.

My Zardax word processor (like Applesoft) handles text files with the MSB (most significant bit) set and strips it off when sending them to the printer. This allows (for example) \$00 to be stored in a text file on disk (as \$80). If \$00 was stored on the disk directly it would be interpreted as the End Of File (EOF) marker.

For this reason I was forced to print only 7 bits vertically on each horizontal pass. However ctrl-I and ctrl-Q are "snaffled" by the interface card for its own use and therefore never get to the printer. Both these values (\$09 and \$11) have the LSB set. So I reasoned that if I set the LSB (least significant bit) to zero and kept the line advance to 6 "wire" equivalents I could still do the job.

This "more or less" works, except that the first and last bytes in each line are altered. I suspect by the "line feed" "C/R" combination at the line end. At this stage it didn't much matter as I could try fewer vertical bits via my "general" approach to the problem. To cut the long story short it works out that 4 bits deep is the value which works best on my combination of printer and word processor. This is of course without resorting to the #8133 interface code which allows one to activate all 8 of the printer "wires" on each pass.

HTALVERT and ZDGRAF are the programs which resulted from my efforts. These programs together output a Print Shop/Graphics Grabber graphics block to my Epson RX80 printer.

I have made provision for users to substitute their own specialised output routine at LINE 10000 or substitute the #8133 Interface routine starting at 40000. This routine needs the code at 50000 to load a "lookup" table at the end of the program and then "hide" it by setting the program end to a higher value in memory. In future runs the the program checks if this table is installed and jumps past this code if it is. This is all done with a view to make the program run faster, as the table cuts out the need for a great deal of calculation.

The machine code program works by analyzing the sequence of horizontal bytes which make up one line of lit and unlit pixels


```
5080 IF I1 < 10 THEN POKE ND + 12 * 2 + 1 + I1 *
      32, I1 + 48: GOTO 5100
5090 POKE ND + 12 * 2 + 1 + I1 * 32, I1 + 55
5100 NEXT I2: NEXT I1
5110 POKE 175, PEEK (175) + 1: POKE 176, PEEK
      (176) + 2
5120 REM
5130 D1 = PEEK (175) + 256 * PEEK (176) - 512
5140 RETURN
```

```
1110 - $4F8D      5100 - $4E0A
1120 - $8B5A      5110 - $2DBD
1130 - $BDD4      5120 - $B12E
1140 - $EA6E      5130 - $44C9
1150 - $644D      5140 - $0EA8
```

HTALVERT

```
2300: 18 90 06 07 0B 42 C0 02      $6F03
2308: F0 AD 03 23 85 01 AD 04      $7D25
2310: 23 85 02 AD 05 23 85 03      $3126
2318: 85 06 A9 20 85 07 A9 00      $EC38
2320: 85 EB 18 6D 06 23 85 4B      $5B5F
2328: A9 25 85 EC 6D 07 23 85      $CBE8
2330: 4C A5 4B 38 E9 58 85 0A      $4DD2
2338: A5 4C E9 00 85 0B AD 08      $F2B7
2340: 23 85 04 A5 02 85 ED A9      $1499
2348: 08 85 09 A0 00 C6 09 A5      $ACB0
2350: 06 38 E5 03 85 06 A5 07      $3DFC
2358: E9 00 85 07 A5 01 AA A9      $3562
2360: 00 85 08 8A C5 01 F0 0D      $48EA
2368: A5 06 18 65 02 85 06 A5      $6D36
2370: 07 69 00 85 07 06 08 B1      $84F1
2378: 06 18 2A 91 06 A5 08 69      $E0BB
2380: 00 85 08 CA D0 DD A9 06      $221C
2388: C5 01 30 02 06 08 A5 EB      $C756
2390: 38 E5 0A A5 EC E5 0B 30      $6645
2398: 06 A5 08 25 04 85 08 A5      $1FFD
23A0: 08 91 EB E6 EB A9 00 C5      $E21E
23A8: EB D0 02 E6 EC A5 EC C5      $40CC
23B0: 4C D0 0A A5 EB C5 4B D0      $ED1A
23B8: 04 60 18 90 90 A5 09 D0      $38C3
23C0: 8C C6 ED F0 11 E6 06 A9      $C429
23C8: 00 C5 06 D0 02 E6 07 A9      $5FD3
23D0: 08 85 09 18 90 E4 A9 08      $7255
23D8: 85 09 A5 02 85 ED A5 06      $5A89
23E0: E6 03 18 65 03 85 06 A5      $F7F1
23E8: 07 69 00 85 07 C6 03 18      $0439
23F0: 90 C8                          $4645
```

Stanley Planton

Softkey for...

Let's Go Fishing

Panda Learning Systems

Requirements

- Several blank disks
- Sector editor
- Copier that can be set to copy only a range of tracks.

Let's Go Fishing is an early-education program that can be used to teach counting skills and number recognition to pre-schoolers. It is also heavily copy-protected, allowing the possibility of the sudden loss of the program to peanut butter, jelly, or just about any other

re-programming tool used by a young child.

The DOS on the disk has been modified from DOS 3.3, and there is a binary file named HELLO3 which constitutes much of the protection. After trying unsuccessfully to make a bit copy, analyzing tracks for hidden marks (there are FE bytes between sectors, which seem to be part of the protection), and trying to load and rewrite the HELLO3 file, I happened upon a fairly simple way to unprotect the disk.

To use this method, you will need a pair of blank disks, as well as your original 'Let's Go Fishing'.

1 Make a copy of the disk. You can use any fast or bit copier.

2 Use a sector editor to scan the COPY for the bytes 4C 00 C6. On my disk, these were located at track \$00, sector \$0E, byte \$49. Change all three bytes to EA and write the changes back to the COPY. This disables most of the re-booting that might otherwise take place, and allows a **RESET** to interrupt the boot.

3 Boot the COPY you just changed. It will try to re-boot, so interrupt the re-boot with **RESET**, and drop into BASIC. We will use the DOS from this disk to initialize a blank disk, after making one change.

4 Now that you have the BASIC prompt '[]', change the DOS so that it will try to 'RUN' a BASIC program, rather than 'BRUN' the binary HELLO3.

POKE 40514,6

5 Pull the COPY from the drive, put in a blank disk and initialize it. There is already a HELLO program on the original disk, so this will set up the copied DOS to load and execute this program. The drive should spin for the world's shortest INIT, but you will have moved the DOS image of their DOS to the blank disk.

INIT HELLO

6 3. This will move all the files, etc. over to your disk, a task that would otherwise be complicated by the fact that they messed up the catalog beyond recognition. In this case, brute force does the trick.

You're done! While this method may be fairly primitive, it can be executed without NMI cards, boot tracing, or other more exotic deprotection tools. Once their DOS has been persuaded to load and execute the Applesoft HELLO program on the disk, the protection afforded by the call to reboot the disk that you took out earlier and the strange binary HELLO3 program is gone. HELLO3 is still there, but it doesn't do anything anymore, and you can put the original away.

Checksums	
160 - \$12DC	1160 - \$74AF
170 - \$263A	1170 - \$6072
180 - \$8021	1180 - \$2BFD
190 - \$EF38	1190 - \$B88F
200 - \$320E	1200 - \$A06E
210 - \$5CF2	1210 - \$F85C
220 - \$18C7	1220 - \$5B0B
230 - \$3190	1230 - \$F18E
300 - \$5744	1240 - \$694D
310 - \$842C	1250 - \$093B
320 - \$5A1E	1260 - \$353E
330 - \$922B	1270 - \$0E5C
340 - \$DA50	1280 - \$E5D3
350 - \$0085	2000 - \$55E4
360 - \$A1F2	2010 - \$084F
370 - \$1F73	3000 - \$0254
380 - \$CC02	3010 - \$BE14
390 - \$1BCB	4000 - \$B81C
400 - \$488F	4010 - \$5035
410 - \$3C61	4020 - \$282E
420 - \$42E9	4030 - \$ACA1
430 - \$3103	4040 - \$9372
440 - \$0CBD	4050 - \$0957
450 - \$6729	4060 - \$9F8B
460 - \$15DF	4070 - \$092D
470 - \$C34A	4080 - \$352B
480 - \$4D19	4090 - \$214F
490 - \$181B	4100 - \$4825
500 - \$AE6F	4110 - \$D4E9
510 - \$620A	4120 - \$E95A
520 - \$F4BF	4130 - \$B6A6
530 - \$3AB3	4140 - \$D940
540 - \$4F2F	4150 - \$C71D
550 - \$A9EE	4160 - \$C43C
560 - \$509F	4170 - \$E49F
570 - \$83B8	4180 - \$E7E9
580 - \$59FC	4190 - \$DFCC
590 - \$28E3	4200 - \$ADC3
600 - \$67BD	4210 - \$FD8F
610 - \$79E8	4220 - \$F560
620 - \$B5E1	4230 - \$5A0C
1000 - \$A4F9	4240 - \$350A
1010 - \$4081	5000 - \$7CF7
1020 - \$3B40	5010 - \$9537
1030 - \$403B	5020 - \$2350
1040 - \$2355	5030 - \$0DDA
1050 - \$E8E2	5040 - \$C25F
1060 - \$C1A6	5050 - \$F6DE
1070 - \$985B	5060 - \$9AAF
1080 - \$2300	5070 - \$A2A4
1090 - \$4C6D	5080 - \$ACC5
1100 - \$4DDA	5090 - \$1029

Mike Neuliep

Softkey for...

Car Builder

■ Requirements

- 64K Apple or compatible
- One Blank Disk
- DOS 3.3 System Disk

1 Boot your DOS 3.3 system disk. Then enter the monitor and clear some error flags to ignore the unusual formatting on track \$01, sector \$0F.

CALL -151
 B942:18
 B925:18 60
 B988:18 60

2 Use COPYA to copy the disk.

RUN COPYA

3 Make the following edit to the copy.

Trk	Sct	Byte(s)	From	To
\$02	\$09	\$07	A0	60

Richard S. Thompson

This is for Tim Furry (COMPUTIST #56, page 28) that wanted the Hacker requirements.

Order of locations and requirements

- (1) Switzerland: trade money for evidence; buy chronograph and deed to Swiss Chalet.
- (2) Egypt: trade chronograph for evidence; buy scarab and statuette of tut.
- (3) Greece: trade statuette of tut for evidence; buy nothing.
- (4) India: trade scarab for evidence; buy nothing.
- (5) New York: trade deed to Swiss Chalet for evidence; buy uncut diamond.
- (6) Japan: trade diamond for evidence; buy pearls and camera.
- (7) China: trade pearls for evidence; buy jade carving.
- (8) Caribbean: trade camera for evidence; buy nothing.
- (9) London: trade jade carving for evidence; buy Beatles' album.
- (10) San Francisco: trade album for evidence; buy nothing.
- (11) Washington, D.C.: give all evidence to secret agent; reap your reward.

Running out of time

I found three things caused me to run out of time: wrong routing, backtracking and surfacing to avoid satellites, and getting lost.

If you have worked out the requirements for each spy, have mapped your routes properly, and know the satellite passwords, you should have enough time to complete your mission. If you have done all this but are still running out of time, you should look for a shortcut. The best shortcut is a route from China to the Caribbean that actually (to me) looks longer but saves considerable time. Counting each "bleep" as a move, go south 6 from China to Australia. Then work your way around Australia to the lower edge of the map by going east 4, north 2, east 4, south 2, east 2, south 2, east 2, and south 2. Then move east 12 to the tip of South America. From there it's north 6 to the Caribbean.

The ending

The game has a good ending with lots of praise, a newspaper article, and a printout for you. So stick with it and be a hero!

A.P.T. for...

Leisure Suit Larry in the Land of the Lounge Lizards (Ile, Ilc)
 Sierra On-Line

To get more money, start a game and save it to the "A" position on your game data disk. Then boot a sector editor, and put your data disk in the drive. Read track \$00, sector \$02, byte \$E4 and change it to FF. This will give you \$255 dollars.

Put 2400 A.D. on 3 1/2" disks

■ Requirements

- Deprotected 2400 A.D.
- Unidisk 3 1/2" or Apple 3 1/2" disk drive.
- Copy II Plus v8.x (or any ProDOS file copier)

1 First format a 3 1/2" disk and create a subdirectory named "GAMES".

2 Copy all of side one of 2400 A.D. except the ProDOS file into the subdirectory. Go and rearrange your sock drawer, this will take awhile.

3 Copy all of the back side of 2400 A.D. into the main directory. Go and watch some paint dry.

4 Rename main volume to "/PLYR".

5 Copy PRODOS and BASIC. SYSTEM into the main directory.

6 Use your sector editor to search for "/GAME" and change it to "GAMES". (The "G" in GAMES does go over the "/".)

7 Boot the disk, which will leave you in BASIC. Enter and save startup program.

1 PRINT CHR\$(4) "PREFIXGAMES" : PRINT CHR\$(4) ".MI.SYSTEM"
SAVE STARTUP

8 Reboot the disk, this should get you to the game. The saved character information is in the file named "PLR.DATA".

A few thoughts...

This is THE best magazine for the Apple II land. I love the new layout so much more that the older one. Please, to all you COMPUTIST readers, support this EXCELLENT source of information. Keep up the good work. I would like to thank Gerald E. Myers for an excellent article on "The Deprotection Game". Bravo! Also thanks go to Thomas V. Rapheld for help with Bard's Tale III, now if only someone would write an editor for it and send it to COMPUTIST.

⊙ Is there anyone one out there that has information about Bard's Tale II? I would like to know where the characters are and the information within the sector(s) they reside on.

⊙ Does anyone know of a good bit copier for the UniDisk 3.5 on an Apple IIc? Copy II Plus v8.x 3 1/2" bit copy does NOT work on the UniDisk. I am in desperate need of a copier that will "ignore errors" on the UniDisk.

Brandon LaCava

Playing Tips for...

Ultima V

Origin

I'd like to start out by saying that Ultima V is one of those games where you can't win unless you get help and hints from other people.

Potion	Effect
Blue	Awakens Sleeper
Yellow	Heals Character's Hit Points
Red	Cures Poisoned Character
Green	Poison
Orange	Sleep Potion
Purple	Changes Person to a Rat
Black	Invisibility
White	X-Ray

Scrolls (in order if you own them all)

#	property
vl	Great Light
rh	Wind Change
is	Protection
ia	Negate Magic
iqw	View
kxc	Summon Demon (will fight for you)
imc	Resurrect
at	Negate Time (useful against shadowlords)

• To get the wooden box, go to Lord British's private chamber at 12:45 PM and play the following notes on the harpsichord: 678 987 876 7653.

- Try 're-living' the tale in the lore.
- The Shadowlord's names are:

Asteroth	Shadowlord of Hatred
Nosfentor	Shadowlord of Cowardice
Faulinei	Shadowlord of Falsehood

• The Shadowlords can only be attacked with the glass sword.

• When in Blackthorn's castle, wear the black badge.

• Get the magic carpet out of Lord British's private chamber.

• If you cheat (sector edited your char disk), don't hole up and camp outside. An apparition will appear and reduce all your abilities. Sleep in a bed.

• If you cheat, you won't get one of the spells. It's a sixth circle spell named 'Rel Xen Bet'. It lets you change your foes into rats. The reagents are: silk, sulfuric ash, mandrake, and nightshade.

• Try making your own spells. It's possible.

• You can find the sceptre in a keep not too far south of Minoc.

• Try yelling "FLIPFLOP".

• Find a moongate (not hard) and wait for it to go away. Then, go to a square right next to it and 'S'earch the square where the moongate was. You will find a strange stone. Actually, this stone IS the moongate. To use it, just go to a grass square and 'U'se the stone. Wait until the moon phase is right for the moongate and the moongate will appear where you put the stone. From then on out, that moongate will appear wherever you put the stone.

• To exit the underworld quickly, just cast a "GATE" spell (Vas Rel Por).

- Ask for item number 4 at a thieves guild.
- The sextant can only be used at night.
- Learn of the stars. They can help a lot.
- Mantras:

Compassion	MU
Honesty	AHM
Honor	SUMM
Humility	LUM
Justice	BEH
Sacrifice	CAH

Spirituality OM Valor RA

• To get to the shrine of Spirituality (the only one intact at the start of the game), just enter ANY moongate at midnight (12:02 or 11:59 or something close like that will work).

• Another important part of the game is the shrines and dungeons. You must seal all of the dungeons and restore all of the shrines. To do this, you stand in front of a dungeon and (Y)ell the appropriate Word of Power. You then go to the shrine that's name is opposite of the dungeon (shrine of Justice for the dungeon of Wrong, etc...) and yell the Word of Power. You then meditate on the virtue of that shrine for three periods. The shrine should then be restored.

Word of Power	Dungeon	Shrine
Malum	Wrong	Justice
Avidus	Covetous	Sacrifice
Fallax	Deceit	Honesty
Insama	Shame	Honor
Inopia	Dastard	Valor
Ignavus	Hythloth	Humility
Vilis	Despise	Compassion

Have Fun!!!

Here's another BBS for you to call.

Infinity's Edge Iigs
2400 baud
60 megs online

Use ProTERM Special Emulation
(415) 820-9401

Bob Igo

Editor Creator

In the past, I have gone through the tedious tasks of either booting up a sector-editor to make byte changes manually or making editor programs from scratch for games like Seadragon, Rescue Raiders, Sword of Kadash, etc. This is why I developed Editor Creator (EC).

Using this program, you need only enter the edits you wish to make, name them, verify them as on/off or number values, and give the name of the game you are editing. Then, sit back and watch the drive spin. After it has stopped, it will have made an EXECutable textfile as does Controller Writer. Clear BASIC memory and type "EXEC (filename)". This writes a BASIC editor program. Save the BASIC program and you may then delete the textfile.

It uses DOS Utility from COMPUTIST #54, pg. 9 (thanks, Keith!), so everybody should have it or be able to back-order it.

A few notes about EC

The program asks how many aspects of the game you will be changing. An aspect is something like unlimited bullets, disable enemy tanks, and stuff like that.

When asked how many sector-edits are needed for an aspect, you must enter the total number of byte changes that pertain to the aspect. To make it easier for many byte changes on the same sector, default values are given. Press <CR> to accept them, or you may enter your own values.

If you like this program, let me know. I am considering making a generic editor program for adventure games. If I feel there is a need, I'll try it.

Oh, and for you beginners, please pay no attention to line 610. (Private joke.)

EDITOR CREATOR

```

100 INVERSE
110 TEXT : HOME : AS$ = "EDITOR*CREATOR" : HTAB (40
- LEN (AS$)) / 2 : FOR L = 1 TO LEN (AS$) : PRINT
MID$(AS$, L, 1) : X = PEEK (- 16336) : X = PEEK
(- 16336) : NEXT
120 VTAB 2 : HTAB 1 : FOR L = 1 TO 20 : PRINT "-" : X
= PEEK (- 16336) : NEXT : POKE 34, 3 : HOME
130 NORMAL
140 PRINT "ENTER*ALL*TRACK, *SECTOR, *BYTES, *AND*
BYTECHANGES* AS* ONE* OR* TWO-BYTE* HEX*
NUMBERS."
150 VTAB 8 : PRINT "HOW*MANY*ASPECTS*OF*THE*GAME*
WILL*YOU*BECHANGING" : INPUT X$: X = VAL
(X$) : IF X = 0 THEN CALL - 198 : GOTO 150
160 DIM A(X), NA$(X), OO(X), TR$(X, 30), SE$(X,
30), BY$(X, 30), FR$(X, 30), TU$(X, 30)
170 FOR L = 1 TO X : HOME
180 VTAB 4 : PRINT "HOW*MANY*SECTOR-EDITS*ARE*
NECESSARY*FOR*ASPECT*#" L : INPUT A(L) :
IF A(L) = 0 THEN CALL - 198 : GOTO 180
190 FOR E = 1 TO A(L) : PRINT "PRESS*RETURN*ALONE*
FOR*DEFAULT*VALUES." : INVERSE : PRINT
"EDIT*#" E " " : NORMAL : PRINT "TRACK: ("
; TR$(L, E - 1) " " : HTAB 11 : GOSUB 850 : IF
X$ = "" THEN TR$(L, E) = TR$(L, E - 1) : GOTO
210
200 TR$(L, E) = X$
210 PRINT "SECTOR: (" ; SE$(L, E - 1) " " : HTAB
12 : GOSUB 850 : IF X$ = "" THEN SE$(L, E) =
SE$(L, E - 1) : GOTO 230
220 SE$(L, E) = X$
230 PRINT "BYTE: (" ; BY$(L, E - 1) " " : HTAB 10 :
GOSUB 850 : IF X$ = "" THEN BY$(L, E) =
BY$(L, E - 1) : GOTO 250
240 BY$(L, E) = X$
250 PRINT "FROM: (" ; FR$(L, E - 1) " " : HTAB 10 :
GOSUB 850 : IF X$ = "" THEN FR$(L, E) =
FR$(L, E - 1) : GOTO 270
260 FR$(L, E) = X$
270 PRINT "TO: (" ; TU$(L, E - 1) " " : HTAB 8 :
GOSUB 850 : IF X$ = "" THEN TU$(L, E) =
TU$(L, E - 1) : GOTO 290
    
```

```

280 TU$(L,E) = X$
290 NEXT : PRINT : PRINT "WHAT^WILL^YOU^CALL^
THIS^ASPECT?" : PRINT "(SUCH^AS:^TOGGLE^
UNLIMITED^BULLETS)" : INPUT "ANSWER:^"
:NAS(L)
300 PRINT : PRINT "IS^THIS^ASPECT^(1)^ON^OR^
OFF,": PRINT "OR^(2)^A^NUMBER^VALUE^?":
GET OOS: PRINT OOS:OO(L) = VAL(OOS): IF
OO(L) < 1 OR OO(L) > 2 THEN CALL - 198: GOTO
300
310 NEXT
320 HOME : VTAB 13: HTAB 1: PRINT "WORKING^ON^HEX^
CONVERSIONS" : FOR L = 1 TO X: FOR E = 1 TO
A(L)
330 H$ = TR$(L,E) : GOSUB 800: TR$(L,E) = D$: H$ =
SE$(L,E) : GOSUB 800: SE$(L,E) = D$: H$ =
BY$(L,E) : GOSUB 800: BY$(L,E) = D$: H$ =
FR$(L,E) : GOSUB 800: FR$(L,E) = D$: H$ =
TU$(L,E) : GOSUB 800: TU$(L,E) = D$
340 NEXT : PRINT "": CL = PEEK(-16336): CL =
PEEK(-16336): NEXT
350 REM _DOS UTILITY NEEDED (#54, P.9)
360 HOME : PRINT "WHAT^WILL^YOU^CALL^THIS^
EDITOR" : INPUT NAS: HOME
370 PRINT CHR$(4) "MONICO"
380 PRINT CHR$(4) "OPEN" NAS: PRINT CHR$(4)
"WRITE" NAS
390 PRINT "90ONERRGOTO390"
400 Q$ = CHR$(34) : PRINT "100IFPEEK(768)<>169
THEN^CHR$(4)" Q$ "BLOADDOS^UTILITY" Q$
410 PRINT "110HOME:TR=784:SE=789:RW=794:R=
1:W=2:POKE799,0:POKE804,32:A^
=8192:P=768:POKE774,96:POKE779,1"
420 PRINT "120DIMA(" X "),NAS(" X "),OO(" X
"),T(" X ",30),S(" X ",30),BY(" X ",30^
),FR(" X ",30),TU(" X ",30),O$(" L "),N("
L "),C$(" L ")
430 PRINT "130READX:FORL=1TOX:READO$(L),
N(L)"
440 PRINT "140NEXT"
450 PRINT "150TEXT:HOME:?" Q$ "INSERT^" NAS ""^
AT^DRIVE^1" Q$ "?:" Q$ "AND^PRESS^A^KEY."
Q$ "GETGS:?"
460 PRINT "160FORL=1TOX:FORN=1TON(L)"
470 PRINT "170READT(L,N):READS(L,N):READBY-
(L,N):READFR(L,N):READTU(L,N^
):READOO(L):POKERW,R:POKETR,T(L,N):P-
OKESE,S(L,N):CALLP"
480 PRINT "180IFPEEK(A+BY(L,N))=FR(L,N)ANDOO
(L)=1THENC$(L)=" Q$ "OFF" Q$ "A:GOTO210"
490 PRINT "190IFPEEK(A+BY(L,N))=TU(L,N)ANDOO
(L)=1THENC$(L)=" Q$ "ON" Q$ "GOTO210"
500 PRINT "200C$(L)=STR$(PEEK(A+BY(L,N)))"
510 PRINT "210NEXT:NEXT"
520 PRINT "220HOME:?" Q$ "OPTIONS:" Q$
":HTAB5:?" Q$ "PRESS^1-" Q$ "X" Q$ "OR^" S^
TO^SAVE."
530 PRINT "230?:FORL=1TOX:VTABL+3: INVERSE:
?C$(L):NORMAL:HTAB5:?" Q$ "A" Q$ "":
O$(L):NEXT:?:?"
540 PRINT "240INPUT" Q$ "CHOICE:" Q$ "":C$"
550 PRINT "250C=VAL(C$):IFNOT(C$=" Q$ "S" Q$
"OR(C>0ANDC<=X))THENCALL-198:^
VTABX+6:GOTO240"

```

```

560 PRINT "260IFC$=" Q$ "S" Q$ "THEN300"
570 PRINT "270IFC$(C)=" Q$ "OFF" Q$
"THENC$(C)=" Q$ "ON" Q$ "GOTO291"
580 PRINT "280IFC$(C)=" Q$ "ON" Q$
"THENC$(C)=" Q$ "OFF" Q$ "GOTO291"
590 PRINT "290?" Q$ "ENTER^NEW" Q$ "O$(C)" Q$
":?" Q$ "INPUTC$(C):VTABC+3:?" Q$ "" Q$
":POKE34,X+6:HOME:POKE34,0:GOTO291"
600 PRINT "291INVERSE:VTABC+3:?" Q$ "NORMAL
:VTABX+6:GOTO240"
610 PRINT "300?" Q$ "DO" Q$ "": INVERSE:?" Q$
"NOT" Q$ "":NORMAL:?" Q$ "REMOVE^THE^DISK^
OR" Q$ "?:" Q$ "YOUR^COMPUTER^COULD^
EXPLODE." Q$
620 PRINT "310FORL=1TOX"
630 PRINT "320FORN=1TON(L)"
640 PRINT "330POKERW,R:POKETR,T(L,N):POKES,
S(L,N):CALLP"
650 PRINT "340IFC$(L)=" Q$ "ON" Q$
"THENPOKEA+BY(L,N),TU(L,N)"
660 PRINT "350IFC$(L)=" Q$ "OFF" Q$
"THENPOKEA+BY(L,N),FR(L,N)"
670 PRINT "360IFOO(L)=2THENPOKEA+BY(L,N),VAL
(C$(L))"
680 PRINT "370POKERW,W:CALLP:NEXT:NEXT"
690 PRINT "380VTAB23:?" Q$ "DONE." Q$ "?:" Q$
"PRESS^ANY^KEY" Q$ "GETGS:?:RUN"
700 PRINT "390?" Q$ "YOU^GOOFED!!" Q$
":?:CALL-198:?" Q$ "ERROR^" Q$ "PEEK(222):END"
710 PRINT "400DATA" X
720 LN = 410: FOR L = 1 TO X: PRINT LN "DATA" :
PRINT NAS(L) ", " A(L): LN = LN + 10: NEXT
730 PRINT : LN = 1010
740 FOR L = 1 TO X: FOR E = 1 TO A(L): LN = LN + 10:
PRINT LN "DATA" TR$(L,E) ", " SE$(L,E) ",
BY$(L,E) ", " FR$(L,E) ", " TU$(L,E) ",
OO(L)
750 NEXT E: NEXT L
760 PRINT "HOME:?" Q$NAS "A^EDITOR^HAS^BEEN^
ENTERED."
770 PRINT CHR$(4) "CLOSE"
780 PRINT CHR$(4) "NOMONICO"
790 HOME : VTAB 23: PRINT "DONE.": PRINT "PRESS^
ANY^KEY": GET GS: PRINT : RUN
800 IF LEN(H$) < 2 THEN H$ = "0" + H$
810 DE = 0: HE$ = "0123456789ABCDEF": H1$ = LEFT$
(H$,1): MP = 16: GOSUB 820: H1$ = RIGHT$
(H$,1): MP = 1: GOSUB 820: RETURN
820 FOR P = 1 TO 16
830 H2$ = MID$(HE$,P,1): IF H1$ = H2$ THEN DE =
DE + ((P-1) * MP): D$ = STR$(DE): RETURN
840 NEXT
850 INPUT "": X$: RETURN

```

```

170 - $A87F 550 - $AEF1
180 - $1E90 560 - $EE64
190 - $2551 570 - $F827
200 - $F920 580 - $43B0
210 - $3082 590 - $8E4E
220 - $E0E1 600 - $092C
230 - $793D 610 - $D091
240 - $9E6C 620 - $8B8F
250 - $0AAE 630 - $0277
260 - $281D 640 - $0096
270 - $93C7 650 - $D792
280 - $9E14 660 - $C226
290 - $6CE8 670 - $E043
300 - $7B37 680 - $468D
310 - $6BCE 690 - $3BD8
320 - $BA34 700 - $DC00
330 - $9553 710 - $C7C2
340 - $3D84 720 - $3D9D
350 - $B48A 730 - $0651
360 - $F44A 740 - $5D62
370 - $2F14 750 - $5221
380 - $15F7 760 - $7158
390 - $D88B 770 - $1CDD
400 - $B0F9 780 - $2A9B
410 - $132D 790 - $5FBD
420 - $4B9B 800 - $9E4A
430 - $44D7 810 - $44A9
440 - $C21E 820 - $84F8
450 - $8656 830 - $E7F0
460 - $8C8E 840 - $AD6D
470 - $126B 850 - $650E

```

Miscellaneous Notes

● To Jerome Rothweiler: I installed an EPROM to replace my unenhanced CD ROM on my Iie to give an unconditional reset into the monitor with **[RESET]**. I changed location \$C401- to 4C 65 FF so that it jumps to the monitor instead of doing that virtually useless system check. After breaking, I must type **COO6:00** to reconnect the auxilliary slots (including the disk drives). It's extremely handy. The modification also frees up all that space that once was the system check for other uses. So, Mister Rothweiler, I have available an unmodified Iie CD ROM. My address is at the end of this letter. Contact me and we'll work something out.

● To make Copy II Plus boot directly to the bitcopy system, use the alphabetize catalog option on the utility menu.

⊗ DOS EOR maker would not work for me (COMPUTIST #54). Maybe I am doing something wrong. The checksums match, so it's no typo on my part. Could Jean Phillippe Cunnet please help? My address is at the end.

⊗ Does anybody have a supercharged SUPER IOB? I mean with all the enhancements made since v1.5 came out like read/write every other track, etc. If so, please contact me.

● There was an error in the technique for the fastloading Locksmith 6.0 Fastcopy. The next

Checksums

```

100 - $2EA0 480 - $EA69
110 - $6D5A 490 - $654C
120 - $8AEC 500 - $A71D
130 - $9971 510 - $2D4D
140 - $541F 520 - $5615
150 - $2B2C 530 - $5B83
160 - $3666 540 - $A926

```


to the last line should read: 40:20 2C FE NOT 40:20 2C FF.

● Please put Animate back on the Most Wanted List. The softkey in COMPUTIST #54, pp. 25-26 only partially cracked my copy (version 1.0 from late 1986). All goes well until I try certain disk functions. I think it's impossible to save or load animation characters. Maybe people who send in softkeys could indicate somehow what version their crack works on. Perhaps they could tell when they bought it if the version isn't known. Animate tells what version you have by pressing **[Ⓜ]** at the first menu after bootup.

● Last, I have a few suggestions. I realize that you need money to keep the magazine going, but realistically, would you subscribe to an IBM hacker magazine which had two dinky little pages of use for you out of 45 or so pages for IBM? You'd end up paying approximately \$1.88 for each page. I think if you want to branch out, you'd better make a separate IBM leaflet.

Although I do not own a MODEM, it would be unrealistic to not acknowledge the growing trend. So, I have thought up an idea which might even make me go buy one. Have a COMPUTIST BBS. That way, anyone at all (who is a paying member of the BBS) can log on at any time (even better than "every 2 weeks" as was said in COMPUTIST #56), check a database for softkeys (much like the ones sold in the ads in the back of the magazine) or articles, ads, or even E-mail, and then download all textfiles which pertain to the user's choice. There could also be a way to upload your own articles, softkeys, etc. under various headings (for classification purposes) to the RDEX file. Since you already have everything that ever was from the beginning of the magazine to now in your RDEX file, this would probably be feasible. Just think, there would be no costs for printing the magazine; in COMPUTIST #56 you admitted that "printing is the single largest cost we have. It dwarfs even the mailing costs..." A BBS would eliminate both. And for the members, no typing of programs and controllers. As I said, I don't own a MODEM, and I don't know much about them. Therefore, I don't know if this would work out. It might cost too much to run and maintain, but I don't know. The choice is up to you.

Thank you for the best magazine in existence for the Apple II line of computers. If anyone wishes to contact me, here is my complete address: Bob Igo, 136 Garlow Drive, Pittsburgh, PA 15235

Brian Walker

I noticed that Space Eggs is on the Most Wanted List. I've had the game for years and felt now was the time to break it.

Softkey for...

Space Eggs

Sirius Software

■ Requirements

- Apple IIe with extended 80-column card
- DOS 3.3 System Master
- A blank initialized disk

After reading Cracking on the IIe by Zorro in COMPUTIST #58, page 16, I decided to give it a try.

Following his instructions I booted the protected game into auxiliary memory and moved auxiliary memory to main memory. The next step was to find the starting address. After an hour or two of looking through memory I found the starting address to be \$4BB0. Now that the starting address was found, the next step was to find out what memory was used. I filled memory with a value of \$11, booted the protected program, hit **[ⓂRESET]**, and looked through memory to see if any memory was left unchanged. Of course, all memory was changed. I did find that memory areas \$0300-\$03FF and \$A000-\$BFFF were filled with zeroes.

Because the game used sensitive areas of memory, \$0000-\$07FF and \$9600-\$9FFF, and I wanted to make it a DOS file, I had to move that code to a safe area so DOS could load it. I wrote memory move routines to place the code back into its original location. I also wrote code to place zeros in \$2000-\$3FFF and \$A000-\$BFFF.

[1] Boot the DOS 3.3 System Master disk.

[2] Enter the monitor and setup to boot into auxiliary memory.

CALL -151
0:8D 03 C0 8D 05 C0 4C 00 C6

[3] Insert the Space Eggs protected disk and boot it.

0G

The computer will appear dead, and the hires screen may be filled with garbage. The game is actually running in auxiliary memory.

[4] Remove the Space Eggs protected disk, insert your blank initialized disk, and press **[ⓂRESET]**. (Auxiliary memory isn't affected by this.)

[5] After the drive stops, enter the monitor again and setup the transfer routine call. The routine at \$300 calls the monitor auxiliary memory move routine. The \$03F8 code is the control-Y vector.

CALL -151
0300:18 4C 11 C3
03F8:4C 00 03

[6] Move auxiliary memory to main memory.

2600<0.FFF [ⓂY]
1000<1000.1FFF [ⓂY]
4000<4000.95FF [ⓂY]
3600<9600.9FFF [ⓂY]

[7] Zero out the scores.

26B0:00 00 00 00

[8] Add the code to do the memory moves. First the jump to the memory move routine.

0FFD:4C 00 20 **JMP \$2000**

Routine to move \$2600-\$35FF to \$0000-\$FFFF (all move routines follow this general format).

2000:A0 00 *LDY #\$00*
2002:B9 00 26 *LDA \$2600,Y ;Start move 'from' \$2600*
2005:99 00 00 *STA \$0000,Y ;Start move 'to' \$0000*
2008:C8 *INY*
2009:D0 F7 *BNE \$2002*
200B:EE 04 20 *INC \$2004 ;Increment the addresses*
200E:EE 07 20 *INC \$2007*
2011:AD 04 20 *LDA \$2004*
2014:C9 36 *CMP #\$36 ;Stop move at \$3600*
2016:D0 E8 *BNE \$2000*
2018:4C 20 20 *JMP \$2020 ;Jump to next move routine*

Routine to move \$3600-\$3FFF to \$9600-\$9FFF.

2020:A0 00 B9 00 36 99 00 96 C8 D0 F7 EE
24 20 EE 27 20 AD 24 20 C9 40 D0 E8 4C
40 20

Routine to move \$2100-\$2200 to \$0300-\$03FF.

2040:A0 00 B9 00 21 99 00 03 C8 D0 F7 EE
44 20 EE 47 20 AD 44 20 C9 22 D0 E8 4C
00 03

Routine to zero out \$2000-\$3FFF.

2100:A0 00 EA A9 00 99 00 20 C8 D0 F7 EA
EA EA EE 07 03 AD 07 03 C9 40 D0 E8
4C 20 03

Routine to zero out \$A000-\$BFFF.

2120:A0 00 EA A9 00 99 00 A0 C8 D0 F7 EA
EA EA EE 27 03 AD 27 03 C9 C0 D0 E8
4C 40 03

Routine to turn on graphics page and start space eggs.

2140:AD 50 C0 AD 54 C0 AD 57 C0 4C B0 4B

[9] Patch DOS to allow saving such a large file.

A964:FF

[10] Save the game to disk.

BSAVE SPACE EGGS, A\$FFD, L\$8603

You now have Space Eggs in a file which can be placed on a hard disk, or on a floppy with other programs. Thanks Zorro. (I understand this method of booting into auxiliary

memory was first advocated by Steve Dietz in COMPUTIST #25. So thanks too, Steve.)

Softkey for...

Transylvania enhanced edition

Polarware/Penguin

- Two blank disk sides
- COPYA or equivalent

I have seen softkeys for Transylvania, but they must have been for the original version. My enhanced edition of Transylvania uses both sides of the disk. It features COMPREHEND. Other than that, I think it is the same. To crack it just copy the disk and do a couple of sector edits.

1 Copy both sides with COPYA or an equivalent.

2 Sector edit side 1.

Trk	Sct	Byte(s)	From	To
\$10	\$0D	\$00	A2 03 B5 00	A9 56 60 FB
\$11	\$0E	\$00	A2 03 B5 00	A9 56 60 FB

You now have an unprotected copy.

Stephen Lau

**IIGs Softkey for...*

King's Quest II & III

Sierra On Line Inc.

King's Quest II & III (IIGs) have the traditional Sierra humor and 3-D graphics. However, this time the protection is a little trickier than the older ones.

In the older Sierra stuffs, only a bad block is checked with no further protection. This time, the result of the check is stored in a flag which will be checked just before the program starts. The flag basically stores the code for the block read, \$27 in this case for the bad block. Just make a backup copy and follow the sector edits to crack these two programs.

King's Quest II

Block	Byte(s)	From	To
\$2ED	\$BF	22	AF
\$267	15A	AD	6B

King's Quest III

Block	Byte(s)	From	To
\$2D1	D8	22	AF
\$24A	15A	AD	6B

Basically, they both edit the same bytes. First you should search for 22 00 00 00 C9 01 00 F0 04 22 00 00 00 22 00 00 00 AE 00 00 and change

the last 22 00 00 00 to AF 00 00 00, this is all that is needed to crack earlier Sierra titles. For later stuffs, search again for AD 00 00 18 6D 00 00 C9 27 02, change the first byte to 6B (stands for RTL), the second routine just checks the status of the flag, and you could list to see what it does if you want to.

**IIGs Softkey for...*

Skate or Die Zani Golf

Electronic Arts Inc

Wow! If you want to show off the graphics and sound of your GS, throw away your Marble Madness, Defender of the Crown and whatever and boot up your Skate or Die, or Zani Golf! Zani Golf, by the way, is MUCH, MUCH MORE crazy than Marble Madness, prepare to get your socks blown off. These two programs put ALL other IIGs programs into shame. The protection has also changed (that's traditional EA style). The code that checks the disk are the same on both disks.

Zani Golf

Block	Byte(s)	From	To
\$5D	113	22 00 36 00	AF 00 36 00

Skate or Die

Block	Byte(s)	From	To
\$9	3D	22 00 10 00	AF 00 10 00

Skate or Die checks the disk twice before the title page appears, however, both checks are done through the same code, after which it JSRs to \$00/1000, so just changing the 22 00 10 00 to AF 00 10 00 kills two birds with one stone.

Zani Golf, on the other hand, first checks when level 2 starts (it may check at every level afterwards, though). Again, checks seem to be always done through the same code, after which control is passed to \$00/3600. Well thanks for making life easy for us. Again changing the 22 00 36 00 to AF cracks it.

**IIGs Softkey for...*

Bard's Tale II

Electronic Arts

Don't miss this one (I'm sure that if you have Bard's Tale I GS and feel the sound and graphics, you bet everyone will buy Bard's Tale II GS!). This sequel has better graphics (though the monsters are not as good as in I), more sounds (much more), and it even supports Super Sonic! Also it has auto-mapping and anywhere save game features.

The protection has changed to some block

errors on track \$4F instead of nibble counts on track \$20, \$21. Well no luck with Copy II plus, but that's why you IIGs owners subscribe to COMPUTIST, isn't it? The protection lies in a file called BURGER (as in Bard's Tale I). After a trace, I ignored the instructions that JSR to the code to check the protection and branch to continue the execution of the program, the program then seems to run fine. However, a warning! I have played with it through the first three dungeons and collected the first two segments. There SEEMS to be no other checks. However, the guys at EA are really tricky (as you know from their infamous protection code in Bards Tale I GS), if ANY readers noticed ANY problems with the crack, please send a letter to COMPUTIST and I, or others will straighten it out.

Bard's Tale II

Block	Byte(s)	From	To
\$42E	2F	22	AF
\$42E	3E	F0	80

The code looks like this:

```
LDA #$9FFF
TCS
JSL $00A0000          check
LDX #$1FF
TXS
SEP %00110000        manipulate flags
STA $C009
CMP #$01              check flags
BEQ $106B             OK, continues
```

Happy cracking. Be patient when cracking, it WILL payoff.

Edward Teach

There are several items that I would like to address.

To Gerald Myers: If you thought that the saga of AWARD MAKER was ongoing, look at the softkeys for MATHBLASTER.

To Bob Igo: The YUMMY file is actually a picture. To display it press OPEN APPLE, OPTION, CONTROL B while the disk is booting. (IIG owners substitute CLOSED APPLE for the OPTION key). The same key combination also works on TASS TIMES. Also, while you are in the cabin in TASS TIMES type "BURGER" (GS only). On my IIG version I BLOADED YUMMY, A\$2000 then typed CALL -3106 to display the hires page.

To Paul Dillon: The Davidson and Assoc. disks use a nifty protection scheme. You said that all that was contained in the H[☒]ELLO file was "POKE 104,32: RUN", but try this:

```
LOAD H[☒]ELLO
LIST
POKE104,32
```

**LIST
POKE104,64
LIST**

What you will find is that the one APPLESOFT listing, with each POKE to 104, becomes a totally new program. The one program is really three programs stacked on top of each other. This is why you had to search the disk for the bytes you needed to change. Be sure to POKE 104,8 before saving any changes.

To Mike Egnotovich: The code you listed for GATO certainly looks like a nibble count. The bit of code you gave was:

```
09FE "INY
09FF BNE 0A05
-- MISSING BYTES --
0A05 LDA C08C,X
0A08 BPL 0A05
0A0A LSR A
0A0B CMP #6A
0A0D BNE 09FE
```

What you need to do is to find the code on the disk and disassemble it. You have given the LOOP at 0A0D, but what if the compared byte is equal to #6A? Then the branch at 0A0D would not be taken. Try tracing the code down a bit (OK.. a few bits) further. At some point you will encounter a RTS or JMP or maybe some branch instruction. When you find that point place a BREAK "00 00 00" over the exit code and reboot the disk. Write down the values in the registers and insert them in the code above. Kill all the BNE's and BEQ's so when this code is encountered it falls through to your patch and then exits with all the values needed to continue running. Look for any place in the code that values are stored before the code exits. The second piece of code looks a lot like normal DOS to me. (Compare it with \$B96F-\$B986 in normal DOS).

Playing Tips for...

Leisure Suit Larry

Sierra On-Line

I've never given adventure hints before. How about if I just tell you where the items are that you need?

- | | |
|-------------------|-------------------------|
| BAR | whiskey |
| ALCOVE | rose, remote controller |
| BATHROOM | password, ring |
| UPSTAIRS OVER BAR | candy |
| FIRE ESCAPE | pills |
| DUMPSTER | hammer |
| CASINO ASHTRAY | disco ticket |
| PENTHOUSE | inflatable doll |
| HONEYMOON SUITE | radio, rope |
| OUTSIDE CASINO | apple |

STORE magazine, wine, lubber
OUTSIDE STORE pocket knife, phone number

Softkey for...

Killed Until Dead

Accolade

■ Requirements

- A sector editor
- a COPYA copy of the disk

I would like to take credit for this softkey, but I can't. I had been working on it for awhile and made some progress. Then a friend showed me a deprotected copy. What should I do, finish my work or simply compare the two disks and see where the differences were. Booting Locksmith 6.0, 16 sector utilities, the compare function, this is what I discovered.

Trk	Sct	Byte(s)	From	To
\$06	\$09	\$52-??	20 75 08 20 06	AD 95 24 49 01
			21 20 75	85 93 60
	\$0A	\$DA-	20	60
\$0E	\$03	\$A1-	09 08	C6 D8
	\$00	\$53-	F0 EC E5 E1 F3	E6 EC E9 F0 A0
			E5 A0 E6 EC E9	E4 E9 F3 EB A0
			F0 A0 F4 E8 E5	A6 A0 E8 E9 F4
			A0 E4 E9 F3 EB	A0 D2 C5 D4 D5
			A0 EF F6 E5 F2	D2 CE AE DE 60
			AE DD DD D0 F2	A9 18 8D 2D D3
			E5 F3 F3 A0 F4	8D 22 D3 A9 EA
			E8 E5 A0 F3 F0	8D 2E D3 8D 28
			E1 E3 E5 A0 E2	D3 8D 29 D3 A5
			E1 F2 A0 EF F2	EC 20 09 08 60
			A0 F4 E8 E5 DD	EA EA EA 85 EC
			DD E6 E9 F2 E5	AD 21 D3 C9 38
			A0 E2 F5 F4 F4	F0 DB A9 18 8D
			EF EE A0 F7 E8	2C D4 8D B5 D4
			E5 EE A0 F2 E5	8D C1 D4 A9 EA
			E1 E4 F9 A0 F4	8D B6 D4 8D C2
			EF DD DD E3 EF	D4 8D BC D4 8D
			EE F4 E9 EE F5	BD D4 EA A5 EC
			E5 AE DE	20 09 08

Was that enough sector editing? Anyway, as I said this was not mine. The credit goes to "TWO KNIVES TAN" and "THE NECROMANCER". If anyone out there knows them, why don't you ask them to write for COMPUTIST?

Deactivating Signature Checks

To follow this article you will need:

- A disk with a signature check
- One formatted empty disk (no Hello)
- A bowl of M&M's

While I was reading COMPUTIST #59, I noticed a call for help from a reader. He thought that he had found a nibble count but was unsure what to do with it. I was going to answer him by referring to a past COMPUTIST. After thumbing through my old issues I realized that no one has given any detail on how to deactivate these checks. Hopefully, what this article will do is give a basic understanding of ways to circumvent this problem. These methods are by no means the only way around these checks and no one method will work every time on every disk.

First things first. If you are the kind of person who says, "I will never understand assembly code" then you are right and need not read further. You have already given up. Keep an open mind and read the parts that you do not understand again. I have listed a complete signature check (in assembly). I have chosen Activisions check since it is fairly straight forward in what it does. (The actual code is from Top Fuel Eliminator).

I located the check by searching the disk for the code "C08C". This is read the disk and usually looks like:

```
800 LDA $C08C,X
803 BPL $800
805 CMP $D5
```

What this means is:

- 800: Read a byte from the disk
- 803: Did you find a byte? If yes go on to the next instruction. If not go back to 800 and read another byte.
- 805: Was the byte a "D5"?

Normal DOS looks for the bytes "D5 AA 96 and AD". So to locate the signature check search the disk for "C08C", you have to reverse the bytes to search (8C C0), and if the bytes compared (CMP) are not a normal byte then you have found the check. I am always suspicious of C08C code outside of the normal DOS area. For instance, why would you need a read routine at track \$10? DOS can read, write or seek once it is in memory, all the code has to do is access it. The chances are, that any additional C08C's are checking something that DOS would not normally look for.

Now that we have searched the disk and found the magic code, what do we do next? I disassemble the sector and look at the code. If the bytes checked are not normal, (D5 AA 96 or AD) then chances are good the code is the check. At this point place a few "00 00 00's" in the code, write it back on the disk and reboot. Hopefully you will end up in the monitor and the screen will show something like:

```
30AD: A=55 Y=03 X=60 P=12 S=F4
```

This is telling you that the program hit the 00's around \$30AB and what values were in the registers when the 00's were encountered.

Readers Data Exchange

If the Hi-res screen blinked on then reset will clear it and show the above information. Boot a disk without a HELLO program and enter the monitor. The area around \$3000 is not overwritten by the boot, so we can examine the code:

CALL -151
3000LLLL

You should now see this code:

3065 PLA	
3066 PLA	Previous routine
3067 RTS	-----
3068 LDA \$C089,X	Turn on drive
306B LDA #56	-----
306D STA FD	!
306F LDA \$08	!
3071 DEC FC	Set up counter
3073 BNE 3079	!
3075 DEC FD	!
3077 BEQ 30AD	-----
3079 LDY C08C,X	!
307C BPL 3079	!
307E CPY \$FB	Search
3080 BNE 306F	!
3082 BEQ 3084	the disk
3084 NOP	!
3085 NOP	find a bunch
3086 LDY C08C,X	!
3089 CPY \$08	of odd
308B ROL	!
308C BCS 3099	bytes
308E LDY C08C,X	!
3091 BPL 308E	and
3093 CPY \$FF	!
3095 BNE 306F	store
3097 BEQ 3084	!
3099 LDY C08C,X	the
309C BPL 3099	!
309E STY FC	final
30A0 CMP \$0A	!
30A2 BNE 306F	one
30A4 LDA C08C,X	!
30A7 BPL 30A4	at
30A9 SEC	!
30AA ROL	\$30D4
30AB AND \$FC	!
30AD EOR \$AA	!
30AF STA 30D4	-----
30B2 LDA \$00	!
30B4 TAY	Wipe out
30B5 STA 3058,Y	the
30B8 INY	above code
30B9 CPY \$5D	!
30BB BNE 30B5	!
30BD RTS	-----
30BE LDA \$26	New routine
30C0 STA FA	!
30C2 LDA \$30	!

Looks really confusing, right? Not to worry, this is now the easy part. You will notice that I marked the beginning of the code (\$3068) and the end (\$30BD). I assumed that, since the code did not BNE, BEQ or JMP outside of this

area, it is the entire code. I started at one RTS and ended at the next RTS. Therefore, the entire code lives at \$3068 - \$30BD.

Just in case I lost you. We searched for C08C on the disk. Then placed a few 00's (BREAKs) in the suspect code, booted and waited for the beep. Pressing reset showed the values stored in the registers and where the break occurred. Booting a disk with no HELLO program loaded a normal DOS and allowed us to examine memory around the place where the code stopped before. We then traced up and down until we found the RTS's.

Now that we have found the code what do we do with it? I would suggest that since our code ends with a RTS, chances are that there is a JSR to \$3068. Maybe we can find it on the disk and simply NOP (EA) it out. After you search the disk you will find that there is a JSR to the routine. Go on and EA the three bytes (20 68 30) and boot the disk. If all the routine does is check and then return then we have defeated the check and deprotected the disk. Wait, what's that.. you say that your computer beeped, dropped into the monitor and locked up? Well, obviously this code stores some needed information to continue running. (This method of EAing the JSR works on Mickey's Space Adventure). What we have just learned is that the signature check will need more work to be bypassed.

Check your printout for any STA, STY, STX, LDA, LDY, or LDX instruction. Write down the locations they address (\$FC, \$FD, and \$30D4). The theory we are now dealing with is that if we store all the correct values in the correct places then the check will pass when we RTS from the subroutine. Did I lose you on that? What this signature check does is locates specific bytes, stores the bytes, then returns. What we can do is bypass the locate, then store the bytes and return. This will work because as long as the proper bytes are in the proper places the code will think that the check worked. The code says:

1. Read the disk
2. Store the bytes
3. Return

We are going to make it say:

1. Store the bytes
2. Return

Now our only problem is where to place the break (00). How about placing it where the last RTS is located (\$30BD). That way all the bytes will be stored and the registers full when the check has passed. Write a 00 at \$30BD. (Write it on the disk). Now boot the disk and when the computer beeps at you press reset to clear the hi-res screen. Write down the values in the registers (A = 55 for example). Boot the disk with no HELLO program, enter the monitor, and grab the other values we need:

CALL - 151
FC
FD
30D4

With all this information we no longer need the signature check. (This would be a lot easier if I actually knew the values to store, but I have changed my disk too much). So while I am going into my "general" mode, we can still finish. The following information will help you to write the patch you need.

```
LDA #XX CODE= A9 XX
LDX #XX CODE= A2 XX
LDY #XX CODE= A0 XX
STA #XX CODE= 85 XX
STA #XXxx CODE= 8D xx XX
```

For those of you that have just acquired a blank stare on you face, picture a bowl full of M&M's. What I want you to do is load 1 red M&M into your hand and store it in your mouth. Now load 1 green M&M into your hand and store it in your pocket. The idea of assembly is load your hand (accumulator) and put it in your mouth (store it). Then load your hand again (accumulator) and put it in your pocket (store it). You understood that right. Now load the accumulator (LDA) with #55 and store it (STA) at \$FC and \$30D4. Load the accumulator and store it, load the accumulator and store it. It would all look like this:

```
A9 55 LDA #55
85 FC STA $FC
A9 55 LDA #55
8D D4 30 STA $30D4
```

We have just stored a #55 (the hex value \$55) at locations \$FC and \$30D4. Using this information how would you load the X and Y registers? Look at the tables, it is not that difficult. Moving on, it is now the time you have been dreading, you HAVE to write some code. On a piece of paper write all the bytes we need to store or load into the registers:

```
$FC = 00
$FD = 05
$30D4 = 55
A = 55
X = 60
Y = 03
```

This translates to:

```
A9 00 LDA #00
85 FC STA $FC
A9 05 LDA #05
85 FD STA $FD
A9 55 LDA #55
8D D4 30 STA $30D4
A9 55 LDA #55
A6 60 LDX #60
A0 03 LDY #03
60 RTS
```

Readers Data EXchange

Now if we insert this code starting at \$306B, then right after the drive is turned on, all the needed values will be stored and all the registers will have the values in them when the RTS is executed. Write this new piece of code to the disk and boot it. If you get further than before, great. If not there may be another check on the disk or you may have missed a value or two.

I knew that this was the entire signature check since all of the BNE's and BEQ's were jumping within the confines of the code. But consider this check from Spy's Adventures in North America. There are two returns (RTS) that must be considered since the code could jump over the first one.

```
0837 LDA $C08C,X
083A BPL $0837
083C CMP #$FF
083E BNE $0890
0840 BEQ $0889
```

Later...

```
0889 LDA $C088,X
088C CLC
088D LDA #$00
088F RTS
0890 DEC $57DE
0893 BEQ $0898
0895 JMP $5722
0898 LDA $C088,X
089B SEC
089C LDA #$FF
089E RTS
```

Look at this code, it is just a variation of the signature check. Trace it through and decide how you would deactivate it. Also where do you think it lives in memory. All the information you need is before you. If you are having trouble, re-read the article. When you have finished check your solution with mine (COMPUTIST #56, page 35). Sit back, finish the M&M's and Enjoy.

Jack R. Nissel

Softkey for...

PSAT/SAT Analogies SAT Word Attack Skills PSAT Word Attack Skills

Edu-Ware

Requirements

- The original Edu-Ware disks
- 3 blank disk sides
- Super IOB v1.5
- A blank initialized slave disk
- A way to reset into the monitor

To deprotect these titles we will use Super IOB with the Swap Controller and use the RWTS of the protected disk to read the original disk then use a normal RWTS to write the information back to your blank disk.

- 1 INITIALize the blank disks.

INIT EDU-WARE
DELETE EDU-WARE

- 2 Boot your original disk and at the Applesoft prompt reset into the monitor.

- 3 Move the RWTS to a safe place, so it won't be destroyed when you boot your slave disk, by entering:

1900<B800.BFFFM

- 4 Boot your slave disk.

C600G

- 5 After the disk boots and the Applesoft prompt appears insert your Super IOB disk and save the RWTS to it.

BSAVE RWTS.PSAT WORD ATTACK SKILLS,
A\$1900, L\$800

- 6 Install the controller into Super IOB, run it and copy your original disks to your blank disks. Answer NO when asked if you want to INITIALize the blank disks.

Note: After copying each disk, when you get the "J" prompt simply type RUN to restart the controller and then copy the next disk.

Controller

```
1000 REM PSAT WORD ATTACK SKILLS
1010 TK = 3:ST = 0:LT = 35:CD = WR
1020 T1 = TK:GOSUB 490:GOSUB 360:ONERR GOTO
550
1030 GOSUB 430:GOSUB 100:ST = ST + 1:IF ST < DOS
THEN 1030
1040 IF BF THEN 1060
1050 ST = 0:TK = TK + 1:IF TK < LT THEN 1030
1060 GOSUB 490:TK = T1:ST = 0:GOSUB 360
1070 GOSUB 430:GOSUB 100:ST = ST + 1:IF ST < DOS
THEN 1070
1080 ST = 0:TK = TK + 1:IF BF = 0 AND TK < LT THEN
1070
1090 IF TK < LT THEN 1020
1100 HOME:PRINT "COPY^DONE":END
10010 PRINT CHR$(4) "BLOAD^RWTS.PSAT^WORD^
ATTACK^SKILLS,A$1900"
```

Checksums

1000 - \$356B	1060 - \$20C0
1010 - \$3565	1070 - \$28C5
1020 - \$6170	1080 - \$6CA2
1030 - \$7771	1090 - \$9DCA
1040 - \$6342	1100 - \$9A4D
1050 - \$ABA3	10010 - \$82EC

Softkey for...

Algebra Volume 3 Algebra Volume 4

Edu-Ware

Requirements

- The original Algebra disk
- Two blank disks
- Super IOB v1.5
- A way to reset into the monitor

To deprotect these titles we will use SUPER IOB with the swap controller and use the RWTS of the protected disk to read the original disk then use a normal RWTS to write the information back to your blank disk.

- 1 Initialize both blank disks.

INIT HELLO
DELETE HELLO

- 2 Boot your original disk and at the Applesoft prompt reset into the monitor.

- 3 Move the RWTS to a safe place, so it won't be destroyed when you boot your slave disk.

1900<B800.BFFFM

- 4 Boot your slave disk.

C600G

- 5 After the disk boots and the Applesoft prompt appears, insert your Super IOB disk and save the RWTS to it.

BSAVE RWTS.ALGEBRA, A\$1900, L\$800

- 6 Install the Algebra controller into Super IOB, run it and copy your original disk to your blank disk. Answer NO when asked if you want to INITIALize the blank disk.

Controller

```
1000 REM ALGEBRA VOLUME 3 AND 4
1010 TK = 3:ST = 0:LT = 35:CD = WR
1020 T1 = TK:GOSUB 490:GOSUB 360:ONERR GOTO
550
1030 GOSUB 430:GOSUB 100:ST = ST + 1:IF ST < DOS
THEN 1030
1040 IF BF THEN 1060
1050 ST = 0:TK = TK + 1:IF TK < LT THEN 1030
1060 GOSUB 490:TK = T1:ST = 0:GOSUB 360
1070 GOSUB 430:GOSUB 100:ST = ST + 1:IF ST < DOS
THEN 1070
1080 ST = 0:TK = TK + 1:IF BF = 0 AND TK < LT THEN
1070
1090 IF TK < LT THEN 1020
1100 HOME:PRINT "COPY^DONE":END
10010 PRINT CHR$(4) "BLOAD^RWTS.ALGEBRA,
A$1900"
```

Checksums

1000 - \$356B	1060 - \$20C0
1010 - \$3565	1070 - \$28C5
1020 - \$6170	1080 - \$6CA2
1030 - \$7771	1090 - \$9DCA
1040 - \$6342	1100 - \$9A4D
1050 - \$ABA3	10010 - \$D939

Softkey for...

Galaxy Math Facts Decimals Galaxy Math Facts Fractions

Random House

Softkey for...

Vocabulary Baseball

J & S Software

Softkey for...

Word Master

DLM Software

Softkey for...

The Game

Random House

Softkey for...

Strategies For Test Taking Following Written Directions

Microcomputer Educational Programs

Requirements

- The original disk(s)
- 1 blank disk for each title
- COPYA from your DOS 3.3 system master
- A sector editor

1 Boot your DOS 3.3 system disk.

2 Tell DOS to ignore checksum and epilop errors and use COPYA to copy the disk.

POKE 47426,24
RUN COPYA

3 Make the following sector edits to the copy you just made.

Trk	Sct	Byte(s)	From	To
\$00	\$03	\$42	38	18

Softkey for...

Secrets of Science Island

Grolier

Requirements

- The original Science Island disk
- 2 blank disks
- Any fast copy program
- Any sector editor

1 Copy both sides of your original disk to your blank disks. Although you can fast copy this disk, it won't work because the disk is checking for a nibble count.

2 Make the following sector edit to side 1 of your copy. This disables the check for the nibble count on the disk.

Trk	Sct	Byte(s)	From	To
\$1F	\$0E	\$3B	BD	60

If you want to see the disassembly of the copy protection look on page 13 of COMPUTIST #24 in the article written by Jay O'Donnell. (I could have listed it here but as Ed Teach said in his letter in COMPUTIST #61, we have to support the magazine. So if you don't have COMPUTIST #24, and you want to see the disassembly, you're going to have to buy the issue).

Step up to my soapbox

To Edward Teach: In regard to your letter in COMPUTIST #61, how do you know if the majority of COMPUTIST readers want a long dissertation of why changing a byte or two causes a program to work because it no longer checks for a nibble count, or why it even checked for a nibble count in the first place? Isn't it possible that most readers just want to deprotect their software so they can enjoy it and don't care why it is, or was, protected? The quantity of software they are able to deprotect may be of more importance to them instead of learning how to boot code trace PAC-MAN.

I don't think either you or I know the answer, so why not ask all of the readers to respond. Let's here from the silent majority. If you have never sent in a softkey now is your chance. Send in one, or two, or three, or whatever number you want, and when you send them in let us know what you think on the issue at hand.

Edward Teach

Softkey for...

Scrabble

Electronic Arts

Requirements

- SUPER IOB 1.5 (w/ CON.STANDARD)
- Copy II Plus
- A Sector Editor
- 2 Formatted empty disks
- 128K APPLE

This is a current release from EA. Yet, the same protection was used on ELITE by Firebird and also on ADVENTURE The Colossal Cave by Apple 1980. Three different companies and eight years between uses. Interesting. First (it seems that everyone is doing this), thanks to Jim Hart! His excellent softkey on ELITE (COMPUTIST #52) will be used extensively in this article. I have added a few extra steps for the beginners.

Boot a normal DOS and catalog the SCRABBLE disk. As the drive grinds away you will notice that no catalog appears. Now try COPY II Plus and be sure to select "show hidden characters". The drive still grinds away, but files are finally revealed. They are:

```
*****
* PROTECTED *
*****
L[CA]OGO
S[CB]CRABTIT
U[CC]SA-SCRABBLE
D-USA-1
D-USA-2
D-USA-3
D-USA-4
```

Nice of EA to tell us that the disk was protected (the fact it would not fast copy did not give us a clue)! If the scheme follows past examples we will be able to copy the files without the control characters in them. Place blank #1 in drive 2 and try to copy the D-USA-# files. They should have copied over without any problem. Do not worry about the files marked "protected" they are BASIC files, but we will not need them. To capture the other files we will need to activate the funny DOS. Let's:

```
CALL -151          enter the monitor
C081 N C081       write enable ramcard
D000<D000.FFFM   move rom image
FFFC:59 FF       change reset vector
C080              enable rom
(insert SCRABBLE disk now)
C600G            boot disk
```

When the "j" prompt appears, press **RESET**. We now have their RWTS in memory and should be able to catalog the disk. However, trying this gives a SYNTAX ERROR. Well if Applesoft won't allow us in we can always try the monitor:

```
CALL - 151
A56G             DOS catalog command
```

This time we are greeted with a BREAK (I have never seen a BREAK in the monitor)!

Strange, so I tried A56EG again this time the filenames scrolled up. I tried BLOADing the S **[ⓐ]** CRABTIT file since it was 34 sectors long and hopefully a picture. When the drive stopped I typed CALL - 3106 to display the hires screen. Great, a picture appears. Now all we have to do is capture this file.

Boot blank disk #1.
BSAVE SCRABTIT, A\$2000, L\$2000

Since our blank has a normal DOS we have just saved the first protected file. The S **[ⓐ]** Crabble file is a bit larger so lets try that one next. Repeat the above steps including the A56EG from the monitor. This softkey only works after the BREAK. We are now ready to save the main program file.

Bload S **[ⓐ]** CRABBLE.
CALL-151
8400<800.8FFM *booting overwrites \$800*
C600G *boot blank +1*
CALL-151
800<8400.84FFM *move \$800 back*
BSAVE SCRABBLE, A\$800, L\$7C00

I will go into how I found the load point and length in a moment. The last file is the Applesoft loader for the two Bfiles. You can either type:

```
10 D$ = CHR$(4)
20 HGR2 : PRINT D$ "BLOAD SCRABTIT, A$4000"
30 FOR I = 1 TO 4000: NEXT
40 TEXT: PRINT "LOADING"
50 PRINT D$ "BRUN SCRABBLE"
```

or repeat the RAMcard steps above and after the break type:

```
LOAD L Control A OGO
CALL -151
8000<800.8FFM
Boot blank #1
CALL-151
800<8000.80FFM
AF:0B 7C
Control C
SAVE LOGO
```

I prefer to keep the disk as close to normal as possible (minus the protection of course). O.K., now for the neat part. Jim had a method for finding the load point and length of a program.

```
CALL -151 enter monitor
800:00 N 801<800.95FFM zero main memory
CONTROL C back to basic
BLOAD program
```

Then hunt through memory until code appears (the blood point), keep typing L's until 00's show up (the end of the file). Then you know where the program started and where it ended. Subtracting the starting location from the ending location and adding 1, will give the size of the program. That is the right way to do it. But, some people find hexadecimal

numbers somewhat hard to understand. So, I will give my alternate way for finding these locations.

The SCRABBLE disk, after track two, is fairly normal. The data headers have been changed to D5 AA CE. This is a simple task for SUPER IOB to correct.

```
RUN SUPER IOB 1.5
EXEC CON.STANDARD
LIST 1010
Change TK=0 into TK=3 to start at track $03.
POKE 47357,234 to ignore the last byte
POKE 47358,234 of the data header.
POKE 47426,24 ignore epilogues
Put blank #2 in drive 2.
RUN
```

The way that DOS runs a program from disk is to look in the catalog for the program name. (Track \$11, sectors \$0F thru \$01 in descending order.) Then after the program is found the track and sector where the T/S list is read. (The T/S list would be like doing a disk map from COPY II Plus). The first sector in the T/S list is read. Then the first four bytes of that sector are read and translated into the load point and length. It would look like this:

```
READ CATALOG
LOCATE T/S LIST
READ T/S LIST
LOCATE FIRST SECTOR OF FILE
READ FIRST SECTOR
LOCATE FIRST FOUR BYTES
```

So, after the copy is finished, boot your sector editor and read track \$11, sector \$0F. This is the catalog track. Look for a file name of one of the protected files. The three bytes immediately before it will show the track and sector of the file map, and also the filetype.

```
XX YY ZZ SCRABBLE
XX = TRACK
YY = SECTOR
ZZ = FILETYPE
```

Now read track XX sector YY. This is the track sector list (T/S list) of the file. There should be a series of 00's then numbers. Again, write down the first numbers after the 00's. This will be the first sector of the file. For example:

In the catalog, you find:

```
14 0C 84 SCRABTIT
```

The T/S list is on track \$14, sector \$0C. At track \$14, sector \$0C you find:

```
00 00 ... 00 00 14 0B 14 0A 14 09
```

The first sector of this file starts on track \$14, sector \$0B.

Read track \$14, sector \$0B and NORMALLY the first four bytes show the load address and length of the file (in hex and in lo-byte, hi-byte order). But, in dealing with a protected DOS we have to make an exception.

The first five bytes are: 00 00 20 00 20

Since this was a 34 sector Bfile I assumed it was a picture and would probably load at \$2000 and be \$2000 long. If you ignore the first byte it makes more sense. After I found the first sector of the USA-SCRABBLE file I was sure that I was right. The USA-SCRABBLE file first bytes are:

```
01 00 08 00 7C
```

Ignoring the first byte and remembering that addresses in Apple are backwards (xx XX is really XX xx), shows that this file would BLOAD at \$0800 and be \$7C00 long. To test this out BLOAD the deprotected SCRABBLE from blank #1 and type:

```
CALL-151
AA72 AA73 AA60 AA61
```

You will see that:

```
AA72 = 00 (xx load point lo byte)
AA73 = 08 (XX load point hi byte)
AA60 = 00 (yy length lo byte)
AA61 = 7C (YY length hi byte)
```

This is where we get the BSAVE program, A\$XXxx, L\$YYyy.

You could have typed 800G. If the program starts (it will) then you have found the beginning of the file.

Applesoft files usually load at \$0801 and the length of the file is stored at \$AF-\$B0. To find the length of the LOGO file I looked through my "collection" until I found another 5 sector Applesoft file and then I loaded it. I entered the monitor and typed AF B0. That is how I got the values to store earlier in the article. There is probably a better way, but this works fine. Listing the LOGO file shows that the only need for the imbedded control characters is for loading the subsequent programs. So if you change that listing to load files without the odd names you can rename the USA-SCRABBLE and SCRABTIT files to whatever names you would like. You should now have seven files on blank #1. Renaming LOGO to HELLO will allow the disk to self boot. ENJOY!

Softkey for...

Reading Skills Two
American Educational Computer

Well Mr. Nissel, I agree with the comment you made about "The silent majority". Lets hope that they all start spreading the word (HINT. HINT.) to BBS's and Users groups that COMPUTIST is alive and well. And here is a softkey especially for Jack. Short and to the point. To copy this disk use the SWAP controller after capturing the RWTS. Jack, the only way that I could have kept this shorter was to write: Use swap controller.

A fix for the Controller Writer

One of the reasons that I don't submit many softkeys with controllers is that I have never figured out how to write them. But I do have a copy of the Controller Writer from COMPUTIST #16. There does appear to be one small bug in my copy. I do not know if it was a typo or a true bug. This only shows up when you are writing a controller that does a number of sector edits. This is the line that I changed and now it appears to work correctly:

```
1350 PRINT "1060"; IF SE THEN PRINT "RESTORE:
GOSUB 310";
```

You might also like to add the line

```
1485 PRINT "RUN"
```

⊗ Does the COMPUTIST Starter Kit include the controller writer?

It does now. RDEXed

Don McClelland

Softkey for...

Magic Spells

Learning Company

Requirements

- DOS 3.3 system disk
- ProDOS system disk
- two blank disks

My version of Magic Spells is on a ProDOS disk with modified address and data epilogs. These are changed from the normal DE AA to FF FF. This prevents many copiers from reading the disk.

At the disk level both ProDOS and DOS 3.3 are the same. ProDOS has tracks and sectors just as DOS 3.3, only two sectors are used for each ProDOS block. Knowing this, we can copy Magic Spells with COPYA.

1 Boot your DOS 3.3 system disk.

2 Tell DOS to ignore checksum and epilog errors and use COPYA to copy the original to your first blank disk.

POKE 47426,24
RUN COPYA

3 Boot your ProDOS system disk and initialize the second blank disk.

4 Transfer the files (via whatever file transfer utility you like) from the first disk to the second disk (except ProDOS). Put the latest version of ProDOS on the disk and enjoy.

My Magic Spells (I believe to be one of the originals) had ProDOS 1.1.1 on it. They may have changed or altered their protection scheme but this should get the job done or get you started in the right direction if yours is different.

Now to leap atop my soap box on the discussion between Mr. Teach and Mr. Nissel. On one hand I like the knowledge gained from the long softkeys and kind of agree with Mr. Teach. But when you just want to quickly deprotect a program Mr. Nissel is to be agreed with. In either case, I already know how to "Boot Code Trace" PacMan. When you write try to include both the long and short cookbook methods.

Eric Delbridge

Ultima V Character Editor

When I received Ultima V, I was very impressed. But when I decided to transfer my Ultima IV Avatar to Ultima V, the game downgraded his level and his abilities. My character editor corrects that problem. Just enter the program and save it as "ULTIMA QUICK EDITOR". Backup your Britannia disk before editing.

Warning: Enter this program from ProDOS.

ULTIMA QUICK EDITOR

```
10 REM "ULTIMA V CHARACTER EDITOR
20 REM "BY ERIC DELBRIDGE
30 REM "WRITTEN 8/17/88
40 REM
50 GOTO 270
60 HOME : PRINT : HTAB 20 - LEN (Q$) / 2 : PRINT Q$ :
FOR X = S1 TO S2 : POKE X, 153 : PRINT " ." ;;
NEXT : PRINT : PRINT : PRINT : HTAB 18 : PRINT
"DONE" : FOR X = 1 TO 1000 : NEXT : GOTO 320
70 REM "CONV HEX TO BCD
80 X = 0
90 IF LB > 15 THEN X = X + 1 : LB = LB - 16 : GOTO 90 :
REM "CALC HI NYBBLE
100 IF X > 9 THEN X = 9 : REM "NO HEX PLEASE
110 IF LB > 9 THEN LB = 9 : REM "NONE HERE EITHER
120 LB$ = STR$ (X) + STR$ (LB) : X = 0
130 IF HB > 15 THEN X = X + 1 : HB = HB - 16 : GOT0 130 :
REM "CALC HI NYBBLE
140 IF X > 9 THEN X = 9 : REM "NO HEX PLEASE
150 IF LB > 9 THEN LB = 9 : REM "NONE HERE EITHER
160 HB$ = STR$ (X) + STR$ (HB)
170 AM$ = LB$ : IF MX > 99 THEN AM$ = HB$ + LB$
180 Q$ = "CURRENT" + Q$ + "(" + AM$ + ")"
190 HOME : C$ = "" : PRINT : HTAB 20 - LEN (Q$) /
2 : PRINT Q$ : PRINT : HTAB 14 : INPUT "CHANGE
TO:" ; C$ : IF LEN (C$) = 0 THEN C$ = AM$
200 C = VAL ( RIGHT$ (C$, 5)) : C$ = STR$ (C) : IF C
< 0 OR C > MX THEN 190
210 N = 2 : IF MX > 99 THEN N = 4
220 IF LEN (C$) < N THEN C$ = "0" + C$ : GOTO 220
230 HB$ = "00" : LB$ = RIGHT$ (C$, 2) : IF N = 4 THEN
HB$ = LEFT$ (C$, 2)
240 HB = VAL ( LEFT$ (HB$, 1)) * 16 + VAL ( RIGHT$
(HB$, 1)
250 LB = VAL ( LEFT$ (LB$, 1)) * 16 + VAL ( RIGHT$
(LB$, 1))
260 RETURN
270 TEXT : HOME : BD$ = "-----"
-----"
280 PRINT BD$; : HTAB 8 : PRINT "ULTIMA^ V^
CHARACTER^ EDITOR" : HTAB 11 : PRINT "BY^
ERIC^ DELBRIDGE" : PRINT BD$ : POKE 34, 5 :
VTAB 16 : PRINT BD$ : POKE 35, 15
290 VTAB 10 : PRINT "INSERT^ BRITANNIA^ DISK^ AND^
PRESS^ ANY^ KEY" : POKE - 16368, 0
300 IF PEEK (- 16384) < 128 THEN 300
310 POKE - 16368, 0 : PRINT CHR$ (4) "BLOAD^
ROSTER, ^ A$8000, ^ D1"
320 HOME : PRINT TAB ( 5) "(1)^ MAX^ OUT^
CHARACTERS"
330 PRINT TAB ( 5) "(2)^ MAX^ OUT^ WEAPONS^ & ^ ARMOR"
340 PRINT TAB ( 5) "(3)^ MAX^ OUT^ SPELLS"
350 PRINT TAB ( 5) "(4)^ MAX^ OUT^ POTIONS/
SCROLLS"
360 PRINT TAB ( 5) "(5)^ MAX^ OUT^ REAGENTS"
370 PRINT TAB ( 5) "(6)^ EDIT^ FOOD/GOLD/ETC. "
380 PRINT : PRINT TAB ( 5) "(7)^ SAVE^ AND^ QUIT"
390 POKE - 16368, 0
400 K = PEEK (- 16384) : IF K < 128 THEN 400
410 POKE - 16368, 0
420 IF K = 177 THEN 830
430 IF K = 178 THEN Q$ = "MAXING^ OUT^ WEAPONS^ & ^
ARMOR" : S1 = 33280 : S2 = 33343 : GOTO 60
440 IF K = 179 THEN Q$ = "MAXING^ OUT^ SPELLS" : S1
= 33344 : S2 = 33391 : GOTO 60
450 IF K = 180 THEN Q$ = "MAXING^ OUT^ POTIONS^ & ^
SCROLLS" : S1 = 33392 : S2 = 33407 : GOTO 60
460 IF K = 181 THEN Q$ = "MAXING^ OUT^ REAGENTS"
: S1 = 33440 : S2 = 33449 : GOTO 60
470 IF K = 182 THEN 550
480 IF K = 183 THEN 500
490 GOTO 400
500 PRINT CHR$ (4) "BSAVE^ ROSTER, ^ A$8000, ^
L$400, ^ D1" : TEXT : HOME : PRINT "DONE"
510 END
520 REM
530 REM * MAX OUT FOOD/GOLD *
540 REM
550 HOME : PRINT TAB ( 5) "(1)^ EDIT^ GOLD"
560 PRINT TAB ( 5) "(2)^ EDIT^ FOOD"
570 PRINT TAB ( 5) "(3)^ EDIT^ KEYS"
580 PRINT TAB ( 5) "(4)^ EDIT^ GEMS"
590 PRINT TAB ( 5) "(5)^ EDIT^ TORCHES"
600 PRINT TAB ( 5) "(6)^ EDIT^ GRAPPLING^ HOOK"
610 PRINT TAB ( 5) "(7)^ EDIT^ FLYING^ CARPETS"
620 PRINT : PRINT TAB ( 5) "(8)^ RETURN^ TO^ MAIN^
MENU"
630 POKE - 16368, 0
640 K = PEEK (- 16384) : IF K < 128 THEN GOTO 640
650 POKE - 16368, 0
660 IF K = 177 THEN LB = PEEK (33154) : HB = PEEK
(33155) : MX = 9999 : Q$ = "GOLD" : GOSUB 80 :
POKE 33154, LB : POKE 33155, HB : GOTO 550
670 IF K = 178 THEN LB = PEEK (33152) : HB = PEEK
(33153) : MX = 9999 : Q$ = "FOOD" : GOSUB 80 :
POKE 33152, LB : POKE 33153, HB : GOTO 550
680 IF K = 179 THEN LB = PEEK (33156) : MX = 99 : Q$
= "KEYS" : GOSUB 80 : POKE 33156, LB : GOTO 550
```



```

690 IF K = 180 THEN LB = PEEK (33157):MX = 99:Q$
= "GEMS" : GOSUB 80: POKE 33157, LB: GOTO
550
700 IF K = 181 THEN LB = PEEK (33158):MX = 99:Q$
= "TORCHES" : GOSUB 80: POKE 33158, LB: GOTO
550
710 IF K = 182 THEN 750
720 IF K = 183 THEN LB = PEEK (33160):MX = 99:Q$
= "CARPETS" : GOSUB 80: POKE 33160, LB: GOTO
550
730 IF K = 184 THEN GOTO 320
740 GOTO 630
750 LB = PEEK (33159):A$ = "(NO)": IF LB = 1 THEN
A$ = "(YES)"
760 HOME : C$ = "" : PRINT : Q$ = "GRAPPLING*HOOK?"
" + A$: HTAB 20 - LEN (Q$) / 2: PRINT Q$:
PRINT : HTAB 14: PRINT "CHANGE*TO*(Y/N)":
:: GET C$: PRINT : IF C$ = CHR$ (13) THEN C$
= MID$ (A$, 2, 1)
770 IF C$ <> "Y" AND C$ <> "N" THEN 760
780 LB = 0: IF C$ = "Y" THEN LB = 1
790 POKE 33159, LB: GOTO 520
800 REM
810 REM * Max Out Party *
820 REM
830 HOME : PRINT : PRINT : HTAB 5: PRINT "MAXING*
OUT*CHARACTER*(00)":
840 FOR X = 1 TO 16: X$ = RIGHT$ ( "0" + STR$
(X), 2): PRINT CHR$ (8) CHR$ (8) CHR$ (8) X$
")";
850 Y = 32880 + (16 * X)
860 POKE Y + 4, 48: POKE Y + 5, 48: POKE Y + 6, 48:
POKE Y + 7, 153
870 POKE Y + 8, 153: POKE Y + 9, 153: POKE Y +
10, 153: POKE Y + 11, 153
880 POKE Y + 12, 153: POKE Y + 13, 153: POKE Y + 14, 9
890 NEXT X
900 VTAB 7: PRINT "DONE" : GOTO 320
910 A = 98: B = 31: GOSUB 160: PRINT A$, B$: END
    
```

Checksums

10	- \$BADD	470	- \$821B
20	- \$9B13	480	- \$3552
30	- \$4D3B	490	- \$7045
40	- \$AD92	500	- \$47FB
50	- \$44ED	510	- \$556F
60	- \$948F	520	- \$EC10
70	- \$B9AC	530	- \$CF8A
80	- \$C6F1	540	- \$1D0A
90	- \$B500	550	- \$751C
100	- \$E5D3	560	- \$88D0
110	- \$8612	570	- \$A44E
120	- \$D6E7	580	- \$7B8A
130	- \$FB22	590	- \$5DC3
140	- \$2789	600	- \$08CE
150	- \$8C5C	610	- \$5320
160	- \$077F	620	- \$5693
170	- \$6964	630	- \$BB29
180	- \$17E4	640	- \$8B9B
190	- \$C589	650	- \$0B26
200	- \$303A	660	- \$787F
210	- \$CA2B	670	- \$6B9A
220	- \$C84A	680	- \$8EFF

230	- \$1FBA	690	- \$7827
240	- \$9DBD	700	- \$D934
250	- \$3CD8	710	- \$2D4E
260	- \$FB2F	720	- \$F083
270	- \$E6A2	730	- \$792D
280	- \$6ACE	740	- \$6DDB
290	- \$3F03	750	- \$360E
300	- \$6E7E	760	- \$E6A0
310	- \$5F2C	770	- \$A9DB
320	- \$3985	780	- \$4C54
330	- \$6272	790	- \$CA0B
340	- \$7F3A	800	- \$427E
350	- \$8EB1	810	- \$8B2D
360	- \$10C3	820	- \$A455
370	- \$27B0	830	- \$6094
380	- \$2F9F	840	- \$A60A
390	- \$78D7	850	- \$6A51
400	- \$9FA5	860	- \$D5C9
410	- \$FA45	870	- \$E24A
420	- \$148A	880	- \$B037
430	- \$2D3E	890	- \$C12A
440	- \$7EB2	900	- \$9E54
450	- \$8AE4	910	- \$03DB
460	- \$1B1F		

Playing Tips for...

Ultima V

Origin Systems

There are six steps needed to complete Ultima V. These are the six steps, with directions on how to complete them.

- Obtain all 3 shards. The shards are found in the underworld. Two of the coordinates are (C0,50) and (B0,BB). To find your coordinates press **[F2]** on a IIs or **[F4]** on a Iie. The last four numbers are your coordinates.

- Use the shards. Once you have the shards, go to each of the castles. Find the flames of truth, courage, and love. Get below the flame. Summon the shadowlord that is opposite to the flame (truth-falsehood, courage-cowardice, love-hatred). To do this you must shout their names. Falsehood is Faulinei, Hatred is Astaroth, Cowardice is Nofentor. The lord will appear above the flame. Pass a turn, then use the correct shard, you have destroyed a shadowlord.

- Retrieve the lost articles. You must find the scepter, Crown, Amulet, and Sandalwood Box. They are in Stonegate, top level of Blackthorn's castle, lower left of underworld, top level of Lord British's castle, respectively.

- Become level 8.

- Quests. Go to each shrine and do what they tell you.

- Lord British will ordain you in your sleep once you have completed the above in any order. Then go to (80,80) in the underworld, to the eight level. You must find a certain room, and stand before the mirror. You're done!

Zorro

I would like to trade my original of Marble Madness by Electronic Arts for a working original of Rescue Raiders by Sir-Tech. When you respond, write your address also so I can give you mine.

Playing Tips for...

Maniac Mansion

Lucasfilm

- The water valve, pool, and padlocks on the outer lab door all have something in common. Put one kid near the pool, and the other by the valve, turn on the valve, and see what lies in the depths.

- Where would you hide your tools? Look in the trunk outside.

- In the dungeon, if 2 go in, only 1 will come out with the help of a certain loose brick near a window.

- Just too wimpy to open the door? Pump some iron on the 3rd floor.

- Can't find the water valve? Pump iron and lift an exterior grate.

Paul A. Johnson

2400 AD Quick Mapper

For those of you that are playing 2400 A.D., here's a Q+D (Quick and Dirty) approach to mapping in 2400 A.D. The following list describes each symbol:

- + Walls (even the ones that look like paneling)
- S Gravity tube ENTRANCES and ladders
- : Counters (the kind in the kitchen)
- . Doors (both locked and unlocked)
- / Slidewalks
- G Garbage that you CAN'T walk on
- w Windows
- F Force fields

The reason I included the 'G' is so I could get a map of the City Dump. I felt that these symbols would help me play the game without giving away too much information. Also, with about 255 different shapes (with some repeats), a program that would map everything would be way too slow.

This program maps the ground level of Metropolis. If you want to map the Underground, then make the following changes:

1. Lines 140-150 change `"/PLYR/MAP/"` to `"/GAME/MAP"`
2. Lines 1000-1010 insert a REM at the beginning.

When the program asks, "Which Page" it is asking you to input a number from 1-7 (for city) or 1-15 (for underground) from the the figures shown. If you map the entire city and put the pages together as shown in the figure, you will get a complete map of the city as it is in the game. This is not the case for the underground, though. In an attempt to save paper, three of the totally enclosed areas are not where they are in the game. The first of these is on page 7, in the lower right corner. It is an enclosed room with one 'S' in it. The other two are on page 8. They are the top two rooms on the page. They are supposed to be on the 3rd level down, but I didn't want to waste a sheet of paper for just two rooms. If you don't understand, just play the game and it will become clear.

You probably noticed that I didn't include the upper floors of the buildings in this program. I didn't feel that it was necessary to have them, so I didn't put them in, but if anybody wants to be able to map them, then they can say so in a letter to the RDEX and I will give them the information they need. Also, if anybody wants to build this program into a complete mapper/editor, then go ahead, but make sure you share it with the rest of us by writing to COMPUTIST.

Oh, by the way, here are some important words that you need to know to play the game: ACCTRM, CHLOBU, DDDUD, EDDONE, LETSGO, MADEIT, and PERABR.

Figure 1 : Metropolis

	Page 2	Page 5	
Page 1	Page 3	Page 6	Page 7
	Page 4		

Figure 2 : Underground Level 1

Page 1	Page 3	Page 5	
Page 2	Page 4	Page 6	Page 7

Figure 3 : Underground Level 2

Page 8	Page 10	Page 12	Page 14
Page 9	Page 11	Page 13	Page 15

MAPPER.2400AD

10 REM * MAKE SURE YOU TYPE THIS IN USING
PRODOS !!!!!

```

20 REM *
30 REM * MAPPER.2400AD BY PAUL A. JOHNSON
40 REM *
100 DIM BY(56)
110 INPUT "WHICH PAGE (1-7) : " ; PG
115 IF PG < 0 THEN END
120 GOSUB 1000
130 FOR Q = (PG - 1) * 8 + 1 TO (PG - 1) * 8 +
      8 STEP 2
140 PRINT CHR$(4) "BLOAD" /PLYR/MAP,A8192,
      L512,B" BY(Q) * 512
150 PRINT CHR$(4) "BLOAD" /PLYR/MAP,A8704,
      L512,B" BY(Q+1) * 512
160 FOR Y = 0 TO 15
170 AS(0) = "" : AS(1) = ""
180 FOR X = 0 TO 31
190 FOR Z = 0 TO 1
200 A(Z) = PEEK(8192 + 32 * Y + X + 512 * Z)
210 IF A(Z) > 3 AND A(Z) < 8 OR A(Z) = 42 OR A(Z)
      = 48 OR A(Z) = 224 THEN AS(Z) = AS(Z) + "+"
      : GOTO 300
220 IF A(Z) < 64 AND A(Z) > 60 OR A(Z) = 56 OR A(Z)
      = 57 THEN AS(Z) = AS(Z) + "S" : GOTO 300
230 IF A(Z) > 63 AND A(Z) < 68 OR A(Z) = 72 OR A(Z)
      = 73 THEN AS(Z) = AS(Z) + "." : GOTO 300
240 IF A(Z) > 7 AND A(Z) < 12 THEN AS(Z) = AS(Z)
      + " " : GOTO 300
250 IF A(Z) > 31 AND A(Z) < 36 THEN AS(Z) = AS(Z)
      + "/" : GOTO 300
260 IF A(Z) = 78 OR A(Z) = 79 THEN AS(Z) = AS(Z)
      + "G" : GOTO 300
270 IF A(Z) = 237 OR A(Z) = 236 THEN AS(Z) = AS(Z)
      + "w" : GOTO 300
280 IF A(Z) = 244 THEN AS(Z) = AS(Z) + "F" : GOTO
      300
290 AS(Z) = AS(Z) + "a"
300 NEXT Z
310 NEXT X
320 PRINT AS(0) ; AS(1)
330 NEXT Y
340 PRINT CHR$(4) "FRE"
350 NEXT Q
360 PRINT CHR$(4) "PR#0" : GOTO 110 : END
1000 RESTORE : FOR B = 1 TO 56 : READ BY(B) : NEXT
      : PRINT CHR$(4) "PR#1" : RETURN
1010 REM DATA 30,72,29,28,31,72,72,72,23,22
      ,72,21,72,20,0,1,7,6,8,9,15,14,16,17
      ,72,32,72,33,72,34,72,35,25,27,24,26
      ,72,72,2,3,5,4,10,11,13,12,18,19,72,
      38,36,37,72,39,72,72
1020 RESTORE : FOR B = 1 TO 112 : READ BY(B) : NEXT
      : PRINT CHR$(4) "PR#1" : RETURN
1030 DATA 4,4,4,4,4,4,26,23,27,24,4,25,4,4
      ,4,4,4,4,4,7,8,6,4,19,2,18,3,17,16
      ,4,4,21,4,20,4,9,10,5,11,1,12,0,13,1
      5,14,4,4,4,28,4,4,4,4,4,22
1040 DATA 53,54,4,4,4,4,51,4,4,50,4,49,4,4
      ,4,4,4,29,4,30,31,32,4,40,4,41,48,47
      ,4,52,4,4,4,4,4,33,34,39,38,42,43,
      46,45,4,4,4,4,4,4,4,35,4,37,36,44,
      4,4,4,4,4,4
    
```

Checksums

10	- \$BADD	240	- \$C335
20	- \$9B13	250	- \$5EE1
30	- \$4D3B	260	- \$F3E1
40	- \$AD92	270	- \$4286
100	- \$5FD8	280	- \$4373
110	- \$CE65	290	- \$65C9
115	- \$0AAD	300	- \$DDD8
120	- \$F501	310	- \$6624
130	- \$657D	320	- \$DFCA
140	- \$16B8	330	- \$FB9E
150	- \$57F0	340	- \$A336
160	- \$E359	350	- \$DD26
170	- \$1E7B	360	- \$4B6C
180	- \$DD7F	1000	- \$DCBD
190	- \$6172	1010	- \$D491
200	- \$01C2	1020	- \$D4F0
210	- \$E82D	1030	- \$51FD
220	- \$3765	1040	- \$3F7C
230	- \$FBDA		

Doc Devious

I'd like to start, in the usual way, by saying that COMPUTIST is the best hacker magazine of its kind (actually, its the only one). I've read COMPUTIST since #48 and thought it was about time I stopped mooching and contribute. With a magazine of this type, public response is absolutely necessary (hint, hint). So, I'd like to start sending in stuff, hopefully I can send in something every issue (I'll see).

My nickname, as you can see above in the balloon, is DOC DEVIOUS. How did I get that you wonder, or you might not. Well the thing I do best is doing "docs" (that is, ATPs, hints, info) on games, and other things. My friends call me "Doc", as in Doc Who, Doc Holiday, or Doc in Forbidden Planet.

If anybody out there in Apple land needs help with any programs, in the form of info or otherwise, just crank up the bat signal, and ask for help in the RDEX. I'll do my darnest to help in any way I can.

Q To Edward Teach: In COMPUTIST #56, page 35, you mentioned the product Intercept 1.2. This sounds like a must have product for my sonic screwdriver collection, but you neglected to tell us where or how we could get this awesome item (like putting candy just out of a kid's reach). I'd be much obliged if you could give me an address or phone number to reach the distributors. Thanks.

Note on Ultima V APT

It seems that if you edit your attributes, you only get 1 move out of 25 during a battle. Definitely not very good when you're fighting a shadowlord and you're alone in a corner with him pounding on you.

Kudos to Ronald Mundell (COMPUTIST #56) and Les B. Minaker (COMPUTIST #59) and all the rest for their Ultima V help.

The only criticisms of Ultima V I have are the cryptic writing (it stinks) which you have to decode, reagents, and you can get through the game without using a spell (of course, you can also cheat, one of my weaknesses).

⊕ What is the sandelwood box for? What happens if you use the ankh? What do the spirit collars do?

Giveaways for ULTIMA V

Disclaimer: I'm not sure everything is right. Do not read this unless you want to win easily!

- Words to open dungeons.
 - covetous - malum
 - hythloth - ignavus?
 - destard - inopia
 - shame - infama
 - deceit - fallox
 - despise - uvilis
- Blackthorn's palace is where Mondain's skull was.
- If you get caught by Blackthorn, DO NOT tell him the mantras because he uses the mantra to destroy the shrines. Ask Gorn in prison about escape, search for keys in the middle brazier. Attack the guards before they attack you!
- If you get a shrine blown up, go to it and pay for its rebuilding.
- Smith the talking horse is in Iolo's barn the second time you go in there. Use the well to wish for a horse.
- Glass sword is in serpent's spine mts range. (Where the big ankh was in Ultima IV.)
- Where the bell of courage was in Ultima IV, there is a hut now, talk to the guy there and he will tell you about the shadowlords.
- Mystics in abyss thru hythloth.
- You can take a one-way trip to underworld via whirlpool.
- Places to find people.
 - Mariah - Lycaem
 - Gorn - Blackthorn's palace
 - Senti - Brodermarch
 - Dupre - Brodermarch
 - Geoffrey - Buccaneer's Den
 - Katrina - New Magincia
 - Jaana - Yew
 - Gwenno - Britain
 - Johne - find him in underworld via the whirlpool
 - Shamino - already have
 - Iolo - already have
 - Julia - ?
 - Maxwell - student somewhere?
 - Toshi - ?
 - Saduj - ?
- Stonegate: The shadowlords hell in Britannia.
 - Need skull keys
 - answer to daemon's riddle - a well

● all the shadowlord's are here (just time stop them)

● sceptre of LB (Lord British) is here, it dispels all fields (poison, fire, etc), Shadowlords will take this back if they catch you, or do battle with you!

● **Amulet of LB:** Follow LB's path in underworld (use falls in small lake SW of Trinsic) then go S, W past S tributary, N at fork (wall on right) and land on southern shore. Go SE, row S by SE following shore. At southern shore, follow westernmost of two streams, continue N, the go S, row S, through 4 falls. Land on southern shore. Go S through fissure in cliff wall (path curves N). Watch out for tentacles. Flee to N side of cavern, go E, then head S again. (Large cavern.) Turn right and hug southern wall, wall curves N, take NE passage. You should be in a large grassy area. You'll probably be attacked by mongo bats. That's it! You're where the Shadowlords downed British!

● Known settlements and virtue held (if any):

- LB's castle (of course)
- Lycaem
- Empath Abbey - love
- Serpent's Hold - valor
- Britain
- N, W, E Britainny
- Buccaneer's Den
- Cove - compassion?
- Jhelom - spirituality?
- Minoc - sacrifice
- Moonglow - honesty
- New Magincia
- Paws
- Skara Brae - humility
- Trinsic - honor
- Yew - justice
- 4 lighthouses
- Location of shards.
 - falsehood - dungeon deceit - go SW to intersection, NW then NE, W, SW, then across five Ws.
 - hate - underworld or shame? - if underworld then at LI,LA (lat., long.)?
 - cowardice - ?
- **Stars:** You get a couple of chances to look at the stars. They correspond to a major city, and the three comets are the shadowlords attacking the city. Starting from the sun (LB's castle?) the orbits are spiraling out
 - honesty
 - compassion
 - valor
 - justice
 - sacrifice
 - spirituality
 - humility
- each virtue corresponds to above city, towne, etc.
- Spells, levels, descriptions, and when you can use it. Level corresponds to users level needed to cast. (Key to abbreviations for when

to use: at-anytime, cm-combat, nc-noncombat, dn-dungeon.)

1st level (circle)

An Nox	cure poison	at
An Zu	awaken	cm
Grav Por	missile	cm
In Lor	light	nc
Mani	heal	at

2nd level

An Sanct	unlock	at
An Xen Corp	repel undead	cm
In Wis	locate (lat,long)	nc
Kal Xen	call animal	cm
Rel Hur	wind change	nc

3rd level

In Flam Grav	wall of fire	dn/cm
In Nox Grav	wall of poison	dn/cm
In Por	blink	at
In Zu Grav	wall of sleep	dn/cm
Vas Flam	ball of flames	cm
Vas Lor	great light	nc

4th level

An Grav	dispell field	at
Des Por	move down	dn
In Sanct	protection	at
In Sanct Grav	protection field	dn/cm
Uus Por	move up	dn
Wis Quas	reveal	cm

5th level

An Ex Por	magic lock	at
In Bet Xen	insect swarm	cm
In Ex Por	magic unlock	at
In Zu	sleep	cm
Rel Tym	quickness	cm
Vas Mani	great heal	nc

6th level

An Xen Ex	charm	cm
In An	negate magic	at
In Vas Por Ylem	tremor	cm
Quas An Wis	confuse	cm
Wis An Ylem	xray	nc

7th level

In Nox Hur	poison wind	cm
In Quas Corp	fear	cm
In Quas Wis	peer	nc
In Quas Xen	clone	cm
Sanct Lor	invisibility	cm
Xen Corp	kill	cm

8th level

An Tym	stop time	at
In Flam Hur	flame wind	cm
In Mani Corp	resurrect	nc
In Vas Grav Corp	cone of energy	cm
Kal Xen Corp	summon	cm
Vas Rel Por	gate travel	nc

● Be careful when using combat spells, always position the caster at the front of the group so he doesn't hit any other of your party (a new factor), this goes for weapons to (you can't shoot through your guys!).

● In the tower of LB's castle, use the cannons to kill the guard and blow open the locked door to get into his quarters. The carpet in his room is a magic flying carpet, you will need this. You can keep getting magic carpets when you leave the castle and come back.

● Avoid gargoyles at all costs, unless all of your party has invisibility rings, because when hit they split into two new creatures!

● The crown of LB makes all magic useless in Blackthorn's palace, it absorbs it.

● You can get more than one skiff onto a boat. Kill some pirates, board their ship, X)it, and board your own.

● You need a magic bow to normally get each shard, you have to shoot them so they glide over the water to you??

● When a shadowlord is attacking a city, and you enter that city, it will say a aura of so-and-so surrounds you, if its hate, people will attack you, if cowardice, they run away, if falsehood, then what, they lie??

● When following the path of LB to the underworld, you should see the bodies of the deceased knights that died while helping LB. ??

● That familiar figure in your campfire is none other than LB.

Sound Bugs

When they rushed out Ultima V, they goofed up on some sound routines when dealing with an IIGs and the following sound cards:

1. Mockingboard
2. Phasor
3. Passport MIDI

You will not get the quality sound from the game that you should, unless you type the following program in!

```
10 REM ULTIMA V MUSIC PATCH FOR THE APPLE IIGS
20 FOR I = 768 TO 802: READ A: POKE I, A: NEXT :
CALL 768
```

```
30 DATA 24, 251, 194, 48, 244, 11, 0, 162, 3, 35, 34, 0,
0, 225, 244, 4, 0
```

```
40 DATA 244, 0, 0, 244, 0, 3, 162, 3, 16, 34, 0, 0, 22
5, 56, 251, 226, 48, 96
```

Checksums

10	- \$BADD	30	- \$3BF1
20	- \$9AE2	40	- \$835F

SAVE it, then run it. Insert the Ultima V program disk, and PR#6. Have fun!

For the pro-hackers: (the assembled version of above patch)

```
300: 18 Go to 65816 native mode
```

```
301: FB
302: C2 30 Set register widths to 16 bits
304: F4 0B 00 Set up to disable ADB interrupts
307: A203 23 And call tool $2303 (Insourse)
30A: 22 00 00 E1
30E: F4 04 00
311: F4 00 00 Point interrupt manager vector
314: F4 00 03 to Ultima V music handler at $300
317: A203 10
31A: 22 00 00 E1 Call tool $1003 (Setvector)
31E: 38
31F: FB
320: E2 30 Back to emulation mode & 8-bit register
322: 60
```

Thats all the docs I can rack my brain for at the moment, hope you have fun saving Britania from evil.

Program Shorts

I really hate those gigantic programs that you spend hours typing. So here are some short programs (compiled for all over) that do really interesting things.

● Tells you which operating system your using.

```
10 IF PEEK (48640) = 76 THEN PRINT "PRODOS*
INSTALLED" : GOTO 30
20 PRINT "DOS*3.3* INSTALLED"
30 END
```

Checksums

10	- \$836F	30	- \$0405
20	- \$56BC		

● Adds a patch to DOS 3.3 CATALOG command.

1. in 40-col mode it displays in 2 columns
2. lock files in inverse
3. deleted files indicated with # symbol

```
10 FOR I = - 20945 TO - 20941: POKE I, 234: NEXT
20 POKE - 20969, 14: POKE - 21084, 44: POKE
20931, 44
```

```
30 POKE - 21049, 142: POKE - 21048, 253: POKE -
21079, 88
```

```
40 POKE - 21078, 252: POKE - 17159, 142: POKE -
17158, 253
```

```
50 POKE FOR I = - 21031 TO - 20995: READ X: POKE
I, X: NEXT
```

```
60 DATA 48, 31, 189, 200, 180, 41, 127, 160, 7, 10,
10, 176, 3, 136, 208, 250, 185, 167, 179, 72,
189, 200, 180, 16, 3, 104, 208, 7, 104, 208, 6,
234, 169, 35, 41, 63
```

Checksums

10	- \$B839	40	- \$E295
20	- \$4BC1	50	- \$2625
30	- \$86D9	60	- \$AC9B

To install, RUN this program, then INIT the disks you want this patch to be put on.

● Find AppleMouse II card in any slot if present.

1. Put # of slot of card in variable M

```
10 FOR T = 0 TO 6: IF PEEK (49420 + (T * 256)) =
32 AND PEEK (49659 + (T * 256)) = 214 THEN
M = T + 1: PRINT M: END
20 NEXT : END
```

Checksums

10	- \$BFCC	20	- \$176E
----	----------	----	----------

● Find each ProDOS storage devices slot, and drive #, as defined by the ProDOS global page. Should be run under ProDOS 1.2 or later.

```
10 DIM DR(14), SL(14): N = PEEK (48945) + 1
20 FOR X = 1 TO N: C = PEEK (X + 48945): I = (C >
128): DR = 1: DR(X) = CR + 1: C = C - 128 *
I: SL(X) = INT (C / 16): NEXT
30 FOR C = 1 TO N: PRINT "SLOT" SL(C) ", "DRIVE"
" DR(C): NEXT
```

Checksums

10	- \$7FAA	30	- \$2C74
20	- \$B66C		

● Let GOTO and GOSUB use variables with amperstand. For example:

```
10 LET JAIL = 100: & GOTO JAIL
20 & GOSUB INT (RND (1) * 9) * 100
Also fixes RETURN bug, do a "&
RETURN" instead of normal "RETURN".
Does NOT work for IIGs.
```

```
10 HEX$ = "3F5:4C0*3*N300:C9*AB*D0*C*20*B1*0*
20*67*DD*20*52*E7*4C*41*D9*C9*B0*D0*20*20*
B1*0*N317*D921.D93DM*N334:C9*B1*F0*3*4C*
C9* DE* A9* FF* 85* 86* 4C* 71* D9* N32F:7* 3*
ND7D2G"
```

```
20 FOR I = 1 TO LEN (HEX$): POKE 511 + I, ASC ( MID$
(HEX$, I, 1)) + 128: NEXT
30 POKE 72, 0: CALL - 144
```

Checksums

10	- \$CD87	30	- \$33F6
20	- \$102B		

● Shows which computer it is being run on.

- II Apple II
- II+ Apple II+
- IIE Apple Iie
- IIE+ Enhanced Iie
- IIC Apple Iic
- IIC+ Enhanced Iic
- IIGs Apple IIGs

```
10 FOR K = 0 TO 15: READ A: POKE 768 + K, A: NEXT
20 DATA 56, 32, 31, 254, 144, 4, 169, 0, 240, 2, 169,
1, 141, 16, 3, 96
```

30 CALL 768:L = 64448:L = PEEK (L) + PEEK (L - 1)
 + PEEK (784):A = (L = 143) + (L = 468) * 5
 + (L = 427) * 9 + (L = 224) * 13 + (L = 255)
 * 17 + (L = 0) * 21 + (L = 255) * 25
 40 AS = "11^11+^11E^11E+11C^11C+11GS": PRINT
 MID\$ (AS,A,4)

Checksums

10	-	\$7377	30	-	\$746F
20	-	\$7FAD	40	-	\$BA9E

⊗ In my original of Wing's of Fury, I cannot sector edit it or anything. Every track and sector is bad, and the drive guns. Is this the work of altered prologs and analogs? Can somebody help?

Bit Copy for...

Airheart

Broderbund

- 1 Formatted a blank with DOS 3.3.
- 2 Copy to the formatted disk with Locksmith 6.0, slow copying.
- 3 Copy again, to the same disk, but using EDD v3 with automatic retry.

It works for me on my IIGs. It guns in the beginning (nibble count), but it continues and plays fine (love that double hires).

I tried the copy on a friends IIE and after dying, you have to reboot the disk, but not so on the IIGs!

⊗ Can somebody explain the meaning of Copy II Plus parms, they don't make very good sense. If somebody did explain, I could just convert them to IOB format. I have most of the MOST WANTED games on parms.

I'd just like to take this space to say... GET RID OF THE IBM SECTION! This is an Apple mag, not for the blue clones. Thats why I subscribed, and you don't seem to be getting a great deal of material for that section anyway.

Suggestion - Why don't you sponsor contests like other magazines. For example; Make a prog of 2 lines or less that searches for a hex number in memory? Something to get the hackers of COMPUTIST excited, and for a reward, offer disks or free issues.

Suggestion - Make a section for BBS listings. You can find many telephone numbers in the magazine called COMPUTER SHOPPER, pages 170-174 usually. Just state that you accept no responsibility for the numbers printed there.

⊗ Having just killed the black lord in Phantasie (I know its old), a couple questions linger in my mind:

1. How do you kill him permanently? Can you?
2. What does the spell (#60), that Zeus gives you after defeating Nickademos, do?
3. How do you use the rings?
4. How do you use the wand?

⊗ Have you ever heard of the utility called DARK II, its main function is to fix bad disks, but you can do much more with it.

- 1) find hidden catalogs
- 2) read all files
- 3) fix all files
- 4) change location of catalog track
- 5) examine files
- 6) look at picture files
- 7) and more...

I applaude Gerald E. Myers for his articles in COMPUTIST #59, well done. I'm sure they'll help more than one novice.

Playing Tips for...

AutoDuel

Origin Systems

If you drive into a city that has no garage, enter a truck stop. Tell the guy you want to take the bus and when he asks you if you really want to leave your car on the streets, press the space bar. You'll wind up where you wanted to go, and bring your car on the bus at the same time!

Suggestion - When submitting cracks, always give the original byte values, because they may not be in that same location on another disk. And when doing 3 1/2" disk cracks, please tell what file you editing to (so if they don't have a block editor, they can enter BASIC and BLOAD that file then edit it in the monitor).

APT request - Could somebody come up with a advanced playing techique for THEXDER? It's an great game for the IIGs, but I just can't get past the missiles in the end of level 3. Maybe have it so you can jump up levels, or have max energy forever? I can't wait to see the other 13 levels of the game. Thanks to the hacker that does this!

⊗ Anybody here or have the game Alien Mind? I've read the reviews, it supposed to be like Gauntlet with the play and onslaught of alien hordes, sounds like mucho fun. Its for the IIGs so it promises great everything. Could someone review it? Thanks.

Well, by now my letter is the size of a medium term paper, so I'll have to be ending it, but remember, you can always ask for the Doc for answers. Till next issue, keep hacking. Doc Devious - \ | / -, Elite member of the SPS (Self Preservation Society).

P.S. We're always watching for potential new members!

MOST WANTED

Softkeys

Alcon Taito
 Alien Mind PBI Software
 Ancient Art of War at Sea Broderbund
 Arkanoid Taito
 Bad Street Brawler Mindscape
 Beyond Zork Infocom
 Border Zone Infocom
 Bubble Bobble Taito
 California Games (IIGs) Epyx
 Cosmic Relief Datasoft
 Darklord Datasoft
 Design Your Own Train Abracadada
 Disc Commander (IIGs) So What Software
 Dive Bomber U.S. Gold
 Dungeon Masters Assistant vol. I:Encounter SSI
 DROL Broderbund
 Eliminator Adventure International
 Explore-Australia Dataflow Computer Service
 Gladiator Taito
 Gutenberg Sr. Micromation LTD.
 Iconix (IIGs) So What Software
 Impossible Mission II Epyx
 Indoor Sports Mindscape
 Into the Eagles Nest Mindscape
 Jigsaw: The Ultimate E. Puzzle (IIGs) Britannica Software
 Joker Poker Mindscape
 King of Chicago Cineware
 L.A. Crackdown EPYX
 Last Ninja Activision
 Mini-Putt Accolade
 Modem MGR MGR software
 National Inspirer Tom Snyder Productions
 Operation Wolf Taito
 Pool of Radiance SSI
 Quadratic Equations II Olympus Educational Software
 Questron II Electronic Arts
 Rastan Taito
 Renegade Taito
 Rocket Ranger (IIGs) Cinemaware
 S.D.I. (IIGs) Cinemaware
 Sea Stalker Broderbund
 Show-Off v1.1 Broderbund
 Sky Shark Taito
 Soko-Ban Spectrum Holobyte
 Sonix (IIGs) So What Software
 Sound Song & Vision Advanced Software
 Spare Change Broderbund
 Speedy Spides Readers Digest
 Stellar 7 Software Entertainment
 StickyBear Math: Add & Subtract ?
 Street Sports Soccer Epyx
 Strike Fleet Electronic Arts
 Superstar Indoor Sports Mindscape
 Test Drive Accolade
 The Games: Summer Edition Epyx
 The Games: Winter Edition Epyx
 The Three Stooges (IIGs) Cinemaware
 Ticket to Washington D.C. Blue Lion Software
 Times of Lore Origin Systems
 Tomahawk Electronic Arts
 Tomahawk (IIGs) Datasoft
 Wasteland Electronic Arts
 Wizardry:Return of Werda Sir-Tech.
 ZorkQuest Infocom

Back Issues

Order form on page 42

62 1988 **Features:** •No more floppies for Word Juggler? •A better Bootable Thexder? •Print Shop catalog patch, revisited? •The Product Monitor? •Convert PrintMaster graphics into Print Shop graphics? •Recovering the hidden OTHEXDER? •ProDOS IOB 5.25 **Softkeys:** •Alge-Blaster •All About America (IlgS) •Below the Root •Calendar Crafter •Certificate Maker IlgS •Club Backgammon (IlgS) •Dazzle Draw Ilc •DC Heath Elementary Math •Deathlord •Decisions Decisions •Easy Graph •Fortran •Fraction Factory •Fractions •Game Frame •GATO v1.3 •Geoworld •Graphics Studio (IlgS) •High Seas •Hometown •Instant Music •Kindermath •King's Quest I (IlgS) •King's Quest II (IlgS) •King's Quest III •Matchmaker World Geography Facts •Mavis Beacon Teaches Typing •Maxi Golf •Mind over Matter •On Balance •One World •Pac-Man •Project Space Station •Rad Warrior •Read and Rhyme (IlgS) •Reading Workshop •Robot Rascals •Run For It •Space Quest 2 (IlgS) •Street Sports Soccer (IlgS) •Tetris IlgS •Thexder (IlgS) •Timeliner •Toy Shop •Trains •Treasure Hunt •Ultima V •Ultratrem Appewriter Preboot-V •USA Profile •Vegas Craps (IlgS) •Vegas Gambler (IlgS) •Word Juggler 2.9 **APTs:** •AutoDuel •Bard's Tale III •California Games •Lode Runner •Pharaoh's Revenge •Thexder **Playing Tips:** •Moebius **Notes:** •A bit copy of Wings of Fury •Autocopy for Calendar Crafter •Put Calendar Crafter on hard disk •Paintworks Gold printer drivers •Bribery in "'Best of '88"' vote! •Moebius editing warning •More on booting from drive 2 •Half-key for Tetris •Disable ProDOS error checking •POKEing around Hires •Disk controller card locations •Math operators in Applesoft •Mousetext from BASIC •Modification for Alien Mind •Other informative publications •More clues to Ultima V •Bard's Tale III code wheel •Notes on Airheart •Notes on Legacy of the Ancients •Bit copy of Bank Street Writer Ilc **IBM Softkeys:** •Disk Mechanic •Enable •Fastback •Focus •Multilink •Print Shop •Print Shop Companion

61 1988 **Features:** •Double DOS •Deprotection tips for DOS and ProDOS •A Search Command for Il's •Zip Chip finally Ships •The Product Monitor •Put a deprotected Where in Europe is Carmen Sandiego on a 3 1/2" disk •A self-booting Thexder, Put ProDOS and Thexder on a 3 1/2" disk •Capture protected RWTS with RWTS Worm **Softkeys:** •Adventures of Sinbad •ARCHIVEmath •Aztec •BroadSides v2.0 •Calculus Toolkit •Cannonball Blitz •Catalyst 3.0 •Cofa Courseware •Cross Clues •Deathsword •Defender of the Crown •Dondra •Gauntlet •G.I. Joe •King's Quest I •King's Quest II •King's Quest III •Magical Myths •Math Shop •Mathblaster •Mathbusters •Mavis Beacon Teaches Typing •Megabots •Micro Addition/Subtraction •Microzine #25 •Microzine #26 •One-on-One •PFS Computer Checkup •PFS File •PFS Graph •PFS Report •Pirates! •Pirates! IlgS •Presenter •Rescue on Fractalus •Science Toolkit •Smart Eyes •Softswitch •Spiderbot •Tales from the Arabian Nights •Thinkware •Tink's Subtraction Fair •Tower of Myraglen •Ultima V •Xevious **APTs:** •Bard's Tale III •Ultima V **Playing Tips:** •Ultima V •Wasteland **Notes:** •MindscapE •Scholastic •Hartley Software •Prentice Hall •CAI •CTW Series •Garfield **IBM Softkey:** •Print Shop •Test Drive **IBM Playing Tips:** •Leisure Suit Larry in the Land of the lounge Lizards

60 1988 **Features:** •Reading from Protected Disks •EDASM Transfer Utility •Amper QuickDraw II Routines •Slow Speeds for Arcade Games •A Patch for Copy II Plus •The Product Monitor •Low Cost Alternate Languages •Another method for Copy-Protecting DOS 3.3 •Change Appleworks Cursor from a blinking underline to a blinking apple in one quick patch **Softkeys:** •Ace Programmer •Aesop's Fables (GS) •Apple GEOS v2.0 •Arctic Antics •Creating the Constitution •Crossword Magic 4.0 •Death Sword •Dome Bookkeeping •Essential Data Duplicator III (EDD 3) •Garfield Deluxe Edition •Gauntlet IlgS •J & S Gradebook •Kings Quest IlgS •Kings Quest I (GS) •Lazer Maze •Leisure Suit Larry •Magical Myths •Mastertype v2.1 •Mavis Beacon Teaches Typing •Mind Prober/Mind over Minors •NATO Commander v1.2 •Paperboy •Pegasus •Pinball

Construction Set •Pool 1.5 •RAD Warrior •Railroad Works •Road Rally USA •Robomath •Science Tool Kit •Search and Rescue •Showoff •Social Studies Vol 1 •Social Studies Vol 2 •Solo Flight •Space Quest •Springboard Publisher •Spy vs Spy III •Star Fleet I v2.1 •Tales of Fantasy: The Dark Tower, Frog & The Fables •Tapper •Troll Courseware: Maps & Globes, Latitude & Longitude •Type! •Ultima V •Wagons West •Zorro **APTs:** •Kid Niki Radical Ninja •Lode Runner •Space Quest Ilc •Thexder **Playing Tips:** •2400 A.D. •Captain Goodnight •Space Quest Ilc **Notes:** •Defending the Crown with "Visit Monitor" •Formatting extra tracks •Merging controllers with Super IOB •More on Tower of Myraglen •Some notes on Electronic Arts •Some notes on Epyx •Tips for cracking IlgS 3 1/2" disks **IBM Softkeys:** •Clipper •DoubledOS v1.0 •LoadCalc v4.13 •Mind Prober

59 1988 **Features:** •Boot Ilc Utilities on any compatible •Help with Ultima V •Convert Printmaster graphics into Print Shop graphics •The Invincible Bard (Ill) •The Deprotection Game •Patching ProDOS 1.1.1 •The Product Monitor •AppleWorks and the ImageWriter II **Softkeys:** •APBA Major League Players Baseball •Better Working: Spreadsheet •Better Working: Word Processor •Beyond Pinball •BoulderDash Construction Kit •Calendar •Calendar Crafter •California Games •Championship Baseball •Clip Art Collection vol 1 •Cours Et Gagne v1.0 •Dazzle Draw •Everybody's Planner •GATO v1.3 •GoldFinger •Jumpman •King's Quest •Management Edge •Movie Monster Game •MultiScribe v3.0 •Negotiation Edge •Nightmare Gallery •Patchworks •Picture Phonics •Printographer •Reader's Treasure Chest •Real Math •Sea Strike •Shifty Sam •Simulation Construction Kit •Snoopy's Reading Machine •Snoopy's Skywriter Scrambler •Snoopy to the Rescue •SongWriter •Spell It! •Stickybear Reading Comprehension •Super BoulderDash **APTs:** •Bard's Tale III •Super BoulderDash •Ultima V **Playing Tips:** •Alternate Reality •Auto Duel •Ultima V •Where in the World is Carmen Sandiego **IBM Softkey:** •Chartmaster v6.04 •Clout v1.0 •Copywit •Graphwriter •Signmaster v5.04

58 1988 **Features:** •Mixing ProDOS with Thexder •Infocom Decoder Revisited •Cracking on the Ilc •Might & Magic Revisited •Might & Magic Character Editor •An indepth guide to Ultima IV •Computing for 1-3 year olds •The Product Monitor **Softkeys:** •A.I. •BoulderDash •BoulderDash Construction Set •DeathSword •Design Your Own Home: Architecture •Design Your Own Home: Interior •Design Your Own Home: Landscape •Facemaker •Gauntlet •Kings Quest II •Mastery Arithmetic •Microzine #26 •Muppet Slate v1.0 •PFS: Graph •Polywriter 1.2 •Rad Warrior •Rings of Zilfin •Seaspeller •Smart Eyes •Spell It! •Wings of Fury **APTs:** •Castle Wolfenstein •Marble Madness IlgS •Might & Magic •Ultima IV •Ultima V **Playing Tips:** •Coveted Mirror •Deathlord •Might & Magic •Oo-Topos •Ultima IV **Notes:** •A better way to print Starter Kit DOC's •Curing Fatal System Error #0911 •Realtime Situation Control using CDAs •Chuck Yeager's Advanced Flight Trainer •**IBM Notes:** •Help Wanted!

57 1988 **Features:** •Electronic Art's Protection Language •How to find hidden code with EOR DiskScan •Here's another look at •Lower Case & Infocom Games •Monsters of Might & Magic •A Character Editor for Rings of Zilfin •A Single Data Disk for all your Print Shop Graphics •The Product Monitor **Softkeys:** •American Challenge •Arctic Fox •Bard's Tale II •BoulderDash Construction Set •California Games •Championship Wrestling •Chief of Detectives/Drawing Conclusions •Deep Space •Dome Simplified Bookkeeping System •Dr. Ruth's Computer Game of Good Sex •Earth Orbit Stations •Factory •Galaxy Search/Predicting Outcomes •Game Maker •Hacker II •Hardball IlgS •Kari Warriors •Labyrinth •Marble Madness •Master Diagnostics Ilc •Math Blaster •Mickey's Space Adventure •Micro-Computer Learning Games •Microzine #14 •Microzine #24 •Milliken Math Series •Mind Prober •M--ss--ng L--nks •Morning Star Spelling •Mountain Climbing/Cause and Effect •Movie Monster Game •Pond •Race Track/Reading for Detail •Reading Comprehension Main Idea & Details •Rings of Zilfin •Roadwar 2000 •School Days/Inference •Ski Crazy •Softswitch •Sub Mission •Time Capsule/Reading Skills •Tuesday Morning Quarterback •Typewriter •Where in

Europe is Carmen Sandiego •Wortgefecht •Xevious **APTs:** •Deep Space •H.E.R.O. •Moebius •Rings of Zilfin •Roadwar 2000 **Playing Tips:** •Arcticfox •Castle Wolfenstein •Conan •Donkey Kong •Ultima IV **IBM Softkeys:** Symphony v1.00 •TK!

56 1988 **Features:** •Apple IlgS Secret Weapon •5 second fastboot into Locksmith 6.0 Fastcopy •The Product Monitor •Taking the grind out of Championship Wrestling •Making some improvements to The Nibbler **Softkeys:** •2400 AD •40' Graphics Studio •Accolade Comics •Aesop's Fables •American People •Animal Hotel •Appewriter Ilc •Arcade Album #1 •Arctic Antics •Ballblazer •Bard's Tale II: The Destiny Knight •Bard's Tale IlgS •Cat'n Mouse •Championship Wrestling •Charlie Brown's 1,2,3's •Cobra Cavern •Color Me •Create With Garfield •David Winfield's Batter Up! •Destroyer •Disk Optimizer II •Dragonworld •Electronic Arts Software •En Vacances •En Ville •Fantavision gs •Fight Night •Forbidden Castle •G.I. Joe •Garfield Double Dares •General Manager •Goonies •GraphicWriter 2.0 •Gutenberg, Sr. •Hacker II •Hardball •Hardball gs •Infiltrator •James Bond 007: A View to a Kill •Keyboard Kadet •Kids on Keys •Lazer Maze •Le Demenagement •Le Francais par Ordinateur •Leisure Suit Larry in the Land of the Lounge Lizards •Les Sports •Lion's Workshop •Microzine #21 •Microzine #22 •Milliken Word Processor •Millionaire II •Multiscribe v2.0 •Multiscribe v3.0 •Multiscribe IlgS v3.01c •Paris En Metro •Pitfall II •Racter •Railroad Works •Rambo: First Blood Part II •Realm of Impossibility •Same or Different •Sea Dragon •Sea Strike •Shanghai •ShowOff •Shutterbug •Silent Service IlgS •Snoopy to the Rescue •Snoopy's Reading Machine •Snoopy's Skywriter Scrambler •Space Quest I •Space Station •Spy Hunter •Spy's Adventures in Europe •Spy's Adventures in North America •Stephen King: The Mist •Story Maker •Street Sports Basketball •Sub Battle Simulator •Super Sunday Football •Talking Text Writer •Type! •Un Repas Francais •Voodoo Island •Where in Europe is Carmen Sandiego •Winnie the Pooh •Winter Games •Winter Games gs •Wordzsearch •World Games gs **APTs:** •2400 AD •Kung-Fu Master •Lady Tut •Ultima V **Playing Tips:** •2400 AD •Deathlord •Space Quest •Ultima IV •Ultima V •Wrath of Denethenor **IBM Softkeys:** •Execu-Vision •MS Word •PC-Draw •Zork I & II **Notes:** •Not too happy with Copy II Plus v8.1 •Data disks cause Appleworks crash

55 May 1988 **Features:** •A Utility to Save the Lower 8 Pages of Memory •Bard's Tale Effects Locator •How to Capture Phantasie Screen Maps •Alternate Reality Character Editor •Updating the ProDOS Block Editor •Loading Flashcalc onto your RAMcard •A Copy-protection Scheme for ProDOS •The Product Monitor •Autoduel Car Editor **Softkeys:** •Alphabet Sequencing •Animal Alphabets and Other Things •Arctic Antics •The Boars' Store •The Boars Tell Time •Career Focus •Castle Wolfenstein •Charlie Brown's 123's •Charlie Brown's ABC's •City Country Opposites •Coveted Mirror •Create With Garfield •Crypt of Medea •Customized Alphabet Drill •Customized Flash Spelling •Dig Dug •Digital Paintbrush System •Estimation •Fay: Word Hunter •Fix It! •Focusing on Language Arts •Fundamental Capitalization •Fundamental Punctuation Practice •Fundamental Spelling Words in Context •The Hobbit •Homonyms in Context •Individualized Study Master •Inside Outside Shapes •Inside Outside Opposites •Leisure Suit Larry in the Land of the Lounge Lizards •Master Diagnostics II & II+ •Mastertype v2.1 •Mathematics Series •Mr. and Mrs. Potato Head •Paper Models •The Christmas Kit •Peanuts Math Matcher •Peanuts Maze Marathon •Peanuts Picture Puzzlers •Perry Mason: The Case of the Mandarin Murder •Railroad Works •Random House Library •Management Programs •Rocky's Boots v.4 •Sensible Speller •Snoopy's Reading Machine •Snoopy's Skywriter Scrambler •Snoopy to the Rescue •Snoopy Writer •Spelling Demons •Stock Market Simulation •Story Builder •Story Starter •Studio II •Test Maker •Think Quick v1.0 •Tournament Bridge •Tutorial Comprehension •Typing is a Ball, Charlie Brown •Under Fire •Word Blaster •Word Count •Word Mount •Your Personal Net Worth **APTs:** •Under Fire **IBM Feature:** •Flight Simulator RGB Modifications

54 April 1988 **Features:** •Picture Loader •How To Make DEMUFFIN PLUS •Convert Print Shop graphics into Print Master graphics •lower case letters For Your Apple II Plus

Back Issues

Order form on page 42

•The Product Monitor •Apple IIc Paddle Fix •Softkey for Daisy Professional 'Most-Protected' Award •DOS EOR Maker
•Softkeys: A2-PB1 Pinball •Animate •Bank Street Music Writer
•Boulderdash Construction Kit •California Games •Countdown to Shutdown •Coveted Mirror •Create with Garfield •Daisy Professional •Destroyer •Donkey Kong •Expedition Amazon
•General Chemistry Disk #8 •Graphics Studio •Green Globes & Graphic Equations •Kalamazoo Teacher's Record Book 2.0 •Kids on Keys •Marble Madness •Math Blaster •Maxwell Manor
•Peanut's Maze Marathon •Petro-Calc •Police Artist •Practical Grammar •Rendezvous •Ring Quest •Roadwar Europa
•Roadwar 2000 •Rocky Horror Show •Sesame Street Electric Coloring Book Series •Sesame Street Letters for You •Sesame Street Numbers •Seven Cities of Gold •Snoopy's Reading Machine •Spy's Adventures in Europe •Spy's Demise •Super Sunday Football •Talisman •Tellstar II •Top Draw v1.01A •The American Challenge •The Dam Busters •The Science Professor •Tubeway •Vocabulary Adventure I •Winter Games •Wizards' Crown •Zero-Gravity Pinball •APTs: Expedition Amazon
•Might and Magic •Playing Tips: •Beauracracy •King's Quest II •Lurking Horror •Manic Mansion •Stationfall IBM Feature: Introduction to IBM Disk Format, Access, and Copy-protection
•Putting Sargon III on harddisk IBM Softkeys: •Prokey 3.0 •R:base 400 •Time Manager

53 March 1988 •Features: •Modify Super IOB to read/write every other track •APT for Rings Of Zilfin: Turn yourself into a lean, mean fighting Machine •More Softkeys for M.E.C.C. software (1987) •How To Use The Electronic Art's RWTS •APT for Realms Of Darkness: Realm's Wrecker! •Putting Super Boulder Dash onto a hard disk •Softkeys: •2400 A.D. •Age Of Adventure •Apple's Core II •Arcade Boot Camp •Arctic Fox •Aztec •Ballblazer •Bard's Tale Igs •Blue Powder Gray Smoke •California Games •Championship Wrestling •Colonial Conquest •Comprehension Skills I,II •Conquering Whole Numbers •Coordinate Math •Countdown To Shutdown •Dataquest: The World Community •Destroyer •Dream House •Dream Zone •Earth Orbit Station •Equation Math •Forecast: Your At-Home Weather Station •Fraction Concepts II •Fraction Munchers •Fraction Practice Unlimited •GBA Championship Basketball •Genesis •GFL Football •Ghost Rider •Goonies •Grade Manager v2.3 •Great American Cross-country Road Race •Hardball Igs •Ikari Warrior •Jenny's Journeys •Kid Niki Radical Ninja •Kung-Fu Master •Learning To Tell Time •Leisure Suit Larry •Let's Learn About Money •Let's Learn About The Library •Letters For You •Lords Of Conquest •Magic Spells •Math Blaster •Money Works •Maps & Globes: Latitude & Longitude •Marble Madness •Microzine 18,19,20,21,22,23 •Mist •Morning Star Math •Movie Monster Game •Multiplication Puzzles •Multiscribe v3.0c •Murder On The Mississippi •Music Made Easy •Mystery Sentences •Number Munchers •Numbers Count •Odell Lake •Operation Frog •Opposites Attract •Oregon Trail v1.4 •Phonics Prime Time: Blends & Digraphs •Phonics Prime Time: Vowels I, II •Puzzles & Posters •Quotient Quest •Reader Rabbit •Reading Style Inventory •Realm Of Impossibility •Sesame Street 'Crayon' series •Shanghai •Sons Of Liberty •Space Quest v2.2 •Story Book: Pixelworks •Story Tree •Subtraction Puzzles •Super Huey •Super Wordfind •Tass Times In Tonetown •Those Amazing Reading Machines III, IV •Timothy Leary's Mind Mirror •To Preserve, Protect and Defend •Tower Of Myrarglen •Troll's 'MicroCoarseware' series •Webster: The Word Game •Word Munchers •Words At Work: Compound It •Words At Work: Suffix Sense •World Games •World's Greatest Baseball Game •World Karate Championship •Writer Rabbit •Zoyon Patrol •APTs: •Buck Rogers •Ikari Warrior •Kung-Fu Master •Leisure Suit Larry Igs •Marble Madness •Realm Of Darkness •Rings Of Zilfin •Space Quest Igs •Super Boulder Dash •Playing Tips: •2400 A.D. •Donkey Kong •Infiltrator •Space Quest Igs •Spy Hunter •Swashbucker •Thexder •Ultima II •IBM Softkeys: •EasyWriter 1.0, II •Zork III

52 February 1988 •Features: •The Product Monitor •Unprotecting The Unprotectable: Macintosh Softkeys! •A.P.T. Cornucopia •APT: Alternate Reality-Dungeon: Create A Super-human •Softkey for SSI's RDOS disks: 1.ProDOS RDOS, 2.RDOS Transfer Utility •Making Cracked II Plus Disks Work On The IIc
•Softkeys: •Apple Gradebook v2.6 •Award Maker Plus •Black Cauldron •Black Magic •California Games •Car Builder •Color Print Shop •Computer Ambush •Concepts In Science •Disney's Comic Strip Maker •Elite •Empire I, II •European Nations & Locations •Fooblitsky •Grid Designer •H.E.R.O. •Ikari Warriors •Infiltrator II •Le Francais par Ordinateur •Little Computer People's House on a Disk •Main Street Filer •Master Diagnostics IIe •MegaFiler •MegaMerge •Microzine 23 •Might & Magic •Millionaire •Mindplay software •Music Construction Set •Nibbler •Operation Market Garden •Phantasie •Planetfall •PrintMaster Plus •Print Shop •Queston •Regatta •Ring Quest •Ringside Seat •Rings Of Zilfin •Shanghai •Silent Service •Snooper Troops •Spy's Adventure in N. America •Super Print •Tass Times In Tonetown •Think Quick •Transylvania •Ultima I re-release •Where in the USA is Carmen Sandiego •World Games •Zork I (•Macintosh softkey) •A.P.T.s: Alternate Reality: The Dungeon •Arctic Fox •Bard's Tale II •Beyond Zork •Black Magic •Cavean Creatures •Drol •Goonies •Ikari Warriors •Zorro •Playing Tips: •Beyond Castle Wolfenstein •Championship Lode Runner •Conan •King's Queen II •Lode Runner •Lurking Horror •Station Fall •Ultima IV •Zork IBM Softkeys: •Lotus 1-2-3 •Flight Simulator •PFS Report IBM APTs: •Bard's Tale

51 January 1988 •Features: •The Crypt-arithmetic Helper •Using EDD IV to Modify Tracks And Sectors •Bard's Tale APT: Dungeon Mapper Revisited •RAMfactor mod for Laser 128 •Ultima IV APT edit-tables •The Product Monitor •Get Better Sound by using the cassette tapes •Making A Fast Boot Disk •Might & Magic APT edit-tables Softkeys: •2400 AD •Aliens •Alphabet Zoo •Amnesia •Bag Of Tricks •Bard's Tale I •Bard's Tale II •Battle Cruiser •Beach-head II •Below The Root •Black Magic •Body Awareness •Bridge 4.0 •Carriers At War •Catalyst 3.0 •Centipede •Championship Boxing •Championship Wrestling •Chessmaster 2000 •Combining The Elements •Commando •Creative Contraptions •Einstein Compiler •Fat City •Fight Night •Flight Simulator v2.0 •Fun with Direction •GBA 2-0n-2 Championship Basketball •GraphicWriter v1.1RA •Growing Up Small •House-on-a-disk •Intrigue •Jet •Jungle Hunt •Kindercomp •Knowing Numbers •Kung-fu Master •Law Of The West •Learning Well series •Letters And Words •Little Computer People •Make Your Own Murder Party •Manic Mansion •Master Diagnostics •Movie Maker •Music Construction Set •Pinball Construction Set •Pitstop •Print Shop Graphics Library Holiday •Print Shop Igs •Rendezvous •Shapes And Patterns •Silent Service •Sorcerer •Spy vs Spy I & II •Stargate •Stellar 7 •Stickybear ABCs •Stickybear Drawing •Stickybear Numbers •Stickybear Printer •Stickybear Printer Library I & II •Stickybear Townbuilder •Super Boulderdash •Temple Of Apshai Trilogy •Tomahawk •Thexder •Walt Disney's Card And Party Shop •Walt Disney's Cartoon Maker •Wings Of Fury •Word Maze •World's Greatest Baseball Game •Zork III A.P.T.s: Bard's Tale •Lode Runner •Might & Magic •Ultima IV •W. Disney's Card And Party Shop •Wizardry III •Wizardry IV Playing Tips: •Autoduel •King's Quest •Manic Mansion •Summer Games •Tass Times In Tonetown •Thexder •Where In the World is Carmen Sandiego?

50 December 1987 •Features: •Super Boulderdash APT-writer •Softkeys to Activision/MECC/ and PFS ProDOS/ software •Double F-8 ROM space w/o motherboard surgery •Ace-Apple bimodal Switch •Using Sider hard drives 3 1/2", 800K drives, & 5 1/4" drives in DOS 3.3 Softkeys: •Aliens •Alter Ego •Alternate Reality •Amazing Reading Machines •Amazon •American Challenge •Arcade Album #1 •Arithmetic Critters •Award Maker •Baseball Database •Bard's Tale II: Destiny Knight •BC's Quest for Tires •Bop & Wrestle •Champ. Boxing •Champ. Wrestling •Clock Works •Commando •Computer Prep for SAT •Conflict In Vietnam •Counting Critters •Crisis Mountain •Dataquest 50 States •Deluxe Paint II •Dino Eggs •Disney Card & Party Shop •Disney Comic Strip Maker •Draw Plus •Eidolon •Electric Crayon ABCs •Expedition Amazon •Facemaker •First Letter Fun •Fish Scales •Fun From A-Z •Game Maker •GBA

Champ. Basketball •GFL Champ. Football •Graphicwriter 1.0R/1.1R •Great Road Race •Hacker II •Hardball •Infiltrator II •Instant Music •James Bond 007: A View To A Kill •Jenny's Journeys •Kung Fu Master •Little People •List Handler •Manic Mansion •Mastery Arithmetic Games •Market Place •Master of Lamp •Math Rabbit •Microzine #17 •Might and Magic •Mission In Solar System •Moebius •Music Construction Set •Music Studio •Number Munchers •Paint With Words •Paintworks Plus •Path Tactics •pfs:File •pfs:Graph •pfs:Plan •pfs:Report •pfs:Write •Phonics Prime Time •Portal •Principal's Assistant •Print Shop ProDOS 8 v1.4 •Print Shop Holiday Edition •Quickflash! •Reader Rabbit •Realm of Impossibility •Robot Odyssey I v.2.0 •Rocky Horror Show •Rocky's Boots v4.0 •Saracen •Shanghai •Silent Service •Skylab •Sound Tracks •Speedy Math •Spindizzy •Street Sports Baseball •Sub-Mission •Super Boulderdash •Tass Times in Tonetown •Thexder •Top Fuel Eliminator •Word Handler •Word Munchers •Words at Work •World Karate Champ. •Writer's Choice: Elite •Zardax v5.2.1

49 November 1987 •Features: •Eliminate some ProDOS erroneous error messages •Date/time without a clock card •Sector surgery: recover lost files •Generating Applesoft programs 'on-the-fly' •Product Monitor reviews •PLUS: How to convert List Handler files into standard text files •How to make GRAPHIC.GRABBERV3 run on the IIGs •Laser 128 'absolute' RESET Playing Tips: •Bard's Tale II •Conan •Donkey Kong •Hacker I •Hard Hat Mack •Orbitron •Print Shop Companion •Spellbreaker •Spy Hunter •Ultima 4 A.P.T.s: Infiltrator •Lode Runner •Montezuma's Revenge •Swordthrust series Softkeys: •Addition Logician •Animate •Arcade Boot Camp •Arctic Fox •Bard's Tale II •Cat'n Mouse •Counting Critters •Dam Busters •Destroyer •Draw Plus v1.0 •Dr. Ruth's Comp. Game Of Good Sex •Echo 1.0 •E.D.D. 4 •Gamemaker •Hard Ball •Infiltrator •List Handler •Locksmith 6.0 •Fascopy •Magic Slate •Math Critters •Millionaire •Mind Mirror •One On One •Paintworks Plus v1.0 •Paintworks Plus v1.1 •PHM Pegasus •Portal •Quotient Quest •Reader Rabbit •Saunders' Chemistry CAI •Science Toolkit •Shanghai •Strip Poker •Super Bunny •Super Sunday •Swordthrust series •Term Paper Writer •Thief •Top Fuel Eliminator •Typing! •Up-n-Down •Willy Byte •Writer's Choice Elite v1.0 •Writing A Character Sketch •Writing A Narrative

48 October 1987 •Features: •Dungeon Editor & Encounter Editor for Ultima III Softkeys: •816 Paint GS •Amnesia •Apple Business Graphics •Arctic Fox •Award Maker Plus •Bard's Tale II •Betterworking Word Processor •Beyond Castle Wolfenstein •Black Magic •Bookends Extended •Bop & Wrestle •Chess 7.0 •Chessmaster 2000 •Deluxe Paint GS •Destroyer •Hacker II •Hacker II GS •Hardball •Infiltrator •Instant Music GS •J-Bird •Mabel's Mansion •Marble Madness •Mean 18 GS Golf •Megabots •Might & Magic •Miner 2049er II •Mouse Word •Music Construction Set GS •Music Studio GS •New Oregon Trail •Paintworks Plus 1.0 GS •Paintworks Plus 1.0 GS •Paul Whitehead Teaches Chess •PHM Pegasus •Poetry Express •Print Shop color version •Rambo: First Blood part II •Rocky Horror Show •Sargon III •Shadowkeep •Shanghai GS •Spindizzy •TelePorter •Temple Of Apshai trilogy •Top Draw GS •Transylvania •Ultima I •World's Greatest Baseball Game APTs: •Shadowkeep

47 September 1987 •Features: •Infocom-text Reader Enhancement •Color Ultimapper mod to Ultimapper IV •Towne Mapper utility for Ultima IV •Dungeon Mapper utility for Bard's Tale Hardware Corner: Interrupting Your Apple •Softkey for Charlie Brown's 1,2,3s Softkeys: •Guitar Wizard •Gemstone Warrior •Notable Phantom •Micro Wine Companion •Stickybear Printer •Note Card Maker •Starcross •Wishbringer •Dinosaur Dig •Dam Busters •Pirate Adventure •Infiltrator •MECC software •Banner Catch •Turtle Tracks •PFS File •Microzine #12, #13, #14 •Marble Madness •Writer Rabbit •Arcticfox •Age Of Adventure •Might And Magic •Space Station •Alternate Reality •Mindshadow •Gemstone Warrior •Strip Poker •Lucifer's Realm •Manuscript Manager •Bank Street Writer III •Kids On Keys •The Missing Ring •Graphic Solution •Empire I, II •Champ. Golf

46 August 1987 Softkeys: •Advanced Microsystems Technology programs •Word Attack •Star Blazer •Science Toolkit •The Color Enhanced Print Shop •Video Vegas •The Handlers

COMPUTIST back issues

To order, Use the back issue order form on page 42

•K.C. Deals On Wheels •Law Of The West •Break The Bank Blackjack •Foundation Course In Spanish •OGRE •Puzzles And Posters *Features* •The Shift Key/Lower Case Option For II+ •Amazing Computer Facts •Shape Magic utility *Review*: Multiscribe

45 July 1987 *Softkeys*: •Mouse Calc •Sands of Egypt •Number Farm •Agent U.S.A. •Wavy Navy •Kindercomp •Flight Simulator Update •Raid over Moscow •Crime Stopper •Key Perfect 5. •The Final Conflict •Miss Mouse •Snoggle *Features* •Write Protecting the Microsoft RAM Card •Keys to Success on the Franklin Ace •Modified F8 ROMs on the Apple III *Core* •Owner's Review of Copy Master II

44 June 1987 *Softkeys*: •Arcade Boot Camp •Goonies •Zorro •Coveted Mirror •Crimson Crown •Compbridge •Fleet System 3 •Microwave •Escape •Catalyst 3.0 •Number Farm •Alphabet Circus •Joe Theisman's Pro Football •Black Cauldron •Intern. Gran Prix *Features* •Making DOSless Utilities •Pitx Printer Drivers *Review*: Z-RAM Memory Expansion Board •Reading the Joystick

43 May 1987 *Softkeys*: •Graphics Expander •Information Master •Certificate Maker •Elite •Catalyst 2.0 and 3.0 •Murder On The Mississippi •Temple Of Apsahai Trilogy •Troll Associates programs •Spell It •Regatta •Cdex Training programs •Think Fast *Features* •How to Write-Protect your Slot Zero •Capturing Locksmith 6.0 Fast Copy •Revisiting DOS to ProDOS and Back *Core* •Computer Eyes II: a Review *APTs* •Sword of Kadash & Rescue Raiders •Ultimaker IV

42 April 1987 *Softkeys*: •Light Simulator •Beach-Head •Monty Plays Scrabble •Racter •Winnie the Pooh •Infocom Stuff, Kabul Spy, Prisoner II •Wizardry 1 & 2 •Lucifer's Realm •The PFS Series •Dollars and Sense •Strip Poker •Coveted Mirror •Wizard's Crown •The Swordthrust Series •Axis Assassin •Manuscript Manager •The Crown of Arthain •Address Book •Decimals 3.0 •Dragonfire *Features* •Auto Duel Editor •Wizard's Crown Editor •Question Mapper *Core*: •The Games of 1986 in Review *Adventure Tips* •Ultima IV

41 March 1987 *Softkeys*: •The Periodic Table •Gemstone Warrior •Inferno •Frogger •Story Maker •Adventure Writer •Mummy's Curse •Zaxxon •The Quest •Pitfall II •H.E.R.O. *Features* •A Two-Drive Patch for Winter Games •Customizing the Speed of a Duodisk •Roll the Presses Part Two: Printshop Printer Drivers •The Games of 1986

40 February 1987 *Softkeys*: •Adventure Writer •E-Z Learner •Mychess II •Raster Blaster •Cranston Manor •Ghostbusters •Designer's Pencil •The American Challenge •Encyclopedia Britannica Programs •Crime Wave *Features* •Taking the Wiz out of Wizardry •Adding a Printer Card Driver to Newsroom *Core*: Games of 1986

39 January 1987 *Softkeys*: •MIDI/8+ •Homework v2.1 •Borrowed Time •Amazon •Speed Reader II •Discovery! •M-s-ng L-nks series •Donald Ducks's Playground •Mastering the SAT •Copy II Plus 4.4C •Master of the Lamps •One on One •Bridge Baron •A.E. •Great American Cross-Country Road Race •Computer Preparation for the SAT •Castle Wolfenstein •Luscher Profile •Skyfox •Silent Service •Echo Disk •Swashbuckler •Randam *Features* •Electronic Disk Drive Swapper •Abusing the Epilogues •Print Shop Companion's Driver Game *Core*: •Keyboard Repair •Fixing the Applesoft Sample Disk

38 December 1986 *Softkeys*: •Cyclod •Alternate Reality •Boulder Dash I & II •Hard Hat Mack (Revisited) •The Other Side •F-15 Strike Eagle •Championship Lode Runner •Gato V 1.3 •I, Damiano •Wilderness •Golf's Best *Features*: •The Enhanced/ Unenhanced IIe •Looking into Flight

Simulator's DOS *Core*: •Appavarex •Installing a RAM disk into DOS 3.3

37 November 1986 *Softkeys*: •Under Fire •Pegasus II •Take 1 (revisited) •Flight Simulator II v1.05 (part 2) •Magic Slate •Alter Ego •Rendezvous •Quicken •Story Tree •Assembly Language Tutor •Avalon Hill games •Dark Crystal *Features* •Playing Karateka on a IIc •Track Finder •Syk to Dif *Core*: •Breaking In: tips for beginners •Copy II Plus 6.0: a review •The DOS Alterer

36 October 1986 *Softkeys*: •Flight Simulator II v1.05 •AutoDuel •Critical Reading •Troll's Tale •Robot War •General Manager •Plasmania •Telarium Software •Kidwriter v1.0 •Color Me *Features* •ScreenWriter meets Flashcard •The Bus Monitor •Mousepaint for non-Apples *Core*: •The Bard's Dressing Room *APT* •Championship Lode Runner

35 September 1986 *Softkeys*: •Olympic Decathlon •Hi-res Cribbage •Revisiting F-15 Strike Eagle •Masquerade •The Hobbit •Pooyan •The Perfect Score •Alice in Wonderland •The Money Manager •Good Thinking •Rescue Raiders *Feature*: Putting a New F8 on Your Language Card *Core*: •Exploring ProDOS by installing a CPS Clock Driver

34 August 1986 *Softkeys*: •Crisis Mountain •Terripin Logo •Apple Logo II •Fishies 1.0 •SpellWorks •Gumball •Rescue at Rigel •Crazy Maze •Conan •Perry Mason: The Case of the Mandarin Murder •Koronis Rift *Feature*: •More ROM Running *Core*: •Infocom Revealed

33 July 1986 *Softkeys*: •Word Juggler •Tink! Tonk! •Sundog v2.0 •G.I. Joe & Lucas Film's Eidolon •Summer Games II •Thief •Instant Pascal •World's Greatest Football Game •Graphic Adventure #1 •Sensible Grammar & Extended Bookends •Chipwits •Hardball •King's Quest II •The World's Greatest Baseball Game *Feature*: •How to be the Sound Master *Core*: •The Mapping of Ultima IV

32 June 1986 *Softkeys*: •Revisiting Music Construction Set •Cubit •Baudville Software •Hartley Software •Bridge •Early Games for Young Children •Tawala's Last Redoubt •Print Shop Companion •Kracking Vol II •Moebius •Mouse Budget, Mouse Word & Mouse Desk •Adventure Construction Set *Feature*: •Using Data Disks With Microzines *Core*: •Super IOB v1.5 a Reprint

31 May 1986 *Softkeys*: •Trivia Fever •The Original Boston Computer Diet •Lifesaver •Synergistic Software •Blazing Paddles •Zardax •Time Zone •Tycoon •Earthly Delights •Jingle Disk •Crystal Caverns •Karate Champ *Feature*: •A Little Help With The Bard's Tale *Core*: •Black Box •Unrestricted Ampersand

30 April 1986 *Softkeys*: •Millionaire •SSI's RDOS •Fantavision •Spy vs. Spy •Dragonworld •King's Quest •Mastering the SAT •Easy as ABC •Space Shuttle •The Factory •Visidex 1.1E •Sherlock Holmes •The Bards Tale *Feature*: •Increasing Your Disk Capacity *Core*: •Ultimaker IV, an Ultima IV Character Editor

29 March 1986 *Softkeys*: •Threshold •Checkers v2.1 •Microtype •Gen. & Organic Chemistry Series •Uptown Trivia •Murder by the Dozen •Windham's Classics •Batter Up •Evelyn Wood's Dynamic Reader •Jenny of the Prairie •Learn About Sounds in Reading •Winter Games *Feature*: •Customizing the Monitor by Adding 65C02 Disassembly *Core*: •The Animator

28 February 1986 *Softkeys*: •Ultima IV •Robot Odyssey •Rendezvous •Word Attack & Classroom •Three from Mindscape •Alphabetic Keyboarding •Hacker •Disk Director

•Lode Runner •MIDI/4 •Algebra Series •Time is Money •Pitstop II •Adventure to Atlantis *Feature*: •Capturing the Hidden Archon Editor *Core*: •Fingerprint Plus: A Review •Beneath Beyond Castle Wolfenstein (part 2)

27 January 1986 *Softkeys*: •Microzines 1-5 •Microzines 7-9 | Microzines (alternate method) •Phi Beta Filer •Sword of Kadash •Another Miner 2049er •Learning With Fuzzypump •Bookends •Apple Logo II •Murder on the Zinderneuf *Features*: •Daleks: Exploring Artificial Intelligence •Making 32K or 16K Slave Disks *Core*: •The Games of 1985: part II

26 *Softkeys*: •Cannonball Blitz •Instant Recall •Gessler Spanish Software •More Stickybears •Financial Cookbook •Super Zaxxon •Wizardry •Preschool Fun •Holy Grail •Inca •128K Zaxxon *Feature* •ProEdit *Core*: •Games of 1985 part I

25 *Softkeys*: •DB Master 4.2 •Business Writer •Barron's Computer SAT •Take 1 •Bank Street Speller •Where In The World Is Carmen Sandiego •Bank Street Writer 128K •Word Challenge •Spy's Demise •Mind Prober •BC's Quest For Tires •Early Games •Homeword Speller *Feature*: •Adding IF THEN ELSE To Applesoft *Core*: •DOS To ProDOS And Back

24 *Softkeys*: •Electronic Arts software •Grolier software •Xyphus •F-15 Strike Eagle •Injured Engine •Mr. Robot And His Robot Factory •Applecillin II •Alphabet Zoo •Fathoms 40 •Story Maker •Early Games Matchmaker •Robots Of Dawn *Feature*: •Essential Data Duplicator copy parms *Core*: •DOS-Direct Sector Access

22 *Softkeys*: •Miner 2049er •Lode Runner •A2-PB1 Pinball •The Heist •Old Ironsides •Grandma's House •In Search of the Most Amazing Thing •Morloc's Tower •Marauder •Sargon III *Features*: •Customized Drive Speed Control •Super IOB version 1.5 *Core*: •The Macro System

20 *Softkeys*: •Sargon III •Wizardry: Proving Grounds of the Mad Overlord and Knight of Diamonds •The Report Card V1.1 •Kidwriter *Feature*: •Apple II Boot ROM Disassembly *Core*: •The Graphic Grabber v3.0 •Copy II+ 5.0: A Review •The Know-Drive: A Hardware Evaluation •An Improved BASIC/Binary Combo

19 *Softkeys*: •Rendezvous With Rama •Peachtree's Back To Basics Accounting System •HSD Statistics Series •Arithmetickle •Arithmekicks and Early Games for Children *Features*: •Double Your ROM Space •Towards a Better F8 ROM •The Nibbler: A Utility Program to Examine Raw Nibbles From Disk *Core*: •The Games of 1984: In Review-part II

16 *Softkeys*: •Sensible Speller for ProDOS •Sideways •Rescue Raiders •Sheila •Basic Building Blocks •Artsci Programs •Crossfire *Feature*: •Secret Weapon: RAMcard *Core*: •The Controller Writer •A Fix For The Beyond Castle Wolfenstein Softkey •The Lone Catalog Arranger Part 1

1 *Softkeys*: •Data Reporter •Multiplan •Zork *Features*: •PARMS for Copy II Plus •No More Bugs •APT's for Choplifter & Cannonball Blitz •'Copycard' Reviews •Replay •Crackshot •Snapshot •Wildcard

Out-of-print back issues

To order, Use the back issue order form on page 42

Due to popular demand, these sold-out issues are available now as 'zeroxed' copies, full-sized and center stapled.

23 ■ *Softkeys*: •Choplifter •Mufplot •Flashcalc •Karateka •Newsroom •E-Z Draw •Gato •Dino Eggs •Pinball Construction Set •TAC •The Print Shop: Graphics Library •Death In The Caribbean •*Features*: •Using A.R.D. To Softkey Mars Cars •How To Be The Writemaster •*Core*: •Wheel Of Money

21 ■ *Softkeys*: •DB Master version 4+ •Dazzle Draw •Archon •Twerps ■ *Readers' Softkeys*: •Advanced Blackjack •Megaworks •Summer Games •College Entrance Exam Prep •Applewriter revisited ■ *Features*: •Demystifying The Quarter Track ■ *Core*: •Proshadow: A ProDOS Disk Monitor

18 ■ *Softkeys*: •Scholastic Version of Bank Street Writer •Applewriter IIe •SSI's Non-RDOS Disks ■ *Readers' Softkeys*: •BPI Accounting Programs and DesignWare Programs ■ *Features*: •Installing a Free Sector Patch Into Applewriter IIe •Simple Copy Protection ■ *Core*: •The Games of 1984: In Review •65C02 Chips Now Available •Checksoft v2

17 ■ *Softkeys*: •The Print Shop •Crossword Magic •The Standing Stones •Beer Run •Skyfox •and Random House Disks ■ *Features*: •A Tutorial For Disk Inspection and the Use Of Super IOB •S-C Macro Assembler Directives (reprint) ■ *Core*: •The Graphic Grabber For The Print Shop •The Lone Catalog Arranger Part Two

15 ■ *Softkeys*: •Mastertype •Stickybear BOP •Tic Tac Show ■ *Reader's Softkeys*: •The Financial Cookbook •Escape from Rungistan •Alien Munchies •Millionaire •Plato ■ *Features*: •MREAD/MWRT Update ■ *Core*: •A Boot from Drive 2 •DB Master's Data Compression Techniques ■ *Whiz Kid*: •DOS and the Drive - Part One ■ *Adventure Tips*: •Time Zone •Mission Asteroid •Enchanter •Zork I •Ultima •Ultima II •Death in the Caribbean •Gruds in Space •Zork III •Starcross

14 ■ *Features*: •Super IOB v1.2 Update •Putting Locksmith 5.0 Fast Copy Into a Normal Binary File •Batman Decoder Ring •A fix for DiskEdit ■ *Softkeys*: •Seadragon •Rocky's Boots •Knoware •PFS Software •Computer Preparation SAT •MatheMagic ■ *Review*: •Boulder Dash

13 ■ *Softkeys*: •Laf Pak •Beyond Castle Wolfenstein •Transylvania •The Quest •Electronic Arts •Snooper Troops (Case 2) •DLM Software •Learning With Leeper •TellStar ■ *Core*: •CSaver: The Advanced Way to Store Super IOB Controllers •Adding New Commands to DOS 3.3 •Fixing ProDOS 1.0.1 BSAVE Bug ■ *Review*: •Enhancing Your Apple ■ *Feature*: •Locksmith 5.0 and Locksmith Programming Language.

12 ■ *Softkeys*: •Zoom Graphix •Flip Out •Lion's Share •Music Construction Set ■ *Reader's Softkeys*: •Hi-Res Computer Golf II •Suicide •Sabatage •Millionaire •Time is Money •Type Attack ■ *Features*: Pseudo-ROMs on the Franklin Ace ■ *Core*: •Psychedelic Symphony •The CORE Disk Searcher •The Armonitor ■ *Adventure Tips*: •Cranston Manor •Enchanter •Kabul Spy •Colossal Caves •The Witness •Pirate Adventure •Ultima III-Exodus •Adventureland

11 ■ *Softkeys*: •Sensible Speller •Exodus: Ultima III ■ *Readers' Softkeys*: •SoftPorn Adventure •The Einstein Compiler v5.3 •Mask of The Sun ■ *Features*: •Copy II Plus v4.4C: Update Of An Old Friend •Parameter List For Essential Data Duplicator ■ *Core*: •Ultimaker III •The Mapping of Ultima III •Ultima II...The Rest Of The Picture

10 ■ *Softkeys*: •Arcade Machine •Bank Street Writer •Minit Man ■ *Reader's Softkeys*: •Sensible Speller IV •EDD IV •Krell LOGO •Canyon Climber ■ *Features*: •The Controller Saver •Examining Protected Applesoft BASIC Programs •Crunchlist II ■ *Core*: •Appeal - Voice Aynthesis •Introducing the 65SC802 and 65SC816 Chips •Review - Dino Eggs ■ *Adventure Tips*: •Cranston Manor •Zork I •Planetfall •Mission Asteroid •Time Zone •Suspended •Critical Mass •Zork II •Castle Wolfenstein

9 ■ *Softkeys*: •Sensible Speller •Sierra-On-Line Software •The Visible Computer: 6502 ■ *Reader's Softkeys*: •Visidex •Music Construction Set •Gold Rush •Visiterm •Cosmic Combat ■ *Features*: •Super IOB ■ *Adventure Tips*: •Pirate Adventure •Mask of the Sun •Colossal Caves •Transylvania •Death in the Caribbean •Zork II ■ *Core*: •Word Search Generator •ProDOS to DOS •ProDOS on a Franklin Ace

8 ■ *Softkeys*: •Robotron •Legacy of Llylgamyn •The Artist •Data Factory v5.0 •EDD IV ■ *Reader's Softkeys*: •Spy Strikes Back •Hayden Software •Apple LOGO ■ *Features*: •Review of the Bit Copiers ■ *Core*: •COREfiler •ProDOS Data Encryptor ■ *Adventure Tips*: •Ulysses and The Golden Fleece •Serpentine •Ultima II •Castle Wolfenstein •Death in the Caribbean •Zork I •Zork II •Gruds in Space •Enchanter •Infidel •Serpent's Star ■ *Whiz Kid*: •How Data is Stored on Disk

7 ■ *Softkeys*: •Zaxxon •Mask of the Sun •Crush •Crumble & Chomp •Snake Byte •DB Master •Mouskattack ■ *Features*: •Making Liberated Backups That Retain Their Copy Protection •S-C Assembler: Review •Disk Directory Designer ■ *Core*: •COREfiler: Part I •Upper & Lower Case Output for Zork

6 ■ *Softkeys*: •Pandora's Box •Donkey Kong •Caverns of Freitag •Visifile ■ *Features*: •Program Enhancements: QuickBug •Personalizing A Program •Modified ROMs ■ *Review*: •Essential Data Duplicator •The CIA ■ *Core*: •Data Bases

5 ■ *Softkeys*: •Homeward •Aztec •Bag of Tricks •Egbert II •Starcross •Hard Hat Mack •The Home Accountant ■ *Reader's Softkeys*: •Dark Crystal •Screenwriter II •Visifile •Lancaster •Bill Budge's Trilogy of Games •Sammy Lightfoot •Amper-Magic •Buzzard Bait ■ *Feature*: •Getting on the Right Track

4 ■ *Features*: Ultima II Character Editor ■ *Softkeys*: •Ultima II •Witness •Prisoner II •Pest Patrol ■ *Adventure Tips*: •Ultima II & III ■ Copy II Plus Parms Update

3 ■ *Softkeys*: •Bag of Tricks •Multiplan ■ *Readers' Softkeys*: •Visiplot /Visitrend •Sneakers •Wizardry ■ *Features*: •No More Bugs: The Sequel •Hidden Locations Revealed •Map Maker ■ *A.P.T.s* •Choplifter ■ *Adventure Tips*: •Cranston Manor •Strange Odyssey

2 ■ *Softkeys*: •Magic Window II •Multiplan ■ *Features*: •Parameters for Locksmith 4.1 •Page Flipper •String Plotter •Three-D Wall Draw ■ *Core*: Checksums ■ *Input*: •Reviews of unprotected commercial software

Send these issues and/or library disks:

Issue	Mag \$4.75	Disk \$9.95	Both \$12.95
62	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
61	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
56	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
52	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
★ 28	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 23	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 22	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 21	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
★ 19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
★ 16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Core 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Core 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
■ 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Core 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Best of Hardcore Computing...

Only the disk is available

Core Special Combo \$10.....

(All three CORE magazines; no disks)

Some disks apply to more than one issue and are shown as taller boxes.
Special "Both" disk & magazine combination orders apply to one issue
and its corresponding disk.

★ Limited supply; first-come-first-serve basis.
● Not available.
○ Out-of-print; only 'Xeroxed' copies for sale.

COMPUTIST

back issues and library disks are frequently referenced in current issues.

Back Issues and Library Disk Rates

	Back issues	Library disks	Both
US, Canada and Mexico	\$4.75	\$9.95	\$12.95
All other Foreign	\$8.75	\$11.94	\$18.95

What is a library disk?

A library disk is a diskette that contains programs that would normally have to be typed in by the user. Documentation for each library disk can be found in the corresponding issue.

- Library disks are available for all issues of COMPUTIST # 1 thru 63. If you wish to purchase a library disk not listed on the left (under the DISK column), use the out-of-print back issues ad on page 42.

Complete Your Collection!

CORE 3 Games: Constructing Your Own Joystick • Compiling Games • GAME REVIEWS: Over 30 of the latest and best • Pick Of The Pack: All-time TOP 20 games • Destructive Forces • EAMON • Graphics Magician and GraFORTH • Dragon Dungeon.....

CORE 2 Utilites: Dynamic Menu • High Res: Scroll Demo • GOTO Label: Replace • Line Find • Quick Copy: Copy.....



CORE 1 Graphics: Memory Map • Text Graphics: Marquee • Boxes • Jagged Scroller • Low Res: Color Character Chart • High Res: Screen Cruncher • The UFO Factory • Color • Vector Graphics: Shimmering Shapes • A Shape Table Mini-Editor • Block Graphics: Arcade Quality Graphics for BASIC Programmers • Animation.....

Name _____ ID# _____

Address _____

City _____ State _____ Zip _____

Country _____ Phone _____

  _____ Exp. _____

Signature _____ CP63

● US funds drawn on US bank. ● Most orders shipped within 5 working days, however please allow up to 4 weeks delivery for some orders. ● Most orders shipped UPS, so please use street address. ● Offer good while supply lasts. ● In Washington state, add 7.8% sales tax. ● Send check/money order to:

COMPUTIST PO Box 110846-T Tacoma, WA 98411 (206) 474-5750

the COMPUTIST shopper

Software Package	I I e	I I gs	Software Package	I I e	I I gs
816 Paint.....	\$45.00 <input type="checkbox"/>	\$45.00 <input type="checkbox"/>	Newsroom.....	\$38.00 <input type="checkbox"/>	
Alternate Reality: The Dungeon.....	\$28.00 <input type="checkbox"/>		Paint Write Draw.....		\$120.00 <input type="checkbox"/>
Alternate Reality: The City.....	\$20.00 <input type="checkbox"/>		Paintworks Plus.....		\$47.00 <input type="checkbox"/>
Appleworks.....	\$190.00 <input type="checkbox"/>		Paintworks Gold.....		\$65.00 <input type="checkbox"/>
Artic Fox.....	\$28.00 <input type="checkbox"/>		Pegasus.....	\$23.00 <input type="checkbox"/>	
Bank Street Writer 64K.....	\$46.00 <input type="checkbox"/>		The Print Shop.....	\$34.00 <input type="checkbox"/>	\$40.00 <input type="checkbox"/>
Bank Street Writer Plus (128K).....	\$46.00 <input type="checkbox"/>		Print Shop Companion.....	\$27.00 <input type="checkbox"/>	
Bard's Tale.....	\$30.00 <input type="checkbox"/>	\$35.00 <input type="checkbox"/>	Print Shop Graphics Library:		
Bard's Tale II.....	\$35.00 <input type="checkbox"/>		Disk One.....	\$16.50 <input type="checkbox"/>	
Bard's Tale III.....	\$35.00 <input type="checkbox"/>		Disk Two.....	\$16.50 <input type="checkbox"/>	
California Games.....	\$26.00 <input type="checkbox"/>	\$26.00 <input type="checkbox"/>	Disk Three.....	\$16.50 <input type="checkbox"/>	
Certificate Maker.....	\$25.00 <input type="checkbox"/>		Pro-Byter.....	\$32.00 <input type="checkbox"/>	
Championship Karate.....	\$14.00 <input type="checkbox"/>		Reader Rabbit.....	\$27.00 <input type="checkbox"/>	\$34.00 <input type="checkbox"/>
Chessmaster 2000.....	\$28.00 <input type="checkbox"/>		Silent Service.....	\$23.00 <input type="checkbox"/>	
Clip Art Library (for Paintworks Plus).....		\$20.00 <input type="checkbox"/>	Space Quest.....	\$32.00 <input type="checkbox"/>	\$32.00 <input type="checkbox"/>
Copy II Plus v8.0.....	\$23.00 <input type="checkbox"/>	\$23.00 <input type="checkbox"/>	Space Quest II.....	\$32.00 <input type="checkbox"/>	
Create with Garfield.....	\$20.00 <input type="checkbox"/>		Star Fleet.....	\$35.00 <input type="checkbox"/>	
Create w/ Garfield Deluxe.....	\$28.00 <input type="checkbox"/>		Star Trek- The Kobayashi Alternative.....	\$27.00 <input type="checkbox"/>	
Crossword Magic.....	\$32.00 <input type="checkbox"/>		Star Trek II- The Promethean Prophecy.....	\$27.00 <input type="checkbox"/>	
Dark Lord.....	\$15.00 <input type="checkbox"/>		Stickybear Series:		
Dazzle Draw.....	\$40.00 <input type="checkbox"/>		ABC's.....	\$24.00 <input type="checkbox"/>	
Draw Plus.....	\$52.00 <input type="checkbox"/>		Math I.....	\$24.00 <input type="checkbox"/>	
F-15 Strike Eagle.....	\$24.00 <input type="checkbox"/>		Math II.....	\$24.00 <input type="checkbox"/>	
Fantavision.....	\$34.00 <input type="checkbox"/>	\$40.00 <input type="checkbox"/>	Numbers.....	\$24.00 <input type="checkbox"/>	
Flight Simulator II.....	\$36.00 <input type="checkbox"/>		Reading.....	\$24.00 <input type="checkbox"/>	
Force 7.....	\$15.00 <input type="checkbox"/>		Shapes.....	\$24.00 <input type="checkbox"/>	
Halls of Montezuma.....	\$28.00 <input type="checkbox"/>	\$28.00 <input type="checkbox"/>	Typing.....	\$24.00 <input type="checkbox"/>	
Hardball.....	\$22.00 <input type="checkbox"/>	\$28.00 <input type="checkbox"/>	Opposites.....	\$24.00 <input type="checkbox"/>	
Hitchhiker's Guide.....	\$20.00 <input type="checkbox"/>		Thezder.....	\$23.00 <input type="checkbox"/>	\$23.00 <input type="checkbox"/>
Jet.....	\$29.00 <input type="checkbox"/>		TimeOut Superfonts.....	\$42.00 <input type="checkbox"/>	
Karateka.....	\$24.00 <input type="checkbox"/>		Tomahawk.....	\$23.00 <input type="checkbox"/>	
King's Quest.....	\$32.00 <input type="checkbox"/>	\$32.00 <input type="checkbox"/>	Topdraw.....	\$66.00 <input type="checkbox"/>	
King's Quest II.....	\$32.00 <input type="checkbox"/>	\$32.00 <input type="checkbox"/>	Type.....	\$30.00 <input type="checkbox"/>	
King's Quest III.....	\$32.00 <input type="checkbox"/>	\$32.00 <input type="checkbox"/>	Typing Tutor IV.....	\$32.00 <input type="checkbox"/>	\$32.00 <input type="checkbox"/>
King's Quest IV.....		\$32.00 <input type="checkbox"/>	Ultima V.....	\$40.00 <input type="checkbox"/>	
Knight of Diamonds.....	\$23.00 <input type="checkbox"/>		Visualizer.....	\$53.00 <input type="checkbox"/>	\$59.00 <input type="checkbox"/>
Legacy of the Ancients.....	\$28.00 <input type="checkbox"/>		Where in USA is Carmen San Diego.....	\$30.00 <input type="checkbox"/>	
Leisure Suit Larry.....	\$26.00 <input type="checkbox"/>	\$26.00 <input type="checkbox"/>	Where in World is Carmen San Diego.....	\$30.00 <input type="checkbox"/>	
Lode Runner.....	\$24.00 <input type="checkbox"/>		Where in Europe is Carmen San Diego.....	\$30.00 <input type="checkbox"/>	
Macroworks.....	\$20.00 <input type="checkbox"/>		Wings of Fury.....	\$25.00 <input type="checkbox"/>	
Math Blaster.....	\$28.00 <input type="checkbox"/>		Winter Games.....	\$25.00 <input type="checkbox"/>	\$27.00 <input type="checkbox"/>
Math Blaster Plus.....	\$29.00 <input type="checkbox"/>	\$29.00 <input type="checkbox"/>	Wizardy.....	\$32.00 <input type="checkbox"/>	
Math Rabbit.....	\$27.00 <input type="checkbox"/>		Word Attack.....	\$28.00 <input type="checkbox"/>	
Math Talk.....		\$35.00 <input type="checkbox"/>	Wordperfect w/ Spelling Checker.....	\$95.00 <input type="checkbox"/>	\$95.00 <input type="checkbox"/>
Marble Madness.....	\$25.00 <input type="checkbox"/>	\$25.00 <input type="checkbox"/>	World Games.....	\$25.00 <input type="checkbox"/>	\$27.00 <input type="checkbox"/>
Mean 18, Ultimate Golf.....	\$28.00 <input type="checkbox"/>		Writer's Choice Elite.....	\$60.00 <input type="checkbox"/>	
Merlin 8/16.....	\$80.00 <input type="checkbox"/>		Writer Rabbit.....	\$24.00 <input type="checkbox"/>	
Millionaire II.....	\$40.00 <input type="checkbox"/>		Yeager's Advanced Flight Trainer.....	\$28.00 <input type="checkbox"/>	
Mousewrite.....	\$99.00 <input type="checkbox"/>	\$99.00 <input type="checkbox"/>			
Multiscribe 3.0.....	\$48.00 <input type="checkbox"/>	\$66.00 <input type="checkbox"/>			
Music Studio 2.0.....	\$52.00 <input type="checkbox"/>				

COMPUTIST
is proud to
offer these
LOW software
prices* for
Apple II and
I I gs software

* Prices subject to
change without notice.

Because we do not 'stock' but
order only the software needed,
the COMPUTIST Shopper keeps
operating costs to a minimum
and can pass the savings on to
you.

In most cases, your order is
shipped within two weeks. The
COMPUTIST Shopper will NOT
cash your check nor charge
your credit card until your
software is ready to be shipped.
If the software you ordered is
not available, you will have the
option to cancel your order, or
make an alternative selection.

How To Order

- **US orders:** Check the box for your selection. For Apple I I gs software, check the box in the right-hand column.
- Please add \$3 per order for shipping & handling. Orders over \$200 receive free shipping.
- Most orders shipped UPS, so use your **street address**.
- **Washington state,** please add 7.8% sales tax.
- Offer good while supplies last.
- **Foreign Orders:** Please inquire as to appropriate shipping fees

Name _____ ID# _____
Address _____
City _____ State _____ Zip _____
Country _____ Phone _____
Exp. _____
Signature _____ CP63

● Software
SUBTOTAL _____
● Plus
SHIPPING _____
(see above)
● WA residents
Sales Tax _____
7.8 %
■ TOTAL
Enclosed _____

SoftKey Publishing PO Box 110616-T Tacoma WA 98411

Ralph & the Computer Pike

Softkey for...

Chuck Yeager's Advanced Flight Simulator v1.0

Electronic Arts

■ Requirements

- ORIGINAL program diskette
- blank FORMATTED diskette
- DEBUG.COM (found in most MS-DOS packages)

The copy protection was very simple, so save the \$10 for the unprotected version offered by Electronic Arts. Tracing was done on the file AFS.EXE using Micro-soft's Symbolic Debug Utility - SYMDEB.COM (version 3.00). Concentrating on any disk I/O, it was found that a portion of the program had four identical groups of two CALLs bunched together. The first CALL routine was CALL 0B31, which resets the disk, reads the boot record and track 15 (side 0). By the way, track 15 (side 0) is one of those "hard to copy" tracks. The second CALL routine was CALL 0B74, which checks the status of the flags set by the last disk I/O, being CALL 0B31. Replacing these CALLs with NOPs (three NOPs per CALL), we found that the program ran with no problems whatsoever! It was that easy! As a matter of fact, we joked about the fact of merely using NOPs to unprotect the program before running it. It couldn't be that easy! Sure enough...

In copying the program diskette, we decided use "COPY *.*". Reasons being that it allows the copied diskette to rid the bad track 15 (side 0). It was found that using DISKCOPY returned errors and COPYIPC left track 15 (side 0) in its "bad" state. So, let's do it this way. If all goes well, you'll only have to do it once!

1 Assuming that the PC has been booted-up and the DOS prompt is B>, insert the ORIGINAL program diskette into drive A: and the blank FORMATTED diskette into drive B:

2 Type the following after each B> prompt:

```
MD AFS
COPY/V A:*. *
COPY/V A:\AFS\*. * B:\AFS
```

3 Now, remove the ORIGINAL program diskette from drive A: and put it away. You won't be needing it anymore!

4 Insert the diskette containing the

DEBUG.COM file into drive A:.

5 You'll have to rename the AFS.EXE file. Type the following at the B> prompt:
RENAME \AFS\AFS.EXE AFS.XXX

6 Enter DEBUG by typing the following at the B> prompt:
A:DEBUG \AFS\AFS.XXX

7 At each hyphen "-" prompt, type the following:

```
E DE0 90 90 90 90 90 90
E DE8 90 90 90 90 90 90
E DF1 90 90 90 90 90 90
E DF9 90 90 90 90 90 90
W
Q
```

8 Rename AFS.XXX back to its original name.

RENAME \AFS\AFS.XXX AFS.EXE

You now have an unprotected copy of Chuck Yeager's Advanced Flight Simulator by Electronic Arts.

Being an avid user of PC-based flight simulators, I'll have to say that Chuck Yeager's Advanced Flight Simulator ranks among the BEST! Have fun and good luck!

For single-drive users.

I went ahead and COPYIIPC'd (version 3.09) the ORIGINAL program diskette in drive A:. Ignoring the three errors that track 15 created, I went ahead and used the copy and performed the unprotection. I ran the copy with no problem. Then, I DISKCOPY'd (PC-DOS 3.2) the diskette in drive A:. Again, I ignored the errors. The DISKCOPY'd diskette also ran with no problem. Unless you have a program that corrects or formats by tracks and sides, you'll have to live with the errors popping up during copying with no effect to the actual running of the program. Such a program that allows formatting by track and side is called ULTRAFMT.COM. It is a public domain program and usually comes as a package with other ULTRA programs. The programs can be found on most BBSes under the ARC'd filename ULTRA.ARC. Again, good luck!

The Lone Victor

Softkey for...

dBase III v1.10

■ Requirements

- ALTER.COM or FM.COM

Here's how to bypass the SoftGuard copy protection scheme used on dBase III version 1.10.

1 Use your original diskette to install dBase III on a fixed disk.

2 Softguard hides three files in your root directory: CML0200.HCL, VDF0200.VDW, and DBASE.EXE. Unhide the three files in the root directory. You can do this with the programs ALTER.COM or FM.COM found on any BBS.

3 Make copies of the three files, and of DBASE.COM, into some other directory.

4 Hide the three root files again using ALTER or FM.

5 Following the dBase instructions, UNINSTALL dBase III. Put away your original dBase diskette.

6 Next we will make some patches to CML0200.HCL to allow us to trace through the code in DEBUG. These patches will keep it from killing our interrupt vectors.

DEBUG CML0200.HCL

```
E 3F9
2A.4A change the 2A to 4A
E 49D
F6.16 if any of these numbers
E 506
E9.09 don't show up, then it's
E A79
00.20 not working.
E AE9
00.20
E 73C 97 FA FA F4 F1 7E encrypted call to 0:300
W write out the new CML file
Q quit debug
```

7 Now copy your four saved files back into the root directory and hide the CML0200.HCL, VDF0200.VDW, and DBASE.EXE files using ALTER or FM.

8 We can now run DBASE.COM using DEBUG, trace just up to the point where it has decrypted DBASE.EXE, then write that file out.

DEBUG DBASE.COM

```
R write down the value of DS for use below
A 0:300 we must assemble some code here
```

```
pop ax
cs:
mov [320], ax save return address
pop ax
cs:
mov [322], ax
push es set up stack the way we need it
mov ax, 20
mov es, ax
mov ax, 0
cs:
```

IBM Reader's Data EXchange IBM

jmp far ptr [320] *jump to our return address
to exit assem*
RETURN

G 406 *now we can trace CML*
T
G 177 *this stuff just traces past some*
G 1E9 *encryption routines.*
T
G 54E *wait while reading VDF & FAT*
G = 559 569
G = 571 857 *DBASE has been decrypted*
R BX *length DBASE = 1AC00 bytes*
:1 *set BX to 1*
R CX
:AC00 *set CX to AC00.*
N DBASE *name of file to write to*
W XXXX:100 *where XXXX is the value of DS that
you wrote down at the begining.*
Q *quit debug*

9 Unhide and delete the three root files CML0200.HCL, VDF0200.VDW, and DBASE.EXE. Delete DBASE.COM and rename DBASE to DBASE.EXE. This is the real dBase III program without any SoftGuard code or encryption. It requires only the DBASE.OVL file to run.

If you have any comments on this unprotect routine, please leave them on the Atlanta PCUG BBS (404) 634-5731.

L. Brenkus

Softkey for...

Ultima II
Origin Systems

The copy-protection scheme used in ULTIMA II is also used by PROKEY 3.0 and several other programs. The approach I outline here works with any of these that are in COM file format. If anyone can improve it to work for EXE files please tell us.

This general copy scheme uses a short sector of 256 bytes to store an essential piece of the program code. On startup, location 100H contains a JMP instruction to the code which reads this short sector. Locations 103H - 110H contain HLT instructions (hex F4). After the sector is read, its contents are overlaid onto locations 100H - 110H, replacing the dummy instruction codes. A branch to 100H then begins the actual program.

All we need to do is to stop execution after the changes are made and write down the contents of 100H - 110H; reloading the program and POKEing these changes results in an unprotected program.

1 Put original disk in A: (write-protect it) and a disk containing DEBUG in B:

2 Make the A: drive the default.

A:

3 Start up DEBUG.

B:DEBUG ULTIMAIL.COM

U 0100 *disassemble 0100-0120*

0100 JMP 88A0 (or whatever)
0103 HLT
0104 HLT ...etc.

U 88A0 *look at short-sector decrypting code*

88A0 JMPS 88A7 *Next 'statements' are data locations;
ignore*

U 88A7 *look for where program restarts at 100H*

88A7 CALL 88C4
88AA CALL 892E
88AD JC 88BF *If Carry is set, the disk is a copy. Go to
DOS!*

...
88BA MOV AX,0100
88BD JMP AX *Paydirt! If you got this far, the
program has written the REAL code into 0100 - 0120H.*

G 88BD *Tell DEBUG to run the program, stop here*
D 0100 011F *Dump out the changed code*

8C C8 05 25 07 8E D8 05
10 03 8E D0 *Write down these values*

Q *Get out of DEBUG*

4 You must reload to finish deprotecting. Make a copy of the disk; you can use "COPY *.*".

5 Put the copy in A:

B:DEBUG ULTIMAIL.COM *load copy*

E 0100 *Patch locations 0100 - 011F with the 12
numbers you wrote down befor. Press space
between each entry, until last entry; then press
ENTER.*

W *Write new version of ULTIMAIL.COM*
Q *You've done it!*

I've been detailed because this works generally for any COM file. This method doesn't work for EXE files because while DEBUG can load relocatable modules and execute them with breakpoints (step 7 above), you cannot use debug to write an EXE file in relocatable form. Any suggestions?

Softkey for...

PrintMaster

Unison World, Inc.

The following steps assume that DEBUG.COM and the file PMMAIN.EXE are on the default disk drive. If not, add a drive specifier (A:, B:, C:, etc.) to the file

names shown below. The procedure is as follows:

RENAM PMMAIN.EXE PMMAIN
DEBUG PMMAIN
S 0000 FFFE CD 13

This should return an address in the form xxxx:6C73, where xxxx is the current code segment. If the second part of the address is not 6C73, you have a different version, and this patch probably will not work.

E 6C73 90 90

E 6C7A 90

W

Q

RENAM PMMAIN PMMAIN.EXE

The version you have now created will run from an unprotected floppy in drive A, but since some of the file names used by the program are hard coded to be on drive A, there is another step to be performed before it can be run from the hard disk or RAM disk. The DOS command ASSIGN A=C must be executed (assuming the hard disk or RAM disk is drive C). This will direct all calls for drive A to drive C, where the program and its files are.

Softkey for...

Memory/Shift

RENAM MS.EXE MS.XYZ

DEBUG MS.XYZ

U 1565

You should see "INT 21" at that address.

E 1565 90 90

E 1567 90 90

W

Q

RENAM MS.XYZ MS.EXE

Make sure COMMAND.COM resides on the disk where MEMORY/SHIFT is initiated.

**MOST
WANTED
Softkeys**

Gunship Microprose

Lotus 123 v2.01 ?

unCLASSIFIED ADS

Trade your unwanted software. Send your list of programs to trade. I have over 70 originals to trade. Byron Blystone, P.O. Box 1313, Snohomish, WA 98290.

PUBLIC DOMAIN
Plus more!!!

100's of disks. 1000's of PRINT SHOP graphics, APPLEWORKS files, PRODOS files, EDUCATIONAL, UTILITIES, plus much more. School purchase orders welcome. Send \$1 for catalog to Continental Software Co., Box 1511, So. Glens Falls, NY 12803

HackerDOS

Fast DOS 3.3 plus undelete, space on disk, print text file to screen/printer, fast text I/O, addr. & length of loaded files, hex/dec translation, 15 more sectors/disk. Nothing removed, takes no extra space! Support programs copy any range of sectors, change lower → uppercase, & customize DOS. Options incl. binary/text boot file, show deleted files, >35 tracks, & 2-column catalog. \$5 to:

Phil Goetz
4023 Huckleberry Row
Ellicott City, MD 21043

Original Apple Software

New and used. Trade/sell. Over 100 games and adventures. Also GS software, hardware, and misc. Send stamp for list. Steve Wadsten, 20318 Fremont, Livonia, MI 48152

Hardcore COMPUTIST Back Issues:

Over 60 issues from #1 to the present issue, a goldmine of information - \$120. Snapshot interrupt/Copy card with manual and software - make offer Kevin (805) 943-2923 (Calif.)

How to place an UnClassified Ad

For short ads, use this order form. For larger ads, submit typed copy with appropriate instructions. Use every character space, up to 30 characters per line, we will adjust word wrap. \$5 for the first line, \$1 per line after that.

Special Graphics Instructions: The first three words of the first line are printed in bold for free. If you want other words bolded, use two spaces per letter and circle the entire word. (Bold letters count as two letters.) If you want a line centered, write CENTER next to that line. There is no charge for centering any line. (Don't over do it.) We reserve the right to refuse any ad.

_____	\$5
_____	\$6
_____	\$7
_____	\$8
_____	\$9
_____	\$10

Name _____ ID# _____
 Address _____
 City _____ State _____ Zip _____
 Country _____ Phone _____
 Signature _____ CP53

Total Number of lines: _____ \$. 0 0
 Run my ad _____ number of times. Each run that I pay for now will cost me only 1/2 the total initial cost. \$. _____
 Total \$. _____
 *Washington orders add 7.8% sales tax. \$. _____
 Final Total \$. _____

Send this form and a check or money order (funds drawn on US bank only) for the entire amount to:

COMPUTIST unCLASSIFIEDS PO Box 110846 Tacoma, WA 98411

Iigs APPLESOFT???

Now you can use Super Hi-Res and synthesizer sound & music from Applesoft BASIC.

Yes . . . You really can!

No new language to learn,

Forget about the toolbox and its complexities.

Put aside cumbersome and difficult P16 basics and acutally write something on your Apple Iigs that has all the color and sound your imagination can muster. Don't just dream about it, do it . . . quickly and easily!

So What Software puts you in control and finally makes programming on the Apple Iigs a reality!

SONIX, ICONIX and DISC COMMANDER
The Hands on Favorites.

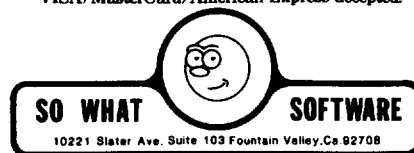
For Graphics:
ICONIX (512K) \$49.95

For Sound:
SONIX (1MEG) \$59.95

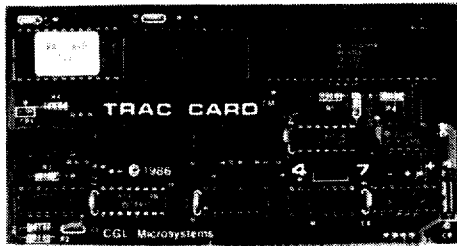
For "Hacking":
DISC COMMANDER (512K) . . . \$39.95

**☎ Call us today, at (714) 964-4298
(714) 963-3392**

VISA/MasterCard/American Express accepted.



TRAC CARD



Boot Process Memory Card

- +On-Board Memory Stores Up To 200 Disks Of Accessed Tracks While Powerd Up
- +All Disks Are Automatically Monitored From The Moment You Power Up. The Tracks Are Divided Into Groups Of "Booted" Disks
- +Save Time When Using Backup Software-The Tracks Accessed May Be Displayed In Numerical Order Or In The Order In Which They Are Read
- +TRAC CARD Gives You Maximum Accuracy For Backing Up Software By Precisely Storing 1/4, 1/2 and 3/4 Tracks, As Well As Full Tracks
- +You May Choose 40 or 80 Column On Monitor Or Dump Data To Printer. Name Each Disk When Printing Track List
- +Choose Either Decimal Or Hexidecimal Readout
- +Use In Any Slot, Including Slot #3 On //e
- +Works With Any Apple Compatible 5 1/4" Drive
- +Works With Apple II, II+ and //e, As Well As Compatibles

Price \$159.95 Plus \$3.00 Shipping & Handling

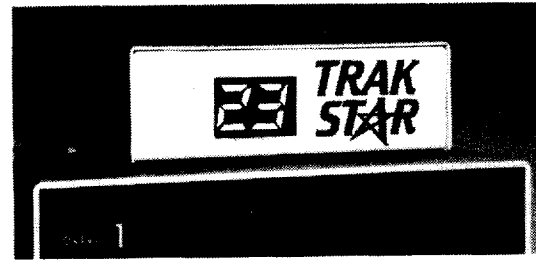
Apple is a registered trademark of Apple Computer Inc.

Personal checks, M.O.,
Visa and Mastercard
Phone 913 676-7242

Midwest Microsystems

10308 Metcalf, Suite 355
Overland Park, KS. 66212

TRAK STAR



Constant Digital Readout of Disk Drive Head Position

- +Works With Any 5 1/4" Apple Compatible Drive
- +Saves Copying Time With Nibble Programs
- +Copy Only Tracks That Are Displayed
- +If Copied Program Doesn't Run, TRAK STAR Displays Track To Be Recopied
- +Displays Full and Half Tracks
- +Operates With Any Apple Compatible Program, Including Protected Software
- +Displays Up To 99 Tracks and Half Tracks; Compatible With High Density Drives
- +Does Not Use A Slot in the Apple
- +For Apple II, II+ and //e
- +Simple One Minute Installation

Price \$99.95 Plus \$3.00 Shipping & Handling
Adaptor Cable Required For 2 Drive System \$12.00
DuoDisk, 5 1/4" Unidisk and IIc Owners Please Write

NEW!

LOW FACTORY DIRECT PRICES!

DEALERS CALL
UNIV & SCHOOL P.O.'S WELCOME!

MEGABYTE RAM BOARDS!

The Ultimate in RAM Power!

Super Expander 6S, a 100% replacement for Apple IIGS 1 meg board. Fully IIGS hardware & software compatible. **\$K**

Super Expander E, for U.S. and European IIGS. Licensed by Applied Engineering. 100% replacement for extended 80 column card. Expands Appleworks desktop to 998K and allows instant switching between Appleworks modules. **\$K**

Super Expander C, expands IIGS to 1152K and Appleworks desktop to 1062K, plus allows instant switching between modules. **\$K**

Super Expander +, operates in any IIGS slot, plus 0. Expands Appleworks desktop to 1014K, & allows instant switching between modules. (80 Col req for Appleworks). **\$K**

ABOVE w/256K, 512K, or 1MEG CALL

QUIET COOLING FANS!

SuperFan II for the IIGS//IIGS. Kensington style w/surge protect. **\$26**

Super Cooler GS for the IIGS. No audio line interference. **\$24**

APPLE COMPATIBLE PERIPHERALS!

64K/80 Column Board expands IIGS to 128K and adds 80 columns & hi-res. **\$35**

Super 64K/80 Column Board w/64K **\$49**

Super 64K/80 Column Board w/256K call

16K RAM Board expands IIGS to 64K **\$34**

128K RAM BD expands IIGS to 192K. Combine w/Plusworks 2 for IIGS Appleworks desktop of 136K. **\$64**

Plusworks 2 Software allows IIGS Appleworks operation. (req 80 col). **\$38**

80 Column BD expands IIGS display to 80 columns. (Videx compatible). **\$48**

Super Serial Board 100% replacement for the Super Serial card. **\$48**

Z80 CP/M Board opens the world of CP/M for your IIGS//IIGS. **\$34**

Graphic Parallel Board w/Cable does text & graphic screen prints. **\$44**

Parallel Board w/Cable for use where graphics is not required. **\$35**

Disk Drive 5 1/4" w/speed adjust, specify your model w/order. **\$119**

A/B Switchbox parallel or serial **\$29**

A/B/C/D Switchbox (par or ser) **\$39**

Numeric Keypad II for IIGS **\$34**

Numeric Keypad II for IIGS **\$39**

Joystick (specify your II model) **\$17**

Joystick III similar to Mach III **\$24**

TWO YEAR WARRANTY ON ALL PRODUCTS
CALL OR WRITE FOR OUR COLOR CATALOG
ADD \$3 SHIPPING/COD OKAY/VISA/MC NO EXTRA FEE



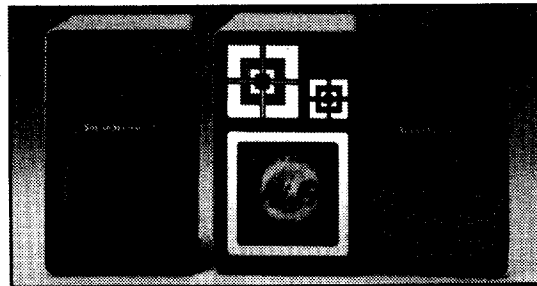
NEXO DISTRIBUTION (619) 474-3328 10am-6pm/Mon-Fri

914 East 8th Street, Suite 109, National City, California 92050

Apple, Appleworks and Macintosh trademarks of Apple Computer, Inc. Bose & Roommates are trademarks of Bose Corp.

SOUND SYSTEM™ 2

NEW! 2-Way Stereo Amplified Speaker System
for your Apple IIGS, IIGS, IIGS, IIGS+, and Macintosh



More versatile than the Roommates by Bose, this thunderous amplified speaker set will make all Apple speech, music, games, and other sound programs come to life on any Apple model computer.

Prepare to be blown away when you plug in this super powered speaker system, because the advanced design amplifier of the SoundSystem 2 provides over 3 times the power of any amplifier board.

And the sound? You won't believe your ears, because the built in 2-way stereo super heterodyne speakers, coupled with state of the art filtering, provide an enhanced high quality sound, crystal clear to any listener.

Release the full sound potential of your Apple computer with the versatile SoundSystem 2. You never knew your Apple could sound so good!

FEATURES:

- Built in advanced design amplifier.
- Volume control (you'll need it).
- 2-way super heterodyne speakers.
- State of the art noise filtering.
- No slot operation.
- 100% Apple software compatible.
- 100% Apple hardware compatible. (specify your model with order)
- Complete Documentation.
- Full two year warranty.

LOW FACTORY DIRECT PRICE \$129 (PAIR)

The Hacker's Ultimate Copy & Deprotection Utility

Super IOB Collection !

ALL of our Super IOB controllers (through March 1988) in 'ONE' package!

COMPUTIST developed the ultimate copy program to remove copy protection from software:

The Super IOB program.

Since the introduction of Super IOB, COMPUTIST has used this flexible program to deprotect (or partially deprotect) dozens of commercial programs with far ranging protection schemes.

Super IOB deprotects disks by using a modified RWTS (the subroutine in DOS which is responsible for the reading and writing of disk sectors) for reading from the protected disk and then using a normal RWTS for writing to the deprotected disk.

This package contains:

▶ Three disks (supplied in DOS 3.3). Each disk contains at least 60 Super IOB Controllers including the standard, swap, newspaper and fast controllers. Also included is **version 1.5 of Super IOB**, the Csave program from COMPUTIST No. 13, and a Menu Hello Program that lists the available controllers and, when you select one, automatically installs it in Super IOB and RUNs the resulting program.*

▶ A reprint of **Disk Inspection and the Use of Super IOB**, from COMPUTIST No. 17. This article explains how to write your own Super IOB controllers.

▶ **COMPUTIST No. 32**, which contains an extensive article detailing the hows and whys of Super IOB v1.5 and at least 5 articles using the new Super IOB program.

• Several of the controllers deprotect the software completely with no further steps. This means that some programs are only minutes away from deprotection (with virtually no typing).

• The issue of COMPUTIST in which each controller appeared is indicated in case further steps are required to deprotect a particular program.**

*Requires at least 64K of memory.

**Although some controllers will completely deprotect the program they were designed for, some will not, and therefore require their corresponding issue of COMPUTIST to complete the deprotection procedure.

The SUPER IOB Collection

Volume 1 of the Super IOB collection covers all the controllers from COMPUTIST No. 9 through No. 26. Also included are the newspaper and fast controllers from COMPUTIST No. 32. The following 60 controllers are on volume 1:

Advanced Blackjack, Alphabet Zoo, Arcade Machine, Archon II, Archon, Artsci Software, Bank Street Writer, Barrons SAT, Beyond Castle Wolfenstein, BSW //c Loader, Castle Wolfenstein, Computer Preparation: SAT, Dazzle Draw, DB Master 4 Plus, Death in the Caribbean, Dino Eggs, DLM Software, Electronic Arts, F-15 Strike Eagle, Fast Controller, Fathoms 40, Financial Cookbook, Gessler Software, Grandma's House, The Heist, In Search of the Most Amazing Thing, Instant Recall, Kidwriter, Lions Share, Lode Runner, Mastertype, Match Maker, Miner 2049er, Minit Man, Muplot, Newsroom, Newspaper controller, Penguin Software, Print Shop Graphic Library, Print Shop, Rendezvous with Rama, Rockys' Boots, Sargon III, Sea Dragon, Shiela, Skyfox, Snooper Troops, Standard controller, Stoneware Software, Summer Games, Super Controller, Super Zaxxon, Swap Controller, TAC, Ultima I & II, Word Challenge, Xyphus, Zaxxon

Volume 2 of the Super IOB collection covers all the controllers from COMPUTIST No. 27 through No. 38. The following 65 controllers are on volume 2:

Alice in Wonderland, Alphabetic Keyboarding, Alternate Reality, Autoduel, Checkers, Chipwits, Color Me, Conan.data, Conan.prog, CopyDOS, Crisis Mountain, Disk Director, Dragonworld, Early Games, Easy as ABC, F-15 Strike Eagle, Fantavision, Fast controller, Fishies, Flight Simulator, Halley Project, Hartley Software (a), Hartley Software (b), Jenny of the Prairie, Jingle Disk, Kidwriter, Kracking Vol II, Lode Runner, LOGO II (a), LOGO II (b), Masquerade, Mastering the SAT, Microtype: The Wonderful World of Paws, Microzines 1, Microzines 2-5, Miner 2049er, Mist & View to a Kill, Murder on the Zinderneuf, Music Construction Set, Newspaper controller, Olympic Decathlon, Other Side, Phi Beta Filer, Pitstop II, Print Shop Companion, RDOS, Robot War, Spy vs Spy, Standard controller, Sundog V2, Swap controller, Sword of Kadash, Synergistic Software, Tawala's Last Redoubt, Terripin Logo, Threshold, Time is Money, Time Zone, Tink! Tonk!, Troll's Tale, Ultima IV, Wilderness, Word Attack & Classmate, World's Greatest Baseball, World's Greatest Football

☆☆☆ NEW ☆☆☆

Volume 3 of the Super IOB collection covers all the controllers from COMPUTIST No. 39 through No. 53. The following 89 controllers are on volume 3:



2400 A.D., Alternate Reality: The Dungeon, Address Book, American Challenge, Apple Gradebook V2.6, Arcade Album #1, Arcade Boot Camp, Aztec, Bard's Tale II, Beachhead, Beyond Castle Wolfenstein, Black Magic, Blue Powder/Grey Smoke, Borrowed Time, Castle Wolfenstein, Cat-N-Mouse, Catalyst 2.0 & 3.0, Centipede, Championship Golf, Championship Wrestling, Charlie Brown 123'S, Colonial Conquest, Comprehension Skills, Computer Preparation for the SAT V3, Coveted Mirror, Coveted Mirror RWTS Capture, CPU68000NV.4Q2, Cranston Manor, Crime Stopper, Dam Busters, Decimals, Destroyer, Dino Dig, Earth Orbit Station, Encyclopedia Britannica, Escape, Fish Scales, Foundation Course in Spanish, Frog, GFL Football, Goonies, Great American Cross-Country Road Race, Handlers, H.E.R.O, Inferno, Information Master, J-Bird, Jenny's Journeys, Joe Theisman Football, Kindercomp, Kung Fu, Light Simulator, Manuscript Manager, Master Diagnostics IIe, Mastering Math, MECC, MECC Software, MECC Swap, MECC Without RWTS, Missing Links, No Error Check & No DOS, Ogre, One On One, Oregon Trail, Penguin Software, PFS ProDOS, Pittfall II, Puzzles&Posters, Racter, Randamn, Reading Style Inventory, Ring Quest, Science Toolkit, Science Toolkit Rev1, Skyfox, Snooper Troops, Speed Reader II, Spy's Adventure, Starcross, Super Bunny, Temple Apsai Trilogy, The American Challenge, Transylvania, Troll Courseware, Ultima I, Ultima IV, Wizard's Crown, Word Attack, Word Maze, World Karate Championship, Rings of Zilfin, Zorro

■ Yes, please send me The Super IOB Collection

Includes all three disks with Super IOB version 1.5, COMPUTIST #32, PLUS a reprint of "Disk Inspection and the Use of Super IOB".

- US/Canada/Mexico — All three volumes ... **\$24.00**
- Other Foreign — All three volumes **\$30.00**
- US/Canada/Mexico — Volume #3 only **\$9.00**
- Other Foreign — Volume #3 only **\$12.00**

Send to: **Super IOB Collection**
PO Box 110846-T
Tacoma, WA 98411



or call: (206) 474-5750 for  or  orders.

Name _____ ID# _____

Address _____

City _____ State _____ Zip _____

Country _____ Phone _____

  _____ Exp. _____

Signature _____ CP63

Most orders are shipped within 5 working days, however, please allow 4 to 6 weeks for delivery. Washington residents, please add 7.8% sales tax.

US funds drawn on US banks