

COMPUTIST

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Reviews
BBS

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Readers Data EXchange

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 preceded by "ctrl". An example of both is:

6 ctrl P

Type 6. Next, place one finger on the ctrl key and then press P. Don't forget to press the return key.

Other special combination keypresses include ctrl reset and open-apple ctrl reset. In the former, press and hold down the ctrl key then press the reset key. In the latter, press and hold down both ctrl and open-apple 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 "Merlin/Big Mac".
- Bit-copy program such as "Copy II Plus", "Locksmith" or "Essential Data Duplicator".
- Word-processor (such as AppleWorks).
- "COPYA", "FID" and "MUFFIN" from the DOS 3.3 System Master disk.

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.

Laser 128: Your ROM includes a forced jump to the monitor. Press **ctrl return reset**.

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 //e, //c: Install a modified CD ROM on the computer's motherboard that changes the open-apple ctrl reset vector to point to the monitor. (*This will void an Apple //c warranty since you must open the case to install it.*)

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 (**CALL -151**) before running any protected programs and press **# return**. This will turn on two hidden CDAs, Memory Peeker and Visit Monitor. Thereafter press **openapple ctrl esc** to go to the Desk Accessories menu. Select Visit Monitor and there you are. Use **ctrl Y** to exit.

Recommended literature

- Apple II Reference Manual (or IIe, IIc, etc.)
- DOS 3.3 & ProDOS manual
- Beneath Apple DOS & Beneath Apple ProDOS, by Don Worth and Pieter Lechner, from Quality Software

Typing 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:

10 HOME : REM CLEAR SCREEN

The LIST will look like:

10 HOME : REM CLEAR SCREEN

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 special characters (◊). All other spaces are there for easier reading.

NOTE: If you want your checksums to match, only type spaces within quotes or after DATA statements if they are shown as (◊) characters. SAVE the program at periodic intervals using the name given in the article. All characters after a REM are not checked by the checksum program so typing them is optional.

Typing 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 (\$ 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.

Typing Source Code

The source code is printed to help explain a program's operation. To enter it, you need an "Assembler". Most of the source code in older issues is in S-C Assembler format. If you use a different assembler, you will have to translate portions 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 and help you locate any errors. 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 first 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 **ctrl Y**.
SSSS.EEEE ctrl Y

Correct the lines where the checksums differ.

Writing to the RDEX editor

RDEX (are-decks) stands for Reader's Data EXchange. We print what you write. 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. If you discover any errors, please let us know so that we may inform our other readers.

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 volunteer 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.

How to get a free library disk

Whenever possible, send everything on Apple format (5.25" - DOS/ProDOS or 3.5" - ProDOS) or IBM format (3.5") disks. Other formats are acceptable but there may be some delay as we look for someone to translate it for us. (*If you use a 5.25" disk, when we print your letter, we will return your disk with the current library disk copied onto it.*) Use whatever text editor you like, but tell us which one. Put a label on the disk with your name (or pseudonym) and address (if you want to receive mail). Don't reformat any programs or include them in the text of your letter. Send Applesoft programs as normal Applesoft files and machine language programs as normal binary files. We have programs to convert them to the proper format for printing. If you are sending source code files, and you are not using the S-C

Assembler, send them as normal text files.

When to include a printed letter

Don't include hardcopy (printout) unless:

- You are writing about a bug or other printing error.
 - You are writing to ask for help.
 - You are answering another reader's help request.
 - You are writing about your subscription or sending an order for back issues or software.
- Bugs, requests for help and answers to requests for help are bumped to the head of the line and go in the very next issue. All other letters are printed in the order that we receive them.

Writing to get help

When writing to request help, be sure to include ALL relevant information. The more information you include, the easier it is to find a solution. There's an old saying that goes "A properly framed question includes 90% of the answer".

How to get mail

If you are interested in receiving mail from other readers, be sure that we have a current address. If you use a pen name and want to receive mail, we need to have your address. Our readers' privacy is important, so we will not print your address unless you specifically say too.

How to write to RDEX authors

When writing to one of the RDEX authors. Write your letter and seal it in an envelope. Put your return address, the author's 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 mail it for you. Check to the right of the author's name to see if the author is writing from a foreign country and include the proper postage.

Help Line

These readers have volunteered their time to help you. Please call only within the given time frames (corrected for your time zone). No collect calls.

Jack Nissel (Disk Protection, 7-10PM EST)
(215) 365-8160

The BBS (Bulletin Board System)

Dave Goforth is the sysop for the Computist BBS. The number is: (206) 581-9292. If you already have a User ID# and password, sign-on using the User ID#. If you are a new user, it may take a day or so to validate your new ID# and password.

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 #76

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The PRODUCT MONITOR

RATINGS

Superb ★★★★☆

Excellent ★★★★

Very Good ★★★

Good ★★

Fair ★

Poor ☺

Bad ☹

Defective ☹

Deck us all with Boston Charlie...

Wait! THIS may not be The Christmas Issue. The way things have been hopping around Computist—like, Chuck is talking about an ish every three or even two weeks—#77 could be it. On the other hand, it's close enough to start thinking about computer goodie giving (and hinting)! So Pogo, Albert, and the rest of the gang had better finish, to set just the right mood:

... walla, walla, wash and Kalamazoo.
Nora's freezin' on the trolley; swallar dollar, collar flower, allagaroo!

Pipe Dream

★★★★

\$24.95 for 512K Apple IIgs and 128K II
Lucasfilm

Just when the IIgs 'New Games' pile was starting to look like a shareware display, along came good old Lucasfilm games with "The fast-flowing game of skill, strategy, and plumbing"! Wow, "plumbing"!! This had to be a winner; and, sure enough, it is.

Your basic objective in "Pipe Dream" is to keep the flooz flowing by clever placement of pipe pieces on the 10 x 7 grid. You start with just the flooz source pipe (randomly placed) and have several seconds to grab pieces from a dispenser and do some connecting before the flow starts. When it does, you'll hear gushing, gurgling sounds and blue flooz begins inching into the line. The challenge is to keep extending the line and (for bonus points) create as many cross-overs (using cross-shaped pieces) as possible. (Also, you need to finish with at least the current target number of flooz-filled sections in order to advance to the next level.) Pieces must be placed in the order fed from the dispenser; however you are allowed to blowup empty ill-situated pieces (at a small point penalty). A level ends when the flooz runs out into a open square or hits a dead end.

Available in crisp, colorful super-res with full IIgs flooz sound, Pipe Dream is a textbook case of the Ever-Achievable Goal syndrome. It doesn't matter how many times you 'wash out' at Level 6, 7 or whatever; you KNOW that success is just around the bend. At higher levels (there are 36 in all) you encounter additional challenges, such as blocked squares and one-way flow pipe sections, AND some valuable aids, like built-in reservoir pieces (the flooz takes longer to fill these) and potential wrap-around squares on the grid's border. (Grid backgrounds and motifs change as well.)

Partly, the fun is simply finding out what the next challenge looks like; partly, it's the Top Ten high scores competition. Mainly, however, Pipe Dream works because it's

fun to put the pieces together and see (and hear!) the flooz go through. Daffy? You bet; but also grossly addictive. (both II and IIgs versions included; for one or two players)

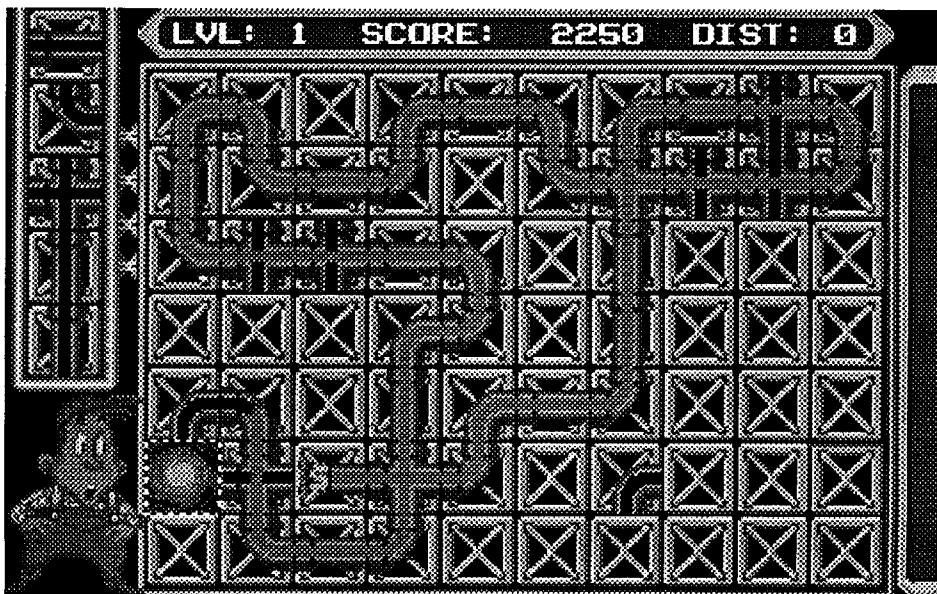
Stratego

★★★

\$49.95 for CGA-EGA 640K PC
Accolade

Originally released as a boardgame roughly 30 years ago, Stratego has remained a consistent favorite among strategy-war-gamers. Briefly, you start with forty pieces representing soldiers (ranked from Scout through Marshal), several mines, and one flag. These you arrange in any desired formation on your side of the 10 x 10 battlefield. Your opponent does the same; and the battle begins. Your objective is to capture the enemy flag.

The 'tricky part', of course, is that neither side can see any of the other's pieces except when one piece meets another. This places a moderately high premium on memory, which may be why I have never especially liked the game. Some acquaintances might come up with something petty (e.g. "It's because you usually lose"); but, in any case, it doesn't matter. As with chess programs, the high



rating says "If you like Stratego, then you're in luck, because Accolade's version is a very good one."

In VGA mode, you get a finely detailed view of the traditional red and blue pieces on the familiar 'warmap' board. (Or you may select one of the two alternative piece sets and board designs.) Other niceties include options to set computer skill level, participate in five-game "Campaigns", and to adjust the rules (e.g. enable "piece rescue", "attacker advantage", scout "long move and attack", etc.). Once you get used to such conveniences as being able to save favorite setups and having a Captured Pieces Roster just to the right of the board, it may be difficult to adjust to the hardships imposed by 'old style' board play! Finally, if the avid interest in the game evidenced by some visitors is any indication, you can count on many entertaining battles with an interesting, challenging opponent.

Faces

★★★

\$39.95 for CGA-VGA 640K PC
Spectrum HoloByte

Evidently, there's just no end to the entertainment potential of dropping stuff into pits. This time the fearless Russo-American consortium is doing faces!

Predictably, these are not ordinary faces. With the exception of four "universal faces" which appear at Level 0 (the easiest of ten), you encounter nearly sixty faces of famous personages from Art, Science, American History, Music, and much more. Plus, using a painter utility—the Faces manual suggests "Deluxe Paint II"—you can create your own faces and have the game substitute them for an existing set.

As in earlier creations (e.g. "Tetris"), the face parts drop into a pit (five faces wide) and drift downward to the accompaniment

of AdLib music more-or-less reflective of the Level's theme (e.g. spooky music for the Level 7 "Monsters", etc.). The challenge is to land pieces so that whole faces are formed; whereupon, the face is removed (making more room in the pit) and displayed on a clipboard to the left of the pit. Any correct sequence of five pieces (beginning with chin and ending with top of the head) is okay—you can land Ben Franklin's eyes and nose on Abe Lincoln's mouth; but you score more points for faces in which all the pieces actually belong. (i.e. Abe scores more if he looks like Abe.)

Misfits, such as a chin landing on a nose, turn to stone and cannot be moved. Since two pieces float down at once (side-by-side with a space between), you must be ready to do left-right swaps, horizontal shifts, and flips to get the most from each drop. (Flips expose the same part for a different personage on the block flipped.) A game ends when a stack of pieces reaches the top of the pit and blocks entry of a new piece.

Including illustrated manual and both 3.5" and 5.25" media, the game supports setups for individual play, multi-player tournaments, and "head-to-head" competition via modem. Beautiful in 256-color VGA, Faces is durable fun and a great show-off piece for your PC.

bottom of the screen, instead of to the left). The only notable deficit here is lack of a hole-practice option.

So much for the "Mean". To "out-Mean", PGA' targets the champ's two big weaknesses: absence of a wind factor variable—PGA' builds-in a good one—and absence of computer players—computer guys, modeled on real-life pros are ready to fill any vacant slots. To make shots a bit more challenging the new golf adds just a touch of acceleration to the power bar indicator. Then, for pizazz, it supplies a whirlwind fly-through of each hole prior to teeing off, switches to a TV-coverage type from-the-green view of each shot midway in flight, and adds instant replays of spectacular shots. Naturally, statistics for leading performers AND each player are maintained in 'permanent' files ready for instant recall, display, and gloating.

The decision to forgo a separate putting display probably rates as a toss-up. PGA's graphics are sharp enough to make close-ups unnecessary; and the game does supply a contour map of the green, at current ball position, prior to each putt. Two notable deficits are merely adequate 'old PC' sound effects (AdLib is used for musical intros) and failure to include a course designer utility. Granted, the four courses included offer good variety; and, even with a designer utility, most users do not get far in producing their own courses. Still, some users do; and their efforts do much to promote product interest.

Supplied with detailed manual and a nifty "PGA Tour" luggage tag, PGA Tour Golf sets new standards for computer golf. Though sound remains an area needing improvement, PGA' easily rates a 1st on the links simulation leaderboard.

The Lemon Tree

Lemon tree very pretty
and the lemon flower is sweet;
But the softwares on de poor lemon
is not ready to compete.

Even as winter prepares its icy assault, the wondrous PM lemon tree yields yet another bounty of golden bomblets.

Questmaster I: The Prism of Hehueto

Dondra, believe it or not, has resurfaced as a Miles Computing release available in IIe AND IIgs formats (\$39.95, 768K req.). Boasting a new title and a new box, Questmaster I/gs delivers much improved sound, cute super-res artwork, and faster restarts.

Your mission in this picture-text adventure—to recover the Great Prism as a first step toward saving the planet Dondra from an evil demon—remains unchanged; so, regrettably, does the learn-by-dying scenario. Dondra/Questmaster I' still wants to kill off players at every conceivable opportunity. Want to drink a vial of potion? If you say "Drink vial" the glass breaks and you're dead. Take too long searching a residence or



an overhead view showing ball placement with lines connecting any shots. Aiming is handled via an unobtrusive cross-hair pointer; and shooting employs the usual 3-click 'power bar' (tactfully placed at the

bottom of the screen, instead of to the left). The only notable deficit here is lack of a hole-practice option.

walkthrough thoughtfully supplied by Spectrum, the original vendor. (Even so, the listing contained a few errors; and these, naturally, proved fatal.) Look at it this way: I recovered the Prism; Dondra's going to be okay. YOU don't have to undertake a quest in which half (or more) of your time is consumed with Saves and Restarts.



The Immortal

Sooner or later the talented Electronic Arts Zany Gof team is going to hire a formal game design consultant—someone who will try out their graphics-sound masterpieces and say “Fix thus-and-such, and you’ve got a winner”. (Or “If you don’t do something about THAT, you’ve got a turkey!”)

As an apprentice wizard determined to rescue his/her master from the bowels of a multi-level dungeon, in ‘Immortal’ (for 1MB IIgs) you are anything but. No, this ‘action adventure’ doesn’t squash players at every opportunity. Moving your wizard figure through one beautifully detailed 3-D chamber after another, dueling with trolls, goblins, etc., skipping through assorted traps, and much more—none of this poses more than the expected level of hazard. You are, however, bound to experience some fatal outcomes. Partly, the controls (KB or joystick) are a tad less positive than they should be; partly, you are bound to slip up against some new foe or trap. “Well, why not just restore a saved position?” Uh, uh! If a player could do a Save/Restore any time he or she wished, this would be the best, most realistic dungeon adventure since *Dungeon Master!* Though each labyrinthine level seems to be packed with monsters and traps, Saves occur only at level exits. Your \$49.95 buys plenty of play, but far too much frustrating REplay.

Award Notice!!! (Ta-ta-taaa-ta-taaa)

I hereby present the 1990 Programming Anomaly of the Year Award to the “‘Immortal’ project team and any associated would-be beta testers. Also known as “The Thexder No-Joystick Control Memorial Trophy”, this splendid memento (a torpedo-shaped monolith) is nowhere more richly merited.

[Warning: As always, should evidence reach PM offices of tampering to remove the cited anomaly (e.g. in some fawning attempt to curry a four-star rating), this award will be withdrawn, notice published, and all rights and privileges accruing to said award forfeited.]

Star Control

“How does eternal slavery sound, Earthling?” So asks a headline on the box housing this new strategy-arcade from Accolade (\$49.95 for CGA-EGA 640K PC). Small wonder that Earth has joined the Alliance, a seven-species union formed to oppose the evil, aggressive Hierarchy of the Ur-Quan and its seven slave races.

While you can, in Full Game mode, tackle the computer or a second human player in one of nine scenarios (complete with star map, bases, victory conditions, etc.), the core of Star Control is combat. Since there are sixteen species, there are sixteen ship types, each with some special attribute.

Syreen (Alliance) ships can, if close enough, steal enemy crewmen; an Ur-Quan Dreadnought (Hierarchy) can launch a squadron of self-motivated fighters (i.e. like a Thargoid mothership); etc.. Most ships also possess some kind of beam or missile weapon, and are further differentiated by armor, drive (speed and fuel use), and

changes upon each boot—and they all work fine. That the code locations would be off by just one (e.g. \$6F0C vs. \$6F0D) in some versions is odd, but not unheard-of. Bob also notes that his fuel boost involved an LDY (i.e. \$6F0D: A0 FF) instead of the LDX.

Recommendations: After RESETing into the monitor, check the code in the areas to be changed. If you find \$6F0C: A2 46, then the issue #70 stuff (as corrected in the above maintenance note) should perform as advertised. If you find A0 46, (A2 46, etc.) at a slightly offset location just change the \$46 to \$FF. The same holds for changes to \$6BAE: AE BC 02 ... AND to program restart (“\$6E87 G”). Instead of \$6E87: A9 20, you may find \$6E88: A9 20.

As to completing the Navy’s first mission: just follow directions. Two things may throw you off the scent of the rogue craft. First, you may not find clues at every station along the way, especially after a Galactic jump. (I picked up the trail in G2 at Errius.) Second, wait a couple seconds after docking before you start punching keys; otherwise, some messages may be cut off. It’s also a good idea to check the current planet’s description upon docking.

How to become Elite? There may be some shortcut; but, as far as I can tell, you become Elite by blowing away many MANY enemy ships.

PC Specs and Stuff

Lest I be accused of alphabetsoup-itis (especially by new PC users), here is an explanation of the machine descriptors included with reviews. “CGA-VGA” means the software supports the three standard PC display modes. (CGA is ‘old stuff’, like Apple II hires; EGA is roughly equivalent to IIgs super-res; VGA is, typically, equivalent to IIgs super-res with better vertical resolution and more colors.) I don’t specify “MCGA”, “PS/2”, “Tandy 16”, ... because (1) today, these are generally taken as ‘givens’; and/or (2) modern software with at least EGA capabilities will work fine on just about any modern PC.

The “640K PC”, much like the “64K Apple II”, is a catch-all memory specification. (Many software packages actually specify 640K for VGA; some still go into additional specs for CGA, EGA, Tandy-16, etc..) Practically all PC’s sold in 1990 come with at least 640K; by next year, it will be hard to buy units with less than 1MB.

“So, if I’ve got at least 640K, I’m IN. Right?” Probably. To run in VGA mode, you may have to boot a bare-bones DOS (i.e. one which loads little more than a mouse driver) instead of the typical Config.sys, Autoexec.bat, and Dosshell from hard disk. “Altered Destiny”, “Stratego”, and “Ishido” are just a few examples of games that may require this approach. (Happily, most vendors are very good about explaining setup options.)

The ‘confusing part’ is that similar con-

maneuverability. In a Full Game, the scenario sets the initial ship complements; in Practice mode you can try out any craft, and in Melee mode each side has eight ships, one of each type. Whatever the arrangement, combat is always one-on-one.

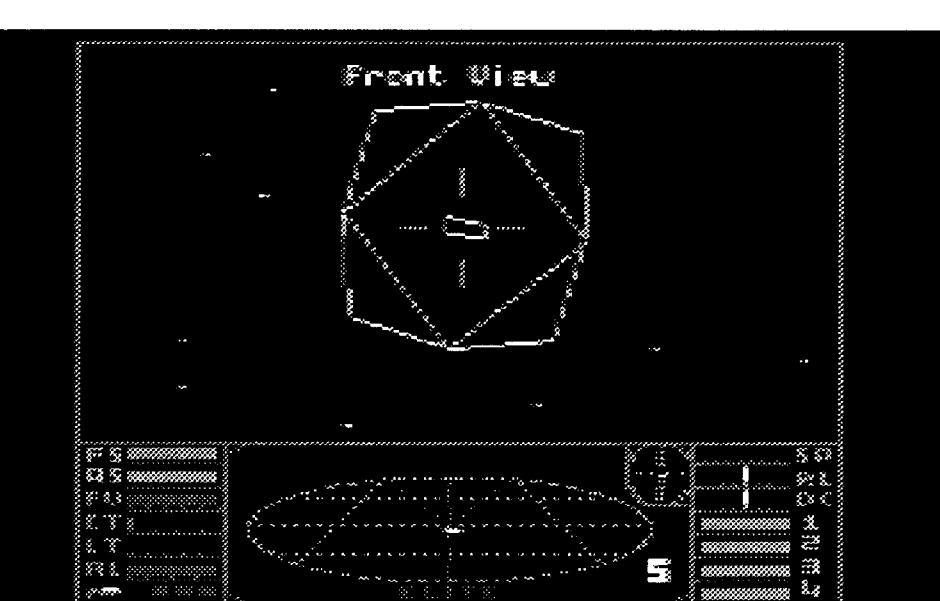
Setup, a make-your-own-scenario utility, documentation, packaging, AdLib sound, ... SC scores well everywhere EXCEPT combat—the place you spend 90% of your playing time. Much like ancient text-screen arcades pitting your “>” against an invading “*”, SC duels generally depict your craft and a single enemy ship as tiny, 2-D icons. At closer range, craft show better detail—they may grow to an inch or so—but they remain flat, amoeba-like figures. That your craft is difficult to pilot (thanks to momentum effects and ‘springy’ controls) may be counted ‘part of the challenge’. Unfortunately, once a player scopes out how to tackle ship X with ship Y (which doesn’t take long), directing your slipping, sliding bug-like vessel is the ONLY combat challenge. Add merely adequate blast/explosion effects and the result is bordomsville and THOOP!, another yellow dumpling on the old Lemon Tree.

Fast Frames, Updates, Etc.

Elite Craft Tech Note

As Bob Igo noted last month, there is an error in the issue #70 description of the souped-up craft for Elite:

Turndil Labs Maintenance Note EC/DE25.5/11.90/Elt.Original: To set max fuel to 25.5 light years do a RESET into monitor and enter \$6F0C: A2 FF (Load value \$FF into X, NOT \$6F0C: A9 FF, Load value \$FF into A).



Evidently, there ARE different versions of the game. I worked from an original supplied by Firebird at the time Elite was first released. All of the mods described in issue #70 (including the \$6F0C:A2 FF) were incorporated into an open copy of the original—created to avoid having to make the

constraints apply to most new 1MB ‘286 AT’s! In order to maintain compatibility with older machines, current DOS versions and most entertainment software only make use of memory mapped into the lower 1MB of address space on ‘286 machines. Typically, the extra 360+K (or more) on a new ‘286 PC becomes “EXTENDED Memory” mapped into memory beginning at the second 1MB of address space. To run most large-memory-use software at maximum convenience (i.e. boot full-featured DOS from hard disk, use a program selector, etc.) you will need a board which adds a few hundred K of “EXPANDED Memory”. (Typical Expanded memory boards hold 2-4 MB’s.) Like the Apple II Language Card, Expanded Memory boards overlay address spaces between 640K and 1MB. As the installed base of newer PC’s grows, more software will make full use of Extended memory; but, for now, some Expanded memory is very handy.

Though not usually listed, speed is generally assumed to be around 8MHz minimum. I test most software at about 16MHz. The other major assumption is the presence of a hard disk. Unlike the IIgs, for which no reasonably priced hard disk exists, PC’s practically fall out of the box with 40MB drives installed. Software vendors still include directions for setup and booting via floppies only; but no one actually expects many of today’s releases to run satisfactorily without a hard disk.

Next?

Just in time for those pre-New Year’s sales, expect more solid candidates for your computer wares shopping sprees.

Comments, suggestions for 1991 coverage, whatever... just drop a note to PM at the address shown below.

Vendors

ACCOLADE

atten: Melinda Mongelluzzo
550 S. Winchester Blvd., Suite 200
San Jose, CA 95128
Info: (408) 985-1700

AD LIB

atten: Jill Carette
220 Grand-Allee East, Suite 960
Quebec, QC
Canada G1R 2J1
Info: (800) 463-2686

ELECTRONIC ARTS

atten: Lisa Higgins
1820 Gateway Drive
San Mateo, CA 94404
Info (415) 571-7171
orders: (800) 245-4525

LUCASFILM GAMES

atten: Betsy Iron
P.O. Box 10307
San Rafael, CA 94912
Info: (800) STARWARS
dist: Electronic Arts

MILES COMPUTING

atten: Michelle Moulds
5515 Douglas Fir Road, Suite 1
Calabasas, CA 91302
Info: (818) 340-6300
dist: Electronic Arts

PRODUCT MONITOR

atten: Jeff Hurlbut
7814 Santa Elena
Houston, Texas 77061
Info: (713) 645-8680

SPECTRUM-HOLOBYTE

atten: Liz Rich
2061 Challenger Dr.
Alameda, CA 94501
Info: (415) 522-0107

B.M.E. Upp (“Scotty”) CT

While slaving over a hot keyboard the other night, the following ditty insidiously wormed its way into my noggin - and would not leave until it had been put on disk and sent off to COMPUTIST. Herewith, then, my contribution to the arts:

Mused an Apple on-line in Spokane,
“I believe that I’m going insane;
I ‘think’ zeros and ones,
speak Hex./Dec. just for fun -
and change English to numbers inane!”

With sincere apologies...

Editorial Notes**What's a Starter Kit?**

Well, if you're a new subscriber, you got a disk in the mail shortly after you subscribed and what you see is what you get. For everyone else, it's \$2. The current version is 2.02. The disk contains programs that I feel everyone should have (most already do) and includes a disk editor, a nibble viewer, Super IOB v1.4, Checksoft (Applesoft checksum generator) and Checkbin (Binary checksum generator). The documentation is on the disk. We used to sell the disk for \$32, way back when. So if you don't have a copy and you feel that you need it, send \$2 and ask for "The Starter Kit".

Modems and Data Services

② There've been a lot of calls lately about BBS's and On-Line data services. I'd like to take a informal survey. If you own a modem, how about sending me a letter and telling me what modem (max speed, options, etc.) you own and what data services you use. (ie. America Online, GEnie, CompuServe, Delphi, etc...) Tell me what you think of the different Online services. And if there are any really great BBS's that you especially like, tell me about them too. I'll compile all the info and put it in the next issue.

I'm thinking of going online with Computist and I'd like to know which service that you use the most. Overseas readers should take note and respond to this survey as it could make it a lot less expensive and a heck of a lot faster to contact Computist.

Pictures

② Hey! Did anyone notice the pictures in issue #75? What do you think? Should I drop some more into the next issue? It does help break up the grayness of an all-text page. I'd sure like to put more in each issue, but I'm kinda short on screen shots. How about if you send me some captured screens to go with your softkeys. And if anyone happens to have a ton of pictures already, how about loaning me your collection so I can make a copy and use them in Computist?

② While we're on the subject of pictures, I need some additional help/advice. Since we use a MAC to layout the issues, I need a way to convert Apple II/IIGS and IBM graphics to MAC graphics so I can put them in Computist. Does anyone know of a program that will do the job?

Mac font program?

② Does anyone own a MAC program that lets you create a postscript font and would you be willing to part with it for a few weeks? We need to create a font to use for printing program and source code listings. I'm using "Courier" now but it is an ugly font and certain characters don't look right. I'd like to convert Courier to an editable outline and change the characters to look more like what you see on the screen. Also, there are some special characters that I'd like to create. Can anyone help?

IRS fund

To those of you who read my editorial note in issue #75 about the IRS and sent money, thanks. I've put it in a trust account and it's on "hold". To everyone else, don't send any money. The court date is in December. I'll let you know how it went in issue #77. If the IRS is still making waves, then I'll make a formal plea for help and we'll pay them and get them off our backs. But for now, sit tight and enjoy your issues (you could also write some material for me to print — see next item).

Caught up on Submissions

As of issue #77, I will be up to date on submissions. That's right! I'm caught up and your letters will be going into the current issue if you send them now.

That's good and bad. It's good because there's no waiting to get your letter printed. And, if I have extra space, instead of just

saying "Do so-and-so's softkey in issue #35 then...", I can reprint the actual softkey. Some of you have suggested that I do that.

But it's bad because it means that I may not have enough material to fill up the issue. I'm going to have to let my niece doodle on the blank pages. (She's already done that before but now she won't be scolded for it.) So, unless you're a fan of preschool art, let's get those fingers typing and those disks in the mail.

Club perks

I've mentioned it in the past but not many have taken advantage of it, so I'll tell you again. Computist is connected to several dealer outlets and can get software and hardware at reduced cost. If you are a member of the Computist Club you can access these connections. We charge \$5-10 (depending on total cost) to process an order so you can see that we're not out to get rich. It's just what it seems, a service to Computist Club members.

It's easy to use—just call or write and ask for prices on whatever you want. We don't charge for quotes and it's good to know what the dealer really pays for some wares. (It helps when you are trying to get a better deal at the local level.) If we can get it, we'll tell you the dealer cost on the item(s). That cost plus shipping is your cost. I've seen prices for popular items in mailorder ads that were lower than the dealer cost so shop around. But keep in mind that you can really save some bucks on certain items.

For example: Dealer cost for the Practical Peripherals hot "do everything" 9600 baud Modem is \$460. The best advertised price I could find was \$499.

Gary Rohr **AZ****Bug Fix (re. issue #75)**

Softkey for...

Bank Street Writer Plus
Broderbund Software, Inc.

I recently received my Computist issue #75 and reviewed my softkey for Bank Street Writer Plus 128K. Unfortunately, there are a few pesky little bugs. Also, when I was writing the BSW softkey, I used my de-protected BSW and discovered that the function keys were not working properly (See "Problems" in my original softkey). I have since discovered the reason for this, and modified my softkey to correct the problem.

There were quite a few bugs and several changes so I decided to reprint the entire step-by-step portion with the corrections and changes added.RDEXed

1. Make the following DOS changes.

Note: These DOS changes were designed to work with both DOS 3.3 and Pronto-DOS. I recommend Pronto-DOS because it takes only 25 seconds to load BSW compared to 1 minute and 40 seconds with DOS 3.3.

CALL -151

B6B6:60 00 B6 09

B617:B8

B61A:B9

B61D:B8

B620:B9

B62A:B9

B62D:B8

B632:B8

B63A:B8

B63D:B8

B64B:B7

B6F5:42 41 4E 4B 20 53 54 52 45 45 54

B773:B8

B784:B9

B75E:03

B715:03

B71A:08

B763:08

B789:A9 00 8D EC B7 20 93 B7 60

BFD3:EA EA EA DOS 3.3 only

9E42:34

AEB3:10

B3EF:29

BEFE:29

AEB5:A4

A964:FF

AECC:20 FB AF

B398:0F

B39C:00

B3BB:00

B3F7:FF FF

2. Insert disk B.

INIT BSW

DELETE BSW

3. Insert disk A.

INIT HELLO

DELETE HELLO

4. Enter this binary code and save it on disk A.

0A00:8D 08 C0 AD 8B C0 AD 8B \$B1BC

0A08:C0 A0 00 B9 00 D0 99 00 \$9219

0A10:10 C8 D0 F7 EE 0D 0A EE \$40CB

0A18:10 0A AD 0D 0A C9 00 D0 \$3117

0A20:EA AD 83 C0 AD 83 C0 B9 \$140A

0A28:00 D0 99 00 40 C8 D0 F7 \$4590

0A30:EE 29 0A EE 2C 0A AD 29 \$FB8F

0A38:0A C9 E0 DO EA 8D 09 C0 \$FD8C

0A40:AD 8B C0 AD 8B C0 B9 00 \$B438

0A48:D0 99 00 50 C8 D0 F7 EE \$9276

0A50:48 0A EE 4B 0A AD 48 0A \$A40D

0A58:C9 00 D0 EA AD 83 C0 AD \$4489

0A60:83 C0 B9 00 D0 99 00 80 \$06BB

0A68:C8 D0 F7 EE 64 0A EE 67 \$5B27

0A70:0A AD 64 0A C9 E0 DO EA \$C956

0A78:8D 08 C0 8D 82 C0 60 \$DD19

BSAVE GET.LC, A\$A00, L\$7F

9000:8D 05 C0 A0 00 B9 00 90 \$C2F7

9008:99 00 90 C8 D0 F7 8D 03 \$A46B

9010:C0 8D 09 C0 8D 04 C0 A0 \$954D

9018:00 B9 00 00 99 00 10 C8 \$00F2

9020:D0 F7 8D 05 C0 EE 1B 90 \$1FF8

9028:EE 1E 90 8D 04 C0 AD 1B \$C4B1

9030:90 C9 80 D0 E4 8D 02 C0 \$6781

9038:8D 08 C0 60 \$156C

BSAVE GET.AUX, A\$9000, L\$3C

5. Move the boot 0 code from ROM to RAM and make some patches and save it.

9400<9400.C6FFM

94FA:93

9301:A9 92 8D 8E 08 4C 01 08

9200:A9 91 8D 8B 13 4C 00 13

9100:A9 90 8D 2F 10 4C 00 10

9000:A9 8D 8D 5F 25

9005:A9 82 8D 60 25

900A:A9 C0 8D 61 25

900F:A9 4C 8D 62 25

9014:A9 59 8D 63 25

9019:A9 FF 8D 64 25

901E:4C 00 25

BSAVE BSW.BOOT, A\$9000, L\$500

6. Complete the patches.

9600<9400.94FFM

9000:A9 59 8D B0 27 A9 FF 8D B1 27 4C 00

25

7. Insert the original BSW diskette.

9600G

8. Hit esc as boot starts to force load of

UTILITY program. Wait until drive stops.

AD00<BF00.BFFF

4000<9000.ADFFM

9000<800.8FFM

9. Insert disk B.

C600G

CALL -151

800<9000.90FFM

2800<800.1FFF

BSAVE BSW.UTILITY, A\$2800, L\$6800

10. Insert disk A.

BRUN GET.LC

11. Insert disk B.

BSAVE UTLL.C, A\$3F00, L\$200

12. Insert disk A.

BLOAD BSW.BOOT

2028:C9 20 D0 EA A9 00 8D EB \$5BC2
 2030:B7 8D F0 B7 8D F3 B7 A9 \$8D81
 2038:01 8D EC B7 8D F4 B7 A9 \$6363
 2040:0F 8D ED B7 A9 3F 8D F1 \$1EC1
 2048:B7 20 E3 03 20 D9 03 CE \$9DA0
 2050:F1 B7 A9 01 8D ED B7 20 \$1173
 2058:E3 03 20 D9 03 EE ED B7 \$5285
 2060:CE F1 B7 AD F1 B7 C9 33 \$8C4A
 2068:D0 ED A0 00 B9 00 34 99 \$AAE3
 2070:00 AF C8 D0 F7 EE 6E 20 \$73DE
 2078:EE 71 20 AD 71 20 C9 BB \$E163
 2080:D0 EA B9 00 40 99 00 90 \$B26D
 2088:C8 D0 F7 EE 84 20 EE 87 \$57A0
 2090:20 AD 87 20 C9 AE DO EA \$319C
 2098:B9 00 AD 99 00 BF C8 D0 \$3DC1
 20A0:F7 4C 00 62 C2 D3 D7 AE \$37A4
 20A8:D5 D4 C9 CC C9 D4 D9 \$0271
BSAVE LOADER, A\$2000, L\$AF

28. Enter the following and save to Disk B.
 9000:8D 09 C0 8D 05 C0 A0 00 \$7C04
 9008:B9 00 10 99 00 00 C8 D0 \$0111
 9010:F7 8D 04 C0 EE 0A 90 EE \$1C7E
 9018:0D 90 8D 05 C0 AD 0D 90 \$B6B5
 9020:C9 80 D0 E4 8D 04 C0 8D \$7547
 9028:08 C0 60 \$D3CB
BSAVE PUT.AUX, A\$9000, L\$2B

29. Copy track \$01 from the original BSW to the de-protected disk. I used Copy II Plus sector copy but you could use Super IOB and:
 - LOAD SUPER IOB
 - EXEC FAST.CON
 - 1010 TK=1 : LT=2 : ST=15 : LS=15 : CD=WR : FAST=1
 - RUN
 - Specify NO for FORMAT option or DISKEDIT and:
 - RUN DISKEDIT
 - R for Read
 - 011 for Track 01/Sector 1
 - E for Edit
 - 0003 Bytes \$00-01
 - Hit esc key
 - W for Write
 - Run original BSW and save defaults to our de-protected disk

This is the source code for the PUT.AUX program which was omitted from the original softkey:
PUT.AUX
 ORG \$9000
 STA \$C009
 STA \$C005
 LDY #\$00
 F1 LDA \$1000,Y
 T1 STA \$0000,Y
 INY
 BNE F1
 STA \$C004
 INC F1+\$2
 INC T1+\$2
 STA \$C005
 LDA T1-\$2
 CMP #\$80
 BNE F1
 STA \$C004
 STA \$C008
 RTS
 END END

This is the source code for the two programs created in STEPS 25 and 26 and are saved as one load module:
BSW
 ORG \$800
 LDA #\$00 clear program
 STA \$AFF type request flag
 LDA \$C010 clear key
 JSR \$9EE0 disable DOS hooks
 JSR \$A095 clear filename
 LDY #\$06 copy filename - BSW.LC
 LCLOOP LDA LC-1,Y to the
 STA \$AA74,Y filename buffer
 DEY
 BNE LCLOOP
 JSR \$A35D call BLOAD
 JSR \$A00 load data into language card banks
 LDA \$C000 check for key hit
 STA \$AFF save key hit
 CMP #\$9B esc key hit?
 BNE NOTUTL No
 JMP LOADUTL Yes - load utility program
 NOTUTL JSR \$A095 clear filename
 LDY #\$07 copy filename - BSW.AUX
 AUXLOOP LDA AUX-1,Y to the
 STA \$AA74,Y filename buffer
 DEY
 BNE AUXLOOP
 JSR \$A35D call bload
 LDA \$C000 Check for key hit
 STA \$AFF save key hit
 CMP #\$9B Esc key hit?
 BNE NOTUTL2 No
 JMP LOADUTL Yes - load utility program
 NOTUTL2 CMP #\$B4 4 hit?
 BNE NOT40 No
 JSR \$A095 Yes - clear filename

LOOP40B LDA FORTYB-1 ,Y to the
 STA \$AA74,Y filename buffer
 DEY
 BNE LOOP40B
 JSR \$A095 clear filename
 LDY #\$07 copy filename - PUT.AUX
 PUTAUXLP LDA PUTAUX-1 ,Y to the
 STA \$AA74,Y filename buffer
 DEY
 BNE PUTAUXLP
 JSR \$A35D call BLOAD
 LDA #\$00
 STA \$B7EB set volume # - 0 matches any volume
 STA \$B7F0
 STA \$B7F3 read entire sector
 LDA #\$01
 STA \$B7EC set track #
 STA \$B7F4 indicate read request
 STA \$B7ED set sector #
 LDA #\$87
 STA \$B7F1 set buffer address to \$8700
 JSR \$3E3 set RWTS input parameters
 JSR \$3D9 call RWTS
 INC \$B7ED increment sector #
 DEC \$B7F1 decrement buffer address
 JSR \$3E3 set RWTS input parameters
 JSR \$3D9 call RWTS
 INC \$B7ED increment sector #
 DEC \$B7F1 decrement buffer address
 JSR \$3E3 set RWTS input parameters
 JSR \$3D9 call RWTS
 LDY #\$800
 LDA \$8500,Y copy pgm
 STA \$5200,Y defaults
 INY
 BNE F5
 INC F5+\$2
 INC T5+\$2
 LDA T5+\$2
 CMP #\$54 2 sectors copied?
 BNE F5 No - continue
 LDY #\$48 Yes - set to copy #\$48 bytes from next sector
 F5 LDA \$8700,Y copy pgm
 STA \$5400,Y defaults
 DEY
 CPY #\$FF Done?
 BNE F6 No - Continue
 JSR \$9000 move code to auxiliary memory
 JSR \$A095 clear filename
 LDY #\$08 copy filename - BSW.MAIN
 MAINLOOP LDA MAIN-1,Y to the
 STA \$AA74,Y filename buffer
 DEY
 BNE MAINLOOP
 JSR \$A35D call BLOAD
 LDA \$AFF load possible key value
 CMP #\$B4 40-column?
 BNE NOT40A No
 JSR \$A095 clear filename
 LDY #\$07 copy filename - BSW.40A
 LOOP40A LDA FORTYA-1 ,Y to the
 STA \$AA74,Y filename buffer
 DEY
 BNE LOOP40A
 JSR \$A35D call BLOAD
 JSR \$A095
 LDY #\$06
 LOOP40 LDA FORTY-1, Y
 STA \$AA74,Y
 DEY
 BNE LOOP40
 JSR \$A35D
 NOT40A LDY #\$00
 CNTLKEY LDA \$900,Y
 STA \$200,Y
 INY
 BNE CNTLKEY
 JMP CNTLOAD- \$700
 CNTLOAD LDA #\$01
 STA \$B7EC
 LDA #\$00
 STA \$B7EB
 LDA #\$08
 STA \$B7F1
 LDA #\$00
 STA \$B7ED
 JSR \$3E3
 JSR \$3D9
 INC \$B7F1
 LDA #\$0E
 STA \$B7ED
 JSR \$3E3
 JSR \$3D9
 INC \$B7F1
 LDA #\$0D
 STA \$B7ED
 JSR \$3E3
 JSR \$3D9
 INC \$B7F1
 LDA #\$00
 STA \$B7ED
 JSR \$3E3
 JSR \$3D9
 LDY #\$00
 F0 LDA \$2000,Y relocate
 STA \$9300,Y program
 INY code
 BNE F0
 INC F0-\$700-\$2
 INC T0-\$700-\$2
 LDA F0-\$700-\$2
 CMP #\$40 Done?
 BNE F0 No - continue
 S1 LDA \$B200,Y relocate
 STA \$BF00,Y program
 INY code
 BNE S1
 DEC S1-\$700-\$2
 DEC S2-\$700-\$2
 LDA S1-\$700-\$2
 CMP #\$7D Done?
 BNE S1 No - continue

JMP \$4300 jump to main BSW program - 40 or 80-column
 LOADUTL JSR \$A095 clear filename
 LDY #\$06 copy filename - LOADER
 LOADERLP LDA LOADER-1 ,Y to the
 STA \$AA74,Y filename buffer
 DEY
 BNE LOADERLP
 JSR \$A35D call BLOAD
 JMP \$2000 jmp to the utility loader program

LC ASC "BSW.LC"
 AUX ASC "BSW.AUX"
 MAIN ASC "BSW.MAIN"
 FORTY ASC "BSW.40"
 FORTYA ASC "BSW.40A"
 FORTYB ASC "BSW.40B"
 PUTAUX ASC "PUT.AUX"
 LOADER ASC "LOADER"

GET.LC
 ORG \$A00
 STA \$C008
 LDA \$C08B
 LDA \$C08B
 LDY #\$00
 F1 LDA \$1000,Y
 T1 STA \$D000,Y
 INY
 BNE F1
 INC F1+\$2
 INC T1+\$2
 LDA T1+\$2
 CMP #\$00
 BNE F1
 LDA \$C083
 LDA \$C083
 INY
 BNE F2
 STA \$D000,Y
 INY
 BNE F2
 INC F2+\$2
 INC T2+\$2
 LDA T2+\$2
 CMP #\$E0
 BNE F2
 STA \$D000,Y
 INY
 BNE F3
 LDA \$4000,Y
 STA \$D000,Y
 INY
 BNE F3
 INC F3+\$2
 INC T3+\$2
 LDA T3+\$2
 CMP #\$00
 BNE F3
 STA \$D000,Y
 INY
 BNE F3
 LDA \$C083
 LDA \$C083
 INY
 BNE F4
 STA \$D000,Y
 INY
 BNE F4
 INC F4+\$2
 INC T4+\$2
 LDA T4+\$2
 CMP #\$E0
 BNE F4
 STA \$C008
 STA \$C082
 RTS
 END

Vincent Andrews WA
Rastan deprotect & cheat
Softkey for...
Rastan
Taito
 Here it is... Rastan (gs) deprotect and cheat. This game is excellent and I recommend everyone go out and purchase it. The graphics are outstanding and the overall playability is both wonderful and challenging.

Entering Rastan Deprotect/Cheat
 RAS.FIX.SYSTEM is a program that provides "key-disk" removal, and also allows extra lives and continues.

1. Enter the monitor type the hex code.
CALL -151
 2000:18 FB C2 30 20 0F 22 A2 \$861F
 2008:EF 01 BD 20 20 9D 00 10 \$F919
 2010:CA CA 10 F6 38 FB E2 30 \$861A
 2018:A9 20 8D 00 10 4C 00 10 \$FED4
 2020:20 58 FC A2 00 BD 8A 10 \$A6E7
 2028:F0 06 20 ED FD E8 80 F5 \$ECE9
 2030:A2 00 BD DF 10 F0 06 20 \$DD35
 2038:ED FD E8 80 F5 A2 00 BD \$317E
 2040:24 11 F0 06 20 ED FD E8 \$955E
 2048:80 F5 AD 00 CO 10 FB 8D \$A62A
 2050:10 C0 29 7F C9 1B F0 14 \$6E08
 2058:C9 31 90 EE C9 3A B0 EA \$BBA1
 2060:48 09 80 20 ED FD 68 38 \$F182
 2068:E9 30 80 OC A9 B2 20 ED \$A05B
 2070:FD A9 B9 20 ED FD A9 1D \$59A7
 2078:8F 57 BF E1 A2 00 BD 94 \$A2B3
 2080:11 F0 06 20 ED FD E8 80 \$4E45
 2088:F5 20 00 BF C8 DF 11 AD \$7179

That's it. Your hard drive should be looking like this:
 /HD/TAITO/RASTAN.SYSTEM from disk A
 /ICONS from disk A
 /RASTAN combined files from disk A & B
 /MAPS files from disk B
 → RAS.FIX.SYSTEM your program

Launch the file "CHEAT.SYSTEM", and begin play!

overall content. They were identical—well, almost identical. A few bytes at the beginning were different, but I was sure that problem would be minor. I decided at this point to try the same “fix” for this program as I used for the Touchtype program to see if it was going to be that easy. It wasn’t!

Not only did the “fix” not work, but after 2 hours of EAing and other useless fiddling in this same sector, I was ready to frisby the disk into the nearest lagoon! I shouldn’t say there was NO success since I make careful notes of the effect that each change has on the way a program runs and/or boots—and it is almost impossible to alter a single byte of any program without some noticeable change. Often this process can and does lead to quite an education in itself of the inner workings of assembly language.

I began my next session after a full 24 hours of contemplation. I first searched the disk for every 88 C0 (disk drive shutdown command). This had been instrumental in the last crack. (When you boot any copy of this program a notice appears in the upper left-hand corner of the screen, “COPY PROTECTION FAILURE” and the disk drive turns off.) There weren’t many of them so I wrote down the track and sector of each—just in case. I then searched the disk for 8CC0’s (disk reads). I was sure that there was a routine somewhere that looked for special bytes on track \$00, since that’s where the read error had occurred. A strange sequence of disk reads (8C C0’s) and checks (CMP and BNE’s) turned up in track \$00, sector \$0D. I was sure this was it. I had seen these routines before and this one even smelled offensive!

After replacing all the BNE’s between the start (first 60) and end (next 60) of this routine with EA’s to prevent any branching at all, I booted the disk. Once again it was a “no go” deal. This time I was disappointed. The alternative was tracing the code in memory and I hate doing that because it takes me (because I’m not that adept at it yet) so long and requires so much concentration. But at this point it was beginning to appear like the only solution left.

So I booted the original, waited for the program to load, and then went into the monitor. Starting at \$0800 (page 08?) in the “boot zone” it took no time at all to trace the code to a JMP to \$2000 in memory. Then the fun started! There were code modifications and happy chases all over “memory’s half acre”! I was amazed (no pun intended!) at some of the zigzag moves and double backs. (The real joke here is the fact that many or even most programs could go through these same moves and I would never even realize it!) But the real poke in the eye was that I could find no evidence of a protection routine. Not one bit (no pun intended!).

After another 24 hours of R and R, I came back to the disk read routine on track \$00, sector \$0D. This had to be it. The bytes that were being sought were non-standard and the routine still stunk! This time, rather than try to change or neutralize each read, I decided to start the routine with some bytes that would simply jump over the offending code and leave it out. I placed a BRA (Branch Always) statement (80 1B) at the beginning of the routine and booted the disk. I couldn’t believe it! No COPY PROTECTION FAILURE message in the upper left-hand corner. Just the beautiful “DATE” prompt in the lower left-hand corner. It seemed to be working fine.

Two misgivings were still roaming around in the back of my mind at this point. First, there were two other places where I had changed the code during this fiasco and hadn’t bothered to change it back (one being the D0 38 that had been the key to the Touchtype crack—the other a slight modification of the same routine in that same sector). And secondly, in my maze marathon through memory I had learned that some code was moved and modified in the loading process. If the precise byte was not where it should be, when it should be, there could be some interesting report card averages for some students!

I quickly made two copies of this

“cracked” program. (I almost always manage to “blow up” something at a time like this so I make an extra copy—it saves on swearing!) I then changed the initial modifications that somehow got left on the back burner back to their original settings. I then booted the disk. For a certainty the disk booted smoother and faster—and was still protection free. I breathed a sigh of relief.

I now began a serious stepping process through the program to make sure all the routines ran perfectly—including the printing! After about an hour of trial and error, checking the manual, and “shots in the dark” I put the official stamp of verification on the disk. DONE!

Addendum: Here is an interesting twist to this story. I discovered that there were two Apple IIe computers at the local school that would not run the deprotected program. All Laser computers (the 128’s, the 128 EX’s, and the 128 EX/2’s) all ran the deprotected copy perfectly. (It was cracked on a Laser 128 EX.) All the Apple IIe’s in the building ran the program perfectly except two. And the original disk runs in all the machines! Now I have a question for those who understand these mysteries better than I. What is the problem here?

There is one other important bit of information. I noticed when I disassembled the code (using a sector editor) of the BRA statement that I substituted, that the Apple IIe machines did not interpret the 80 1B as a BRA statement! The Apple machines all interpreted it as two separate bytes (rather than a pair) and assigned them each three question marks as in 80 ??? and 1B ??? Can someone tell me if this is a ROM difference, a difference in Apple mother boards, or am I doing something else wrong that I am completely overlooking?

Here is the grand finale. When I change the 80 1B to a D0 1B, the program runs fine in all the Apples but will not run in any of the Lasers! I hope someone can explain all of this to me.

The BRA (branch always) instruction is a new instruction that is understood by the 65C02 processors. If your two IIe’s are not enhanced, then they probably have 6502B processors and the BRA instruction does not exist as far as the 6502 is concerned. . .

RDEXed

Softkey for...

TouchType Word Processor 3.0

Software Spirit

Requirements:

Fast copy program (I use Copy II Plus)

Sector Editor (I use Copy II Plus)

Step-by-step

1. Fast copy the disk — ignore errors on track \$00

2. Sector edit:

Trk	Sct	Byte	From	To
02	07	E9-EA	D0 38	EA EA

Or search for FB B0 BD A9 00 D0 38 8D
58 FB.

Details

I think this program uses a signature check or the “bit insertion” check, I’m not sure. I knew that the extra bit or the signature was on track \$00 since that’s where the read error showed up in the fast copy. But the easy stuff stops there.

The disk uses ProDOS data disks and SYSTEM files so assuming that it is a modified ProDOS is a good start. But there is no ProDOS file and no BASIC.SYSTEM file, which seemed a little strange. Further, the disk loaded much faster than any ProDOS that I had ever worked with.

So I tried a couple of interesting but useless maneuvers at first. I tried copying all the files to a freshly formatted ProDOS disk. The binary files copied fine. But some of the files, labelled “\$F7” files would not copy. When Copy II Plus came to them, up came the infamous message “Neither a DOS Nor a ProDOS DISK”. I’ve seen that message many times before when Copy II Plus cannot read a catalog or a directory, but I have never seen it in the middle of a file transfer routine. I tried booting the disk without the

strange files, but the disk died very quickly.

Since the whole disk copied fine except for track \$00, I determined to try re-copying track \$00 using a bit copy procedure. After trying every “sneaky” parameter change that I could think of (and Copy II Plus has some very powerful ones), I still could not get the disk backed up. I determined that this disk had no quick and easy solution and I was, in fact, going to have to get right into the code.

I noticed that when you boot the fast copy of the disk, you can hear the program load, then the heads move (presumably to track \$00 to read in the special bytes), and then, in the lower left hand corner of the screen, the message “COPY PROTECTION FAILURE” appears. The disk drive then shuts off and for all intents and purposes, the computer appears dead. The two clues that you are left with are the COPY PROTECTION FAILURE notice and the disk drive shutdown.

I decided to look for the COPY PROTECTION FAILURE notice first. I found it on track \$01, sector \$04 along with several other notices, error messages, etc. I noticed (no pun intended!) that immediately previous to the COPY PROTECTION FAILURE message was the one that is supposed to appear (i.e. the one that comes up on the original disk). This notice is the “DATE AND YEAR” message. Interesting! Obviously the messages or notices in this sector were being called from some other part of the program. Several possibilities came to mind immediately. First, simply find the place in memory where the call takes place and send it to the correct place. (After a moment’s thought it was obvious this would not work since it is not the message that causes the program to stop, but the error check.) Second, when the program arrives at this point, tell it to go on or return. Again, these ideas are trying to treat the symptom, not the problem. And the problem is the routine that checks the disk. It has to be found and disabled (or re-directed).

Next I searched for the drive shutdown code (C0 88 or as it appears in the sector 88 C0). There were three separate incidents of this code on the disk. That’s good news and bad news—good news in that it won’t take long to check and bad news in that most disks have more. Some disks have three and four times that many shutdown routines—depending on the nature of the program. This disk had two 88 C0’s on track \$00—one in sector \$0D and the other in sector \$0E. Placing EA’s in strategic locations quickly showed that these were not what I was looking for. I restored the values in the two sectors and moved on. The last 88 C0 was on track \$02 in sector \$07. As a matter of habit I scanned through the code preceding the routine that shut the drive down. I always “back up” from the precise bytes that the sector editor coughs up for me until I find a \$60 (RTS in assembly code). That usually marks the end of the last routine, and consequently the beginning of the next routine—the one that my 88 C0 is in. Then I disassemble from there, following the code and checking to see what the computer has been directed to do at this particular point in the program.

Byte \$37 is the 60 that ends a short routine in this sector and byte \$38 begins the routine that contains the 88 C0. Notice also that immediately after the 88 C0, there is another 60! That spells, “Shut down the disk drive (88 C0) and Return to where you came from (60)”. I also noticed a BNE (Branch Not Equal) right after loading the A register with \$00 a few bytes before the 88 C0. This, I concluded, would be a good place to “throw my wrench into the gears” to see if I was working in the right place. I replaced the D0 38 with EA EA and booted the disk. To my pleasant surprise (and I do mean SURPRISE!) the COPY PROTECTION FAILURE notice was now replaced with the “Date (as JAN 187)” notice that is supposed to be there! And the program runs perfectly from there on.

In retrospect, it seems that the BNE (D0 38) was the check to send the program on or

to send it to copy protection failure. Removal of that check means that copy protection failure no longer exists. The disk can be “fast copied” and it works every time.

Softkey for...

Crosscountry U.S.A.

Didatech

Requirements:

Fast copier (I used Copy II Plus)

Sector editor (I used Copy II Plus)

Optional: B.Dudley Brett’s Crosscountry Canada article in COMPUTIST #71 is helpful but not necessary

Step-by-step

1. Fast copy the disk (ignore errors on track \$02). Then sector edit:

Trk	Sct	Byte	From	To
00	04	92	4C	00

2. Boot the disk and when it crashes into the monitor:

B1E

B1E:EA

880.881

880:EA EA

ctrl C

was C8

was D0 EF

return to BASIC

3. Reconnect DOS and save the patched code.

CALL -25153

UNLOCK COPYRIGHT 1985

BSAVE COPYRIGHT 1985, A\$0805, L\$373

LOCK COPYRIGHT 1985

Details

All the credit for this “crack” goes to B.Dudley Brett who completed all the footwork and wrote it up in COMPUTIST #71. To fully understand how all this works, be sure to read that article. Mr. Brett explains exactly how the program works in memory and what to look for when deprotecting it. The memory changes for this crack are different, but because of Mr. Brett’s excellent explanation it is easy to search out the correct routine and disable it. My sincere thanks to Mr. Brett.

The sector edit (4C to 00) prevents the decoded file from actually executing AFTER it has decoded. Consequently we may browse through memory and check out how the program proceeds.

The memory change at \$0880 from D0 EF to EA EA prevents the program from “dying” when results are NOT EQUAL. Be sure these bytes are actually at this location before making any changes. Didatech is notorious for shifting routines a few bytes away from the last published crack! Search for a loading of the Y register with \$1FFA, increment it (INY) and then a check to see if the result is equal to \$FF (C9 FF). Immediately following this routine there will be a D0 xx. It is this D0 xx that must be EA’d.

The same is true for memory location \$0B1E. Check to see that it is a \$C8 (INY—increment Y register) before substituting the EA. If not, look for the Y register being loaded with an \$FE and stored at \$1FFA. Then the result is incremented to \$FF and the routine then returns (60).

Finally, when BSAVEing the COPYRIGHT 1985 file, be sure to EXCLUDE the JMP at \$0802 - \$0804 (4C xx xx). This deletes the jump to the decoding routine. Again, for a complete explanation, see the article in COMPUTIST #71, page 16.

Softkey for...

The ProDOS School Edition of...

Where in the USA is Carmen Sandiego

Where in Europe is Carmen Sandiego

Broderbund

These programs are so excellent that it is a pity that Broderbund places copy protection on them at all. It is not a question of whether or not a disk used at school will go down. Rather, it is a question of WHEN it will go down. And being able to backup the disks easily is absolutely crucial. Consequently, I offer the following “quick and dirty” method to obtain good COPYABLE back-ups to these programs.

1. Use COPYA to copy the program sides (Sides A, B, and C) for U.S.A. and Sides A and B for Europe. Ignore Address and

Data epilogues (B925:18 60 and B988:18 60) and Read Errors (BE48:18). Or, use your favorite method to accomplish the same result.

2. Track \$00, sector \$00, bytes \$31-34 have been changed from the normal ProDOS values of 85 40 85 48 to 4C 00 09 EA. We must change them back. We can do this by sector editing or we can simply read in the sector from a ProDOS 1.5 disk and write it back to this copy. Do whichever is easier for you.

3. Track \$00, sector \$0E has the problem code in it that causes the problems for the backup copy. We are going to eliminate it completely. So read track \$00, sector \$02 into memory and then write it back to track \$00, sector \$0E. That's right! We will have two identical sectors on track \$00 and yes, we have completely obliterated the original code on sector \$0E! Not to worry. The details are not important. Those who understand assembly code will figure this out in no time. Those who don't, don't care anyway!

That's it! Boot your copy to make sure it operates properly. (It will!) These copies can now be backed up with any fast copier. Now, get those students working on those cases!

Paul A. Johnson IA

Note on Print Magic Graphics for Publish It!

In issue #72, Charles V. Perrien gave a method of converting Print Magic Graphics for use in Publish It! I basically used the same technique, except that I put two graphics close together, and then went to the paint menu. If you can fit the two graphics in the Paint window at the same time, then hit control-reset. Once I had a 3.5" disk full of screens from Print Magic (I transferred the screens from 5.25" to 3.5" using Copy II+), I wrote a program in ProDOS that reads the catalog, removes the menu at the bottom of each screen, then transfers it from page 1 to page 2. Since there were so many screens, I had to put them in a subdirectory, which I called "GRAPHICS". The program works by opening the directory file and reading the catalog. If you have a bunch of screens like I did, then it will take a while for the program to finish all of the screens. If you get tired or want to quit after a while, then hit control-C. The next time you run the program, it will start with the first file with load address \$4000.

EDIT.PIC

```
5 DIM A$(200):I = 0
10 D$ = CHR$(4): PRINT D$ "OPEN"
    GRAPHICS, TDIR": PRINT D$ "READ"
    GRAPHICS"
15 INPUT A$, A$, A$
20 INPUT A$(I): PRINT A$(I)
30 IF A$(I) < > "" THEN I = I + 1:
    GOTO 20
40 PRINT D$ "CLOSE\GRAPHICS"
50 FOR A = 0 TO I - 1:
60 IF MID$(A$(A), 75, 2) < > "$4"
    THEN NEXT A
100 A1$ = "/PM/GRAPHICS/" + MID$(A$(A), 2, 15): PRINT A1$
105 HGR : POKE - 16302, 0
110 PRINT D$ "BLOAD\ A1$"
    ",A$2000"
120 HCOLOR= 3: FOR Y = 152 TO 191:
    HPILOT 0, Y TO 279, Y: NEXT
130 PRINT D$ "BSAVE\ A1$ ", A$2000
    , L$2000"
140 NEXT A
```

Checksums

5-\$9133	40-\$62A2	110-\$3EFF
10-\$CD08	50-\$77FD	120-\$88D4
15-\$66B8	60-\$63C0	130-\$FC0F
20-\$9092	100-\$13C2	140-\$8E41
30-\$3120	105-\$53BE	

② I recently purchased Sesame Street Print Kit by Hi Tech for my two year old son. He saw me purchase it and all he could talk about was Ernie and Big Bird. Well, when we got home, we found out that the program doesn't support my printer interface card. I have a Pkaso/U card. Currently, whenever my son wants to make a card or something, I have to swap the printer card with my super

serial card hooked up to my modem. This is not my favorite thing to do since I am afraid that I might break a connector or something each time I change things around. Now for my question... Can anyone who owns this piece of software figure out the information included in the printer drivers? The program is not copy protected, so if anyone would like to take a crack at it and you don't own it, I could send you my copy to work on. Any help is greatly appreciated.

③ I would like to know if there is a way to increase the number of slots on my Apple IIe. Currently, I have a Pkaso/U card in slot 1, a Super Serial Card in slot 2, a Ramworks III (768K) in slot 3 (aux.), Mockingboard C in slot 4, Duodisk Controller in Slot 6, and Universal Disk Controller with Laser 3.5" drive in slot 7. I still need to get a ProDOS compatible Clock, a mouse, and perhaps a PC Transporter. Since I don't use everything at the same time, I was wondering if there was some way that I could combine the Printer card and the modem card and the mouse card with the Mockingboard card. Doesn't the Laser 128 have an expansion box that makes two slots out of the one? Is there anything like that for the Apple II line? Once again, any help would be greatly appreciated.

I have a suggestion on the format of the newsletter that would help me and everyone else who has questions. Every time I receive a new copy of Computist, I first look through to find any questions the readers have, so I can answer them quickly (if I can answer them). My suggestion is to include something in the table of contents listing the pages that have questions. It wouldn't have to be detailed, it could just say, "Questions 7, 14, 16, ...". It would be up to the reader to look through the listed pages to determine what each question is about. If this would take too much extra work, then you can forget I even mentioned it, because I know what kind of work can (or can't) get done by volunteers, depending on the particular day.

One project I would like to see in the hardware corner (besides something to help me with Question #2) is a printer buffer. I don't know what it would take to build one, but it is something that almost everyone would like to have.

Help!

④ I have a problem, so, naturally, I am turning to the people that I know can help me. I recently wrote a program that uses mousetext, and the program works fine on my Apple IIe (enhanced), but I don't know how it will work on other machines. Basically, there is one line in the program that checks to see if the machine is capable of printing mousetext. This portion of the program is in the listing. My problem is that I cannot find any other machines to test this formula. So, I am asking anyone who reads Computist to run the program on their machine and write me a postcard at my address, or include the information in a letter to Computist (if you have something else to write about, the volunteers shouldn't have to bother with a bunch of short letters).

Mousetext Check

```
10 P = PEEK (49281): REM READ ROM
20 MS = ((PEEK (64435) = 6) * (
    PEEK (64448) < > 234) + PEEK
    (64435) < > 6) * (PEEK (65055
    < > 60)): MS = (MS < > 0)
30 PRINT MID$( "NOT\MOUSETEXT\
    COMPATIBLE" , 4 * MS + 1) "0(MS="
    MS ") .
```

Checksums

10-\$C51E	20-\$3643	30-\$DBF7
-----------	-----------	-----------

If the program works, could you just put down the type of machine you have (IIgs ROM xx, IIc+, IIc, IIe, IIe-enhanced, II+, II, or even III), and something like "Mousetext - Yes" to tell me that your computer is capable of mousetext and my program correctly identified it. I don't know if it will work on Laser or Franklin computers, but you can give it a try.

If the program DOESN'T work, then please put down your machine type and the values at the locations PEEKed at in line 20

(64435, 64448, & 65055).

Thank you for any help that you can give me, and when I finish the program, I will send it to Computist to be included with a future Library Disk.

My Address is:

105 Center Street
Glenwood, IA 51534

Henry Lem Canada

To Dave Grenda: (re. question in issue #72 page 11.) I have a partial solution on how to load DOS 3.3 binary programs under ProDOS. The binary program must meet two requirements before it can work.

1) It must NOT access the disk drive after it has been loaded into memory.

2) When it is loading, it must NOT overwrite DOS 3.3 or BASIC.SYSTEM. (ie. Does not load past address \$95FF.)

The solution is POKE 48984,0 from Applesoft or BF58:00 from monitor.

ProDOS has a memory map between locations \$BF58 and \$BF6F. This tells ProDOS which sectors are used and should not be overwritten. Usually the zero page (\$0000-\$00FF), the 6502 stack (\$0100-\$01FF), and the text display buffer (\$0400-\$07FF) are marked used.

I have some old DOS 3.3 binary programs that load over the text display buffer, and therefore, the error message NO BUFFER AVAILABLE appears. The above solution changes the memory map to set these memory locations as being free and not reserved.

For more information, see any ProDOS reference books, and look up "system bit map" in the index.

Evin Mulron WA

Notes on SSI deprotects in PDOS

Programs requiring more than 48K

Just plain forget them, according to M.M. McFadden.

Programs that include the file QWERTY

Delete the line that includes "& RECALL QWERTY" from the file HELLO. This line usually, but not always, includes a CALL statement. If not, the CALL statement is then normally found on the next line, so delete that line also if applicable. You may delete the file QWERTY. This information comes almost directly from M.M. McFadden's article in Issue #52.

Battle Cruiser

I first had to run the deprotect from Issue #53 prior to converting this to PDOS.

Battlegroup

Change line #200 in VECTOR.P to read:
200 A\$ = "COMBAT": GOTO 95

Deleting & RECALL "ARSENAL": CALL 516. You may delete the file ARSENAL.

U.S.A.F.

Change line #9930 in COMBAT to read:
9930 GOSUB 199: PRINT "ALL RAIDS
 COMPLETED": GOTO 390

Deleting & RECALL "PH1": CALL 516. You may delete the file PH1.

Imperium Galactum

In order to save a game, I had to change line #12005 in IMCOM to read:
12005 & RUN "GSAVE"

Deleting POKE DA + 98, TU.

Fighter Command

In order to run a saved game, you must change line #500 in HELLO to read:

500 &RECALL N\$ + ".F", 640: FOR XX
 = 0 TO 7: POKE 105 + XX, PEEK
 (640 + XX): NEXT : & RECALL N\$

This information comes directly from M.M. McFadden.

In order to use the Catalog function in the save game menu, I had to change line #10 to read:

10 IF GM = 67 THEN PRINT CHR\$(12)
 : GOSUB 40: HOME : & CAT :

POKE KC, 0 : GET A\$: GOTO 3

Replacing CALL 2800 : PRINT PC\$: with & CAT.

Carrier Force

In order to run a saved game, you must change line #500 in HELLO to read:

45020 &RECALL "P." + N\$, 640: FOR
 XX = 0 TO 7: POKE 105 + XX,
 PEEK (640 + XX): NEXT : &
 RECALL N\$

This information comes directly from M.M. McFadden.

North Atlantic 86

In order to run a saved game, you must change line #45020 in HELLO to read:

455020 &RECALL "P." + N\$, 640: FOR
 XX = 0 TO 7: POKE 105 + XX,
 PEEK (640 + XX): NEXT : &
 RECALL N\$

This also comes from M.M. McFadden.
To save a game to the same subdirectory, you must delete GOTO 30000 from the end of line #30000. This information comes directly from M.M. McFadden.

Guadalcanal Campaign

In order to run a saved game, you must change line #45020 in HELLO to read:

455020 &RECALL "P." + N\$, 640: FOR
 XX = 0 TO 7: POKE 105 + XX,
 PEEK (640 + XX): NEXT : &
 RECALL N\$

The work of McFadden applied by me.

Bomb Alley

In order to run a saved game, you must change line #45020 in HELLO to read:

455020 &RECALL "P." + N\$, 640: FOR
 XX = 0 TO 7: POKE 105 + XX,
 PEEK (640 + XX): NEXT : &
 RECALL N\$

The work of McFadden applied by me.

Lazy Man's Filename Checker

I've found the easiest way to find out if all RDOS files were named correctly under PDOS, is to simply run the program. If they're not correct, you'll get an error message with the offending line #. Simply list that line #, and change the filename in the line to a corrected filename. (Well, it does beat searching all the files prior to running the program!)

Notes on PDOS on 3.5 disk or hard disks.

War In Russia

Transfer the files from side 2 to a different directory than those files transferred from side 1.

Rename the following files from side 2;

from	to
BRAIN.1	BRAIN.5
BRAIN.2	BRAIN.6
BRAIN.3	BRAIN.7
BRAIN.4	BRAIN.8

For obvious reasons, accomplish this prior to moving these files into the same subdirectory or root directory as the files from side 1 of the game disk.

Then change the following lines in VECTOR to read;

600 A\$ = "BRAIN.5": POKE 8, 0:
 GOTO 95

700 A\$ = "BRAIN.6": GOTO 95

800 A\$ = "BRAIN.7": GOTO 95

900 A\$ = "BRAIN.8": GOTO 95

Then copy the contents of side 2 to the subdirectory with the files from side 1.

And voila', you can now run the game entirely from one disk or subdirectory.

All SSI Programs

To use the Save Game feature, you must either swap disks as stated in the original article, or you may delete all references to "& D1" from all the BASIC programs (notably from GSAVE, and GSTART or their equivalents). Of course, if you use this option you'll want to make sure you don't use a filename to save under, that matches any of the program files.

In certain older SSI programs, (ie; Battle For Normandy, Battle Of Shiloh, Tigers In The Snow, etc.) you must also choose a

VERY short filename for the saved game. These programs append the filename with rather long suffixes, which can cause you to hit ProDOS' filename length limit too easily.

Many, many thanks go to M.M. McFadden for the new life he's put into my SSI programs. Not to mention the personal help he's given me, to get my PDOS going.

B.M.E. Upp ("Scotty") CT

② I've run into an unanticipated (if not totally unfamiliar) problem. When attempting to run Jeff Hurlburt's PARM.NAMES PRINTOUT (COMPUTIST #72), I consistently get a "NO BUFFERS AVAILABLE" error message when the program attempts to run the BLOAD in line 55. I have had this type of thing happen a few times before (when attempting to EXEC a file involving a BLOAD, as I recall), but have never been able to figure out how to "fix" it. Can anyone help?

Blackbird MA

Before I begin, let me take this opportunity to thank everyone who contributes to Computist; also to our RDEX and his staff of SUPERHEROES - you have made Computist the best Apple accessory that I own! Also, I'm sorry that it's taken me so long to write a piece, but I've been BUSY - how's that for a poor cop-out?!!!! Anyways, here goes...

Finding the nibble count in The Playroom

The Playroom (by Broderbund (C) 1989) is a fascinating collection of activities for young children (probably ages 3-7). I will not review it here, except to say that even the first screen kept me interested for a half hour! If you have young kids, I guarantee they'll love this program.

Playroom is up to Broderbund's usual high standard of programming sophistication and quality, however, it's protected! Imagine, a program that runs the disk drive frequently being uncopyable. Now imagine giving that to a young child. My daughter says it best. Eeeuuuuwww! Of the four disk sides used, only the boot side is protected. Here's the scoop on deprotecting Playroom...

Since there is no special device driver (at least I couldn't find one!), use a fast whole disk copier that will ignore any errors. (I use Locksmith 6.0 in <F>ast mode.) If you now try to boot the copy, you will see that it starts to boot, but then reboots. Hmm... sounds like a nibble count to me; so on the advice of many fine Computists I used CopyII Plus' sector editor to search for the byte sequence BD 8C C0 with a JUMP right after it. (By the way, it's in a file called playroom.system; I've found that in ProDOS programs the system file is usually where the protection is.)

Say, I just got an idea. How about for any people NEW to cracking, if I go thru (step-by-step) how to use CopyII Plus' sector editor (sorry, you experts, we all start somewhere, right??!) There is a cookbook compilation at the end of this article! OK all you young crackerjacks, are you ready? First, put your "archival backup" of CopyII Plus (I like version 8.4) into drive #1 (remember, label side UP) and power up your computer. I use an Apple IIe with two 5.25" drives. Gee, maybe I should ask for a IIgs for my birthday — Naaaaaa, I love my old IIe!

When it asks you to enter the date either do that or press esc to ignore the date. The second question has to do with having an 80 column screen format for any cataloguing you do; again it's up to you, I usually answer "Y" to that. Now the screen will change to what's called the Main Menu. We want to select the first item "COPY" (just press return) — yea, yea I know, we're not copying.

This will now trigger a second, or submenu on the right side of the screen. Now choose the first one "5.25 DISK COPY" by pressing return. The screen will once again change, and will prompt you to be sure you have CopyII Plus in drive #1 - we do, so just

press return. The drive will now run for several seconds (it's calling up other parts of the program (auto and manual bit copy, sector copy, sector editor, etc.).

Now we are presented with an interesting question, what slot number do we want? We will answer "6", because that is where our disk drive card is connected. Yet another screen will appear, so use the arrow keys to get down to "SECTOR EDITOR". Press return — the screen will change to ask what drive our original (fast COPY of Playroom that we made!) is in — press "2" if you have two drives, and "1" if you have only one. Wasn't that SPECIAL?!

Important: Make sure you are reading from the drive that has the copy of Playroom in it, not the drive with CopyII Plus!

Now we are ready to party! Near the bottom of the screen it should say TRACK (then a little space), then SECTOR (and a little space). We want to read the disk, so we must tell the computer this — press "R" (the CAPS LOCK must be down). Then we must tell it what track and sector we wish to examine, so press "0" (press return) and "0" (return) again. While the drive grinds momentarily, here's what we did. We just told the computer we want to look at track 0, sector 0 on the disk.

The screen is now full of gobbledegook, isn't it? Not to worry, we don't need to know all of this stuff! What we do need to know is that we are looking for a certain sequence of letters (bytes) — in this case BD 8C C0 (yes, that last thing is a zero), but we must find this sequence with a JUMP right after it. This would be 4C and some other bytes. This is where the nibble count routine is and we want to bypass that.

By the way, what we are using here is called hexadecimal, or hex — base 16 numbers. I will not talk about these here, as there are plenty of good books about number systems and bases. Well, at this point, we know what we want but it could take forever to find this sequence on the disk, and I should tell you, this sequence is found many times on the boot side of the program. Here's what to do. A moment ago we read track 0, sector 0 into the computer's memory — now press "S" (search) and answer "H" for Hex. Type in the sequence "BD 8C C0" (yes, there are spaces between every two letters) and press return — the drive will run while the computer searches for the bytes; the drive will stop when the correct bytes are found.

Now we must play detective, and look at the code to see if we've got the right one (with a jump after it). To do this we must ask the computer to disassemble the code we just read; fortunately, COPYII Plus can do this. Just press "L" and what you now see is a disassembly (it shows the opcodes or instructions in something we can at least somewhat understand). You are looking at the same page of info as a moment ago, but in a different form! Keep pressing "L" (slowly!) to examine the rest of this sector. At this point, I'm going to speed things up a bit and tell you where the correct bytes were on my disk. Press "R" then "5" (track 5). Press return. Then press "A" and press return (sector 0A, or 10 — remember, hex). Press "L" if you like to see the opcode — you will notice that byte number 10 has the infamous BD 8C C0 (this means get a byte from the disk).

For now press "B" (twice) to return to the other viewing format. This will also put us back at the beginning of the sector. Look at byte 1F (now don't look at me like that, just look at the last byte in the row that started with byte number 18). Here's what it should say from byte 18 thru 21, "D0 05 88 10 F3 30 03 4C 47 64". These last 3 sets of double digits are what we're after. They give an instruction to Jump to a certain address (and there it will throw you out of the game!). Since we don't want this to happen, we will edit the disk.

Using the I, J, K, and M keys move the blinking cursor over to byte 1F (where it says 4C); now press "H" because we are editing in hex, and type "18" (press return), then "60" (press return), then "EA" (press

return). Now press esc (once) and then press "W" then return twice. This will write the changes we just made to the disk. This is MOST important to make the changes permanent! What we just did was create a condition where the program would be fooled into running our copy just as if the original disk was in the drive.

The real explanation is as follows: 18 clears the carry flag, 60 returns from a subroutine, and EA means do nothing (no operation) — Oookaayyy?! We are done, so put Playroom into drive 1 and boot it; oh yea, HAVE FUN! The other disk sides can be copied with any fast copier, with no further work needed. I hope this has helped some people! Thanks again to all of you wizards who write helpful (and complete) articles!

Step-by-step

Search for D0 05 88 10 F3 30 03 4C 47 64 and change the 4C 47 64 to 18 60 EA. Or edit the copy disk.

Ink	Sct	Byte	From	To
05	0A	1F-21	4C 47 64	18 60 EA

Make sure you write the changes to the disk.

Softkey for...

John Madden Football

Epyx

Defeating the Season Ticket

Hi, sports Fans!!! Do you like football? Well, John Madden Football by Epyx is the most ambitiously done IIe football program I have ever seen! About 3 months ago, a friend of mine showed me this program, and I was instantly enthralled (I LOVE football — almost as much as the computer!) The program disk we had did not have a version number on it; all it had was a copyright of 1987, 1988, so it's not that new (I did not see this game listed on the Computist Super Index, so I thought I'd share what I had discovered).

The game plays smoothly, has good graphics, excellent documentation, is NOT copy protected, but has one VERY annoying feature — the dreaded SEASON TICKET! This is a variation on the old (new?) "lookup a word in the manual to continue"; in this case one must spin 2 concentric circles, lining up the row and section. Then you must go to the proper seat, and type in the 4 digit number that is displayed (how's that grab ya, good buddy??). Here's how to stop this nonsense:

1. Copy the boot side (side one) with any copy program (I used Locksmith 6.0 fast-copy).

2. Sector edit the copy.

Ink	Sct	Byte	From	To
OB	OB	4C-4D	D0 07	EA EA

That's it! Now when the program tells you to use your MADDEN season ticket, pressing any key will let you continue (isn't that fun?).

For those of you who don't even like to be asked for a ticket (like me!), here's how to bypass that altogether:

1. Sector edit the copy.

Ink	Sct	Byte	From	To
OB	OB	00-02	20 15 71	18 60 EA

You're done!

Advanced Playing Technique for...

Into the Eagle's Nest

?

First of all, let me say that I tried the APT from issue #67 by The Switch, and my version must be slightly different, because the listed addresses did not jive with my copy. By the way (at least in the version I have) you can press ctrl reset at any time, and the game jumps into the monitor (without rebooting!) Here's what I found in my investigation of addresses:

\$756A jumps to the scores.

\$7594 is the game start. The number after the A9 determines which mission you will be in (there are 3 rescue missions, the 4th is to blow up the castle).

\$864E contains keys.

\$8658 has bullets.

\$767E contains the comparison info about how many hits (gunshots inflicted upon you) you can take.

\$7647 contains the elevator passes.

I'll illustrate both ways of changing the game's default (standard) info. To do this in a way that is not permanent, boot the game, break into the monitor (just press control-reset, in my case). Let's say you wanted to live forever (what a swell thought!), you type address 767EL (the L is how to tell the monitor to list; yea I know, everybody knows that, but just in case you're new to this). You should see these bytes: C9 50 B0 6A - change the 50 to FF (that's hex for 255 in decimal); now type 7594G to start the game. Because we just told the program to look for a number the counter can NEVER reach, you live forever!!! Any other changes (cheats) you desire can be done the same way, except that the first byte will be A9 in all other cases, not C9.

Remember, though, that these changes are to the RAM memory, and are therefore lost when you shut off the computer. To make these changes permanent, do the following.

1. Make a copy of the program (I used Locksmith 6.0 fastcopy).
2. Us a sector editor to change the copy.

Unlimited lives

On track \$1D, sector \$0F, search for C9 50 B0 6A and change the 50 to FF.

Keys

On track \$1E, sector \$0F, search for A9 00 8D D8 76 and change the 00 to the number of keys that you want. (ie. Change to 50 and you start the game with 50 keys.)

Elevator Passes

On track \$1D, sector \$0F, search for A9 00 8D DD 76 and change the 00 to the number of passes. (ie. Change to 05 and you start the game with 5 elevator passes.)

Bullets

On track \$1E, sector \$0F, search for A9 99 8D D9 76 and change the 99 to FF and you have 255 bullets. I don't change the bullets because they are all over the place in the Eagle's Nest.

I hope this helps anyone with the same version of this game. Enjoy! Thanks again to Ed Teach, Bill Jetzer, and many others. I've learned a great deal from you folks. I will try to write to Computist as often as I can (sounds like a New Year's resolution!). Bye for now.

Advanced Playing Technique for...

Hunt for Red October

Datasoft/Intellicreation

I had no difficulties making a backup of my original disk (by the way, I think this game is very poorly done, no sound effects, and the only decent graphic displays are when you lose the game — get sunk, crew mutinies, etc.). Here is what I found in my snooping around.

Ignore direct hits

Search for 2A A5 37 D0 26 A9 01 and change the 01 to 00. (I found it on track \$0A, sector \$06, bytes \$70-76.) Now when you are fired upon and hit, the message will appear "we've taken a direct hit, sir!" but you will have no damage; hence, the game continues!

More speed

To give your sub blazing speed, read track \$06, sector \$03, bytes \$58-5B you should see A9 25 85 8D - change the 25 to 63; also in the same sector at bytes \$88-8B look for C0 A9 25 85 - change the 25 to 63. This will allow your sub to go 99 knots when you are running nuclear engines with propeller drive. That's what I call SUPER-UNLEADED! Making this change instead of the previous one makes the game interesting. You can still be sunk, but they will have to be an amazing shot in the open ocean!

No Attacks

Read track \$0A, sector \$05, bytes \$00-06

and look for 23 AB 9D 59 AB A9 96. Changing the 96 to 00 will not allow any ships to ever shoot at you.

No Mutiny

To keep the crew from mutinying (is that a word?!), read track \$09, sector \$00, bytes \$60-65. Look for 64 90 25 A9 02 85; change the 02 to 00 and your crew will never say "Take this in your gut, sir!"

More Nuclear power

Finally, you normally have nuclear power for 10 days. I found this annoying, sooooo, read track \$0A, sector \$0C, bytes \$80-85. Search for F7 A9 F0 05 A9 0A; change the 0A to 1E and you now have nuclear power for 1 month.

② It's my understanding that Apple has been requesting that all new commercial programs come through with ProDOS as the standard operating system. So far, I have found these programs to be easier to deprotect (thanks to Mr. Bill Jetzer, and ProDOS IOB) than some DOS 3.3 programs. The only problem I have is that when I am trying to develop an APT, I cannot seem to restart ProDOS programs like I do when they're DOS. Can anybody help me? (Are you listening, Bill?)

② I know this isn't our field, but I've recently been doing research on viruses, worms, trojan horses, etc., and would like to be able to examine the source code for a complete virus (for STUDY PURPOSES ONLY!!!). Does anyone out there know of any of the above that afflict the IIe (or GS), and where I could get a copy of said code? I can be reached through RDEX. Thanks!

Franko Sibo **LA**

Softkey for...

Superprint

?

The softkeys for SuperPrint didn't work for me (Computist #71, p13 and #72, p36). I think that I have one of the earlier versions of the program. However, using information from two separate articles in Computist #72, I was able to deprotect the version that I have.

1. Using the softkey that was dedicated in memory of Roger Trapp (Computist #72, p36), I was able to make a copy of the original:

RUN COPYA
ctrl reset
B988:18 60
B98A:00
B925:18 60
B942:18
3DOG

RUN COPYA

2. Now using the information concerning the extra block count found in Mike Egnotovich's article (Computist #72, p28), I was able to finalize the softkey. Format a blank disk with ProDOS. Copy all of the files from the copy to the formatted disk.

You are finished. This disk should boot up with no trouble.

② How can I put SuperPrint and the two data disks on a 3.5" disk. How do I get the program to recognize the data disks?

② I need a softkey for the 5.25" version of Tetris

Ross A. Holmes **CA**

Notes on Quicken

I use Quicken by Intuit in my home quite a bit and I got tired of booting up side one and seeing the procedure that comes on the monitor for ordering checks etc. and then turn the disk over for another rebooting or whatever it does. So I decided to add ProDOS to side two. Oops not enough room.

I saw in "Beneath Apple ProDOS" (pgs 7-26) that I could format a disk to forty tracks using side 2 ProDOS User's Disk. For those of you who don't have the book, just follow the step-by-step. Where it says "address:40", substitute the correct "address" for the version of ProDOS that you are using.

On a copy of your ProDOS user disk, do the following:

UNLOCK PRODOS
BLOAD PRODOS,TSYS,A\$2000
CALL-151
addr :40
3DOG
BSAVE PRODOS,TSYS,A\$2000
LOCK PRODOS

<u>ProDOS version</u>	<u>"address"</u>
1.0.1	520D
1.0.2	52CD
1.1.1	56E3
1.2	58E3
1.3	58E3
1.4	58E3
1.5	58E3
1.7	58E3
1.8	59E3

Now do the following:

UNLOCK FILER
BLOAD FILER,TSYS,A\$2000
CALL-151
addr :40
79F4:28
3DOG
BSAVE FILER,TSYS,A\$2000
LOCK FILER

Replace "addr" with the correct address for your version of FILER from this table:

<u>FILER release date</u>	<u>"addr"</u>
1 JAN 84	4244
18 JUN 84	426A

After all that's been changed you're ready to start.

1. Format a disk with forty tracks (320 blocks) using the modified FILER and ProDOS.
2. Now boot Copy II Plus and copy all the files from the Quicken disk (both sides) to your formatted 40 track disk.
3. Now copy PRODOS to side two.

That's it. When you're ready to use Quicken, boot side 2 and you're right in the menu.

② Now can someone out there help me? What address can I change in Copy II Plus version 9.0 so I can copy a full DOS 3.3 disk to a forty track disk backup? Typing the programs from Computist magazine and other magazines fills up a disk very fast. When I want to copy some other files to a disk that is almost full, Copy II Plus can't do it because it can't read those extra five tracks. In what file and at what address can I change them to work?

② What is the goal of the "Little Computer People" by Activision? I think I've missed something along the way.

Jim Wallace **TX**

Softkey for...

MasterType's WritingWizard Scarborough/Mandscape

Requirements:

A blank disk

COPYA (or any whole disk copier)

A sector (or block) editor

Optional: Super IOB v1.5

Writing Wizard is a graphics word processor originally published by Scarborough. The program is now being published by Mindscape (re. Incider April 1990). One handy feature is the ability to divide the screen into two separate windows—providing two unique writing areas.

I tried the Mastertype's Writer softkey in COMPUTIST #70, following instructions very carefully. No luck. I can only assume that I have a different version of the program than the author's. For reference, I am working with the Scarborough 1985 Apple version, labeled "MasterType's WritingWizard".

By the way, I'm sure I have some company out there when I say that once a published softkey does not work, we can quickly eliminate one variable—different versions—if the softkey author would provide a few bytes of the original code that's being replaced. The first five or six bytes would help determine if the data in the exact track/sector/byte location on my disk are the same as the author's. If not, perhaps I can search

the disk for the byte sequence and still get the softkey to work. So, how about it authors? Take time to list the first few bytes of the original code instead of the dreaded "?" in the "From" column. And if you are providing the data then, it's your ball, COMPUTIST—publish them. It really helps.

We print what we get. RDEXed

The Protection

The protection I found is located in the file WIZARD.SYSTEM. This file is loaded by ProDOS into memory at \$2000, then moves some of its code beginning at \$20F9 to a new location at \$B82C and from \$38AE to \$0C00 using the Monitor's move routine in Apple ROM at \$FE2C. A jump is then taken to \$B82C where the Scarborough and the WritingWizard logos are loaded and displayed.

The real protection check starts at \$B8D1. Several JSR's (Jump to Subroutine) have been made to \$BA3B where, each time, pointers are reset and calls are made to the ProDOS Kernel MLI (Machine Language Interface) to read data from the disk. On this particular occasion, data are read from track \$22, sector \$05 (block \$115) into memory starting at \$BA83. (This is very similar to the previously-mentioned softkey.) When this new code is processed, its first task is to decode the remainder of the code just read in from \$22/\$05:

BA83:A2 FF	LDX #\$FF	Load X-reg with byte location
BA85:8A	TXA	Transfer byte location to A-reg
BA86:DE 91 BA	DEC \$BA91,X	Subtract 1 from byte at \$BA91 + X
BA89:5D 91 BA	EOR \$BA91,X	Exclusive OR the byte location (A-reg) with byte at \$BA91 + X
BA8C:9D 91 BA	STA \$BA91,X	Store results in same location
BA8F:CA	DEX	Decrement to next byte location
BA90:D0 F3	BNE \$BA85	If X is not 0, loop back to \$BA85

Once \$BA92 through \$BB90 is decoded, processing falls through to \$BA92 where several attempts are made to read sync bytes from track \$23. This is still not easily seen in the decoded data because they're sprinkled with extraneous "\$2D's" to prevent a sensible listing by the Monitor. Moreover, the sync bytes on track \$23 of the original disk are not the usual \$FF's but \$AB's instead. If the \$AB's are not found, the program will store the value \$16 in memory location \$BACD versus \$17, and won't progress past the WritingWizard logo.

My solution is to have the program disregard going to track \$23 to look for the \$AB's and, of course, store a \$17 at \$BACD anyway. This involved determining what values had to be inserted in sector \$05 of track \$22, such that when they are decoded by the above subroutine, my goal is accomplished. You may use either the sector edit or the Super IOB method to make your copy.

Sector Edit Method

Step-by-step

1. Fast copy your original disk to your blank disk.

2. Make the following edits to your copy:

Trk	Sct	Byte	From	To
\$22	\$05	\$51-53	64 49 FF	AA AF B0
		\$60	45	46

(Note: Track \$22, sector \$05 = block 115.)

3. Write the sector back to the disk.

Super IOB Controller Method

Merge the following controller with Super IOB v1.5 and run the resulting program.

Controller

1000 REM CON.WIZARDWRITER		
1010 TK = 0::LT = 35:ST = 15:LS =		
15:CD = WR:FAST = 1		
1020 GOSUB 490: GOSUB 610		
1030 GOSUB 490:T1 = TK:TK = PEEK		
(TRK) - 1: RESTORE : GOSUB		
310:TK = T1: GOSUB 610: IF PEEK		
(TRK) = LT THEN 1050		
1040 TK = PEEK (TRK): ST = PEEK		
(SCT) : GOTO 1020		
1050 HOME : PRINT "COPYCOMPLETE"		
: END		

1060 IF ANS = "N" THEN END
1070 GOTO 1050
5000 DATA 40CHANGES
5010 DATA 34,5,81,170
5020 DATA 34,5,82,175
5030 DATA 34,5,83,176
5040 DATA 34,5,96,70

Checksums

1000-\$356B 1050-\$7B7A 5020-\$DA23
1010-\$1BD5 1060-\$0483 5030-\$BF4D
1020-\$3DE9 1070-\$3E08 5040-\$0761
1030-\$3628 5000-\$51E4
1040-\$418E 5010-\$843B

J. C.

NJ

Notes on bypassing Password Protection

A thank you to Michael Douchette (issue #72) for giving me the idea for a very easy method of bypassing the password protection now being used.

In issue #72 Michael listed the key passwords needed to play Tetris. Using a copy of the original I went to the these passwords and using Copy II Plus, I replaced them with text spaces saving these changes back to disk. The disk booted and when a password was called for, a return satisfied the call.

I next located the passwords on Silpheed, substituted the passwords with text spaces. The disk would not boot. I then used hex 00's. This disk booted and ran.

I could not locate the passwords on Battle Chess, hence no fix.

I believe this method should work on most password type programs, try inserting a common word if spaces and 00's don't work.

Where in the World is Carmen Sandiego will deprotect and run off a hard disk under GS/OS ver.5.02 if a copy is made using the Auto Copy feature on Copy II Plus ver 9.0. This is not currently possible using the issued software or the softkeys listed in issue #72.

② I would like to hear from anybody who has been able to make Battle Chess run off of a hard disk or anyone who is using a Vulcan hard disk and has run into problems using their modified P8 file (ie. Printshop GS.)

Richard S. Thompson **NY**

Softkey for...

Grand Prix Circuit (IIgs)

Accolade

This is a great driving game. If you haven't bought this program, buy it. The program is protected just like Test Drive II. Take a look at the following hex dump for block \$112.

112E:08	PHP

If the program makes it to \$1174, the disk is an original. So I buy a BRA \$3A (80 3A) at \$1138 so that the program will always fall through.

Step-by-step

1. Copy the disk with a disk copier.
2. Edit the copy (I use Block Warden from ProSEL).

Blk	Byte	From	To
\$112	\$138	E2 30	80 3A

If you do not find these bytes, search the disk for E2 30 A2 20 and change the E2 30 to 80 3A.

Softkey for...

Shootout (IIgs)

Britannica Software

I will have to thank James Hodge (issue #72, pgs 28-30) for his softkey on Gnarly Golf. Gnarly Golf is from Britannica Software also. I will not get into specifics here:

1. Copy the disk (ignoring errors).

2. Edit the copy.

Blk	Byte	From	To
\$159	\$128	20 00 BF	EA EA EA
		80 10 27	EA EA EA
\$166	\$C9	D9	99
	\$CC	D0 08	EA EA

Mike Maginnis TN

Recently, I unearthed a copy of GoldRush at a local computer show. This moldie-oldie dates back to the days when Sierra On-Line went by On-Line Systems. On-Line's menu at the time consisted mainly of such priceless (worthless?) classics as Sammy Lightfoot, Cannonball Blitz and Frogger. Anyway, since this one's STILL on the most wanted list, I thought I'd give it crack:

Softkey for...

Goldrush

On-Line Systems

Requirements:

A blank formatted disk

A way into the monitor

A DOS 3.3 disk with no HELLO

This game loads in all at once and never accesses the drive again. All we need to do is to allow the game to load into memory, capture it and save it to our disk as one consolidated file.

Step-by-step

1. Boot the DOS disk and enter the monitor.

CALL -151

C091 N C091 N D000-<9000.BFFF

FFFC:59 FF N C091

2. Boot the GoldRush original and drop into the monitor after it finishes loading.

C090 N 9D00-<D000.F2FFM N C091

07FD:4C 00 0B

9DBFG

16CA:4C 00 0B

A964:FF

3. Insert the blank formatted disk and SAVE GoldRush in file form.

BSAVE GOLDRUSH, A\$07FD, L\$8FFF

That's it...

A Note on Copy II+ version 9.x

If you've got an older IIe (CDEFROMS), this program won't load. About the only thing it's good for if you own an unenhanced IIe, is its new parms. And not all of them are compatible with version 8. Central Point has added new functions to the Bitcopy system, so not all the parms work with the older version. At any rate, if you don't own an enhanced IIe or better, stay away from version 9. A few new parms aren't worth the money you'll pay for this one.

Does anyone know any more about this?
RDEXed

Bill Jetzer WI

Tips For Appleworks 3.0 Users

Here is a fix for the s-l-o-w blinking cursor on Appleworks 3.0. You can also change the cursor character to any other character you want. Follow this procedure:
BLOAD APLWORKS.SYSTEM, A\$2000, TSYS

CALL-151

2C44:xx cursor character, xx is ASCII value,

was \$DF

20DC:2C cursor delay with " _ "/without inverse

block, was \$1C

20DD:2C cursor delay without " _ "/with inverse

block, was \$6C

BSAVE APLWORKS.SYSTEM, A\$2000,

TSYS

② I have a problem, and I wonder if any hardware hackers might be able to help me. Several months ago I bought two VHS videotapes, one from MGM/UA, and the other from Warner Bros. I wanted to copy these using my roommate's HiFi VCR to get the stereo sound, and send the originals home for safe keeping. However, both of them had the CopyGuard (or whatever it's called) protection. When the resulting copies were played, they showed a clear picture for 50-55 seconds, and then a very distorted picture for 50-55 seconds. This pattern repeated throughout the length of the videos. The sound quality, however, was unaffected.

I made the first copies using two HiFi VCRs using the "Line Out" and "Line In" connections. After viewing the tapes, I was disappointed to see that they were both distorted. But, I reasoned that since the quality is not diminished going from the "RF Out" of the VCR to the "Antenna In" of the TV, I could go from the "RF Out" of the Play VCR to the "Antenna In" of the Record VCR to get a good copy. This setup recorded properly, and required only one HiFi VCR (the Recording VCR), but again the picture was distorted.

I have seen ads for a device that claims to decode all forms of protection on videotapes, but I'm not sure I want to spend \$49.95 for what is described in the ad as "the best and most exciting video stabilizer in the market," although the fact that it comes with a "beautiful, deluxe gift box" does make the offer quite tempting.

I realize I'm asking quite a bit from a computer magazine, but I thought maybe some of the hardware experts might also fool around with VCRs.

I don't want to get into a long technical explanation so, basically, the copyguard protection uses "noise" to fool the AGC (automatic gain control) on the recording VCR. The "noise" causes the AGC to think that the signal is too strong and it reduces it to a level that it (erroneously) thinks is correct. This causes the signal that the recording circuitry finally "sees" to be so faint that it can't make a good copy. You can buy a filter/stabilizer or if you are a little technically inclined, you could turn the AGC off on the destination VCR. You really don't need it for most recording that you will do.

If anyone would like to write an indepth technical explanation or tell how to make a filter, please do and I will print it here. I'm sure that everyone with a VCR has run into this problem at some time or other.

..... RDEXed

Robert T. Muir WA

Softkey for...

Curse of the Azure Bonds

SSI

Requirements:

DOS 3.3 sector editor

Curse is a very entertaining game that a group can enjoy. Unfortunately, it's a pain swapping the disks. I spent several days trying to convert it to ProDOS using M.M.McFadden's RDOS->ProDOS conversion in issue #52 as a guide.

It was all for nothing though because Curse is a 128K game and even though I was able to convert the files over to ProDOS, the program used all of the space occupied by ProDOS.

One outcome of my project was being able to set my difficult to read rune wheel protection card aside. The first thing I did was to search for the letters on the wheel and convert them all to \$0D (the code for <return>). This worked, but it wasted time. So I just backed up a bit and branched to the end of the subroutine culprit.

Search the disk for "ALIGN THE ESPRUAR". I found it on track \$03, sector

\$0E. Change bytes \$0B-0C from 8D 6A to D0 26.

I think SSI is being particularly backward in their use of RDOS in this age of high capacity disk drives. The only option I can see for conversion would be to use a modified DOS3.3 that can access a high capacity disk drive or else modify RDOS to do the same thing. I'm burned out for now though.

Joseph P. Karwoski PA

Appleworks Patches

Skip spacebar & get time patch

This patch will cause AppleWorks to skip "Press space bar to continue" and asking for the date. These can be a pain in the neck, and a waste of time if you are using a IIgs. Follow these instructions to fix the program.

Note: Be sure you are using a back-up copy only!

1. Boot ProDOS and get into BASIC ()�

2. Load Appleworks into memory.

BLOAD /APPLEWORKS/APLWORKS.

SYSTEM, TSYS, A\$2000

3. Patch the code.

For version 1.1.

POKE 13138,44: POKE 13522,208: POKE

13523,19

For version 1.2.

POKE 13135,44: POKE 13518,208: POKE

13519,19

For version 1.3.

POKE 13193,44: POKE 13855,208: POKE

13856,19

For version 2.0

POKE 14468,44: POKE 14148,208: POKE

14149,19

For version 2.1.

POKE 14118,44: POKE 14436,208: POKE

14437,19

4 Save the patched code.

BSAVE /APPLEWORKS/APLWORKS.

SYSTEM, TSYS, A\$2000

(Note: The original values are 32,32,56 respectively. The first poke takes care of the "Press space bar", and the other two read the clock.

255 copies in Multi-copy Print

Have you ever wanted to print more than 9 copies of an item, and had to sit there and press "9" each time you tried to print. If so, here is a little patch to help you out. These three patches will change the maximum number of copies to 255, you could put any number you want in for the 255.

AppleWorks Spreadsheet:

NEW:CLEAR

UNLOCK SEG.M1

BLOAD SEG.M1,A768,L1,B66127

POKE 768,255

BSAVE SEG.M1,A768,L1,B66127

LOCK SEG.M1

AppleWorks Word Processor:

NEW:CLEAR

UNLOCK SEG.M1

BLOAD SEG.M1,A768,L1,B36202

POKE 768,255

BSAVE SEG.M1,A768,L1,B36202

LOCK SEG.M1

AppleWorks Data Base:

NEW:CLEAR

UNLOCK SEG.M1

BLOAD SEG.M1,A768,L1,B9155

POKE 768,255

BSAVE SEG.M1,A768,L1,B9155

LOCK SEG.M1

Misc. Notes & items of Interest

Mouse Characters

Using mouse characters is very easy, and they let you "dress-up" your programs. Mouse characters are activated by using certain INVERSE characters on the Apple. On older Apples, you will only get inverse characters. Use the following line to use mouse characters in 80 columns only.

10 PRINT CHR\$(15); CHR\$(27); "XY";

CHR\$(24); CHR\$(14)

This line looks complicated, but it is easy when you know what everything does. The

CHR\$(15) turns INVERSE on, the CHR\$(27) enables the mousetext, "XY" will print a folder on the screen, the CHR\$(24) turns the mousetext off, and the CHR\$(14) puts the computer back into normal display. See how easy that is? Try it, you might like it!

Catalog Hijinks

If you would like to see in your catalog the file types, this is a little trick that you might like. Try this command: POKE 42230,14: POKE 42259,0

When you want to go back to normal, use this command: POKE 42230,68: POKE 42259,39

BLOADing into Text Page 1

Here is an interesting item, but before I give you the "fix", I should explain the problem. If you want to load a LORES screen (page #1), you will find that this works fine under DOS 3.3. However, if you try to use this same program under PRODOS, you will get an error. The reason for this is that PRODOS protects parts of page #1 of memory (PRODOS uses part of this as a scratch pad). Now that you know the problem, you need the "fix". There is really two fixes: one is to load the graphic (or information) into page #2 and then move it to page #1 - this requires a machine language routine to work quickly; the second "fix", and the one I will give you is to deprotect page #1, load the graphic, and then reprotect page #1. This is done by using the following commands:

on a number of items, and there is no easy way of knowing what it is. I would start at 10, then list the program to see what you get. Keep doing this by increasing location 2049 by one until you get your program back.

Using Double Loops Graphics

If you are interested in using double loops graphics, it is possible on a newer IIe or IIgs. To do this, you must type the following:

PR#3

POKE 49278,0:POKE 49246,0:GR

The screen is now in 80 X 40 format. You may use the PLOT, VLIN, and HLIN commands in this format. To turn this off, (while you are 80 col mode) type:

POKE 49278,0:POKE 49246,0

One key DOS Commands

If you want to save some typing, you can tell DOS to do what you want with a single key stroke. Just POKE the command location into the Ampersand (&) vector. For example: to catalog the disk when you press the ampersand (&), do these pokes:

CATALOG

POKE 1013,76

POKE 1014,110

POKE 1015,165

LIST

POKE 1013,76

POKE 1014,165

POKE 1015,214

RUN

POKE 1013,766

POKE 1014,18

POKE 1015,217

CLEAR

POKE 1013,76

POKE 1014,112

POKE 1015,214

Turn off CATALOG in DOS 3.3

If you want to prevent the CATALOG command from working, all you have to do is POKE -21503,0. The normal value for this location is 17 (\$11). The give away was the normal value of the memory location. Track \$11 (17) is where DOS 3.3 stores the catalog of a disk.

Impossible REMs?

Have you ever wanted to add a REM statement to a program and make it difficult for someone to change the statement, such as:

REM...by Joseph P. Karwoski

If you would like to do this, it's easy. Before you begin typing the program, do this:

10 REM...BY JOSEPH P. KARWOSKI

POKE 2051,255:POKE 2052,255

The POKEs will change the line number to a value larger than the computer will accept from the keyboard. Do not load a program and do this. You must do this BEFORE you type any other line of the program.

Recovering Overwritten BASIC programs from DOS

Here is an interesting problem: You have spent weeks or months working on a program. The program is just about done, so you save it. You need only to find out what the ASC code is for the "delete" key. You type in NEW and write a little program to answer your question. By accident, you SAVE this program over your "good" program. What do you do? If you were using PRODOS, too bad! However, if you were using DOS 3.3, there may still be hope for your program. If you have a copy of Copy II+, you can salvage most every line of your program past the new program you saved over it. Before I tell you how to do this, you need to know a little about how DOS 3.3 stores information on the disk. Don't worry, this is very easy (at least all that you need to know).

Items you need to know:

1. DOS 3.3 stores the CATALOG on track \$11 (17 in decimal).

2. The CATALOG track is the first thing you should look at when you get into the sector editor of Copy II+.

3. When you read track \$11, sector \$0F, you should see the name of the file you want to recover. If you don't see it there, look at track \$11, sector \$0E. If it is not there, keep looking at the sectors on track \$11, in descending order (\$0D, \$0C, \$0B, \$0A, \$09, \$08, etc.), until you find it. Where your file name is will depend on how many files you have saved on the disk. Once you locate the name, you will see something like this. For this example, let's say that the file name is JPK.

16 OF 02 JPK
1F 00

This tells you a great deal of useful information. The "16 OF" tells us that the track/sector list (table of tracks and sectors used) for the program begins on track 16 sector 0F. (If the "16" is a "FF", then the file has been deleted and the "16" will be in the 30th character of the name. You can undelete the file by replacing the "FF" with the value in the 30th character.)

The "0" in the "02" tells you that the file is unlocked. If it had been an "8", the file would be locked. The "2" in the "02" tells you what type of file it is, a "2" means that the file is an Applesoft BASIC file.

The next 30 characters are the name of the file.

The "1F 00" tells you how many blocks are used by the program, in this case it is 31 (decimal). You get the number by converting the hex value to base 10. This is done by the following method: $16 * 1 + 1 * 15 = 31$.

Now that you are armed with this information, you are ready to try to retrieve your program. Reading the CATALOG track, you find that your program begins on track 16 sector 0F. The next thing that you do is read track 16 sector 0F, and this will tell you where the program begins and all the tracks and sectors used by the program. When you read this track, you will see something like this:

00 00 00 00 00 00 00 00 00
00 00 00 00 16 0E 16 0D etc.

This tells you that the code starts on track 16 sector 0E, continues to track 16 sector 0D, and so on. You must then read track 16 sector 0D. At this point you are ready to do some editing to get your file back. The first

2 bytes tell the computer how long your program is - of course, this is wrong. You must change these 2 bytes, and this will depend on how long your program is. If you don't know how long it is, you can read through the sectors that the program is located on and calculate the length. If this seems too hard, simply use trial and error - a good first guess is to place "9D 1D" in the first 2 bytes (this is the code for a 31 block program). Now that you have done that, you still have a few more edits to make before you can try to get your program back. You must find where the computer has marked the end of the program (the new one). Now you are saying: Great, I knew there was something that was going to be hard to do!

Have no fear, the hard part is over. DOS 3.3 marks the end of a line with "00", and the end of the program with "00 00 00". All you have to do is follow the program down until you find "00 00 00", and replace the last two 00's with non-zero values (I use "FF FF"). Don't forget to write the edits back to the disk or you will just have to do it all over again.

Once this is done, all you have to do is boot the disk and load the program. You should see the program. You will then want to get rid of the lines that do not belong to the program. You may also want to check the length of the program when you save it. If your program is only 14 blocks long, the edits I have given you will make it 31 blocks long. You may want to change the first 2 bytes to a smaller value. Also, if you did not get all of the program, you will want to make the first 2 bytes larger.

Misc note

Here is an interesting security program that I use in my classroom. When I start talking about IF...THEN... statements, I always have to talk about protection and how to get into a system. My students have

seen too many TV shows that make it look like all you have to do is sit down in front of a computer and press a few keys to break into a system. I use this little program to show them how hard it is to get in without knowing the correct password.

I talk about IF...THEN... statements and then talk about a security program and the laws involved in trying to break into a system. I stress to them what could happen if they try to do something as dumb as breaking into a system — I also talk about phone fraud. I don't want any of my students to "run" into that kind of trouble, it could ruin their lives! The next day they find a quiz waiting for them (this program running on one machine, I have removed the disk from the drive). I tell them that this is a class quiz, what one gets, they all get (0 or 10). I then tell them the rules for the quiz:

1. They must get the secret code message from within the program. To get this they must get a line listing of the program, getting the correct password will also give them the secret code message.
2. If they turn the computer off, or press **ctrl-open apple-reset**, they get a zero on the quiz.

3. They may use any other means that they can think of.

I let my students work on the problem for a while, and then I let them ask me questions about the password. The students have fun, learn how hard it is to break into a system, and if they ask the correct questions — they all get a 10.

If you are running the program under PRODOS, the program will work perfect as is. If you are running under DOS 3.3, you don't need the NOTRACE command in lines 0 and 1000. You are now asking yourself: What if they press **ctrl C**, and break into the program? Don't worry, that is taken care of with the ONERR statement, and it will not BREAK. Now you are wondering: What happens if they hit **ctrl reset** to gain control? No problem, the POKEs and CALL in line 1 causes the program to run itself if **ctrl reset** is pressed. Once the program is running, there is no way of getting into it. The only way to list the program is to get the correct code.

JPK.TEST

```
0 NOTRACE
1 POKE 1010,102: POKE 1011,213:
    CALL - 1169
2 ONERR GOTO 1000
10 HOME 20 VTAB (12): PRINT
    "PLEASE ENTER THE CORRECT CODE"
30 FOR I = 1 TO 4
40 VTAB (12): POKE 36,30 + I: GET
    A$(I)
50 VTAB (12): POKE 36,30 + I:
    PRINT "*"
60 NEXT I
70 CODE$ = ""
80 FOR I = 1 TO 4: CODE$ = CODE$ +
    A$(I): NEXT I
90 IF CODE$ = "Worf" THEN GOTO 500
100 GOTO 10
500 HOME : VTAB (12): PRINT
    "YOU HAVE GAINED ACCESS TO
    MY SYSTEM"
505 FOR I = 1 TO 30: PRINT CHR$ (7):;
    NEXT I
510 PRINT : PRINT "THE SECRET CODE
    IS:" : PRINT : PRINT "THE DUKE
    RULES!""
520 END 100
```

Checksums

0-\$BC5B	50-\$07D8	500-\$A62B
1-\$8C26	60-\$21D6	505-\$1E09
2-\$AA7B	70-\$B87B	510-\$31B2
10-\$BA53	80-\$04AE	520-\$EED7
30-\$C1AB	90-\$6371	
40-\$C5DC	100-\$COA7	

I hope you find this interesting and useful. I have tried to include something for just about everyone.

By-the-way, if you have lost a file or trashed a disk maybe I can HELP. For a modest fee, I will try to recover your lost files or trashed disk. For more information, you may contact me at:

37 Clover Street
Johnstown, PA 15902
Phone: (814)-288-5043

Bob Igo

PA

Advanced Playing Technique for...
Super Taxman II
?

Unlimited Lives

Trk	Sct	Byte	From	To
\$07	\$05	\$49-4A	C6 59	EA EA

Here, 3 lives are stored as \$83. Another simple encoding procedure which has eluded me until recently.

Advanced Playing Technique for...
Night Stalker
?

The number of shots in your gun is stored at \$0DD0. To unlimit them, scan for CE D0 D0 and change it to EA EA EA.

Hey, Zorro: How did you get a rating of Dangerous on Elite? The most I've gotten to is Competent, and I've had some guy tell me to find his lost ship, and then I died shortly thereafter (without saving the game-duh!). Perhaps you could work with me and any other fellow 'Elite'rs on an APT or at least a set of playing tips. We'd first have to know if Elite status comes after you find Raxxla or if finding Raxxla comes after achieving Elite status. Encoding seems to be an awfully big problem on this one, too. Let me know what you think.

② As for Gauntlet, the only thing saving it from the re-formatter is the fact that its APT has eluded me. Can anyone help out on this one?

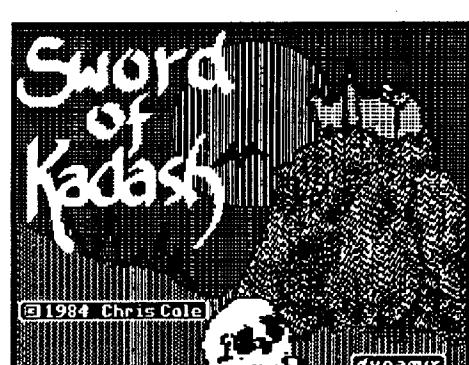
Frank Polosky & Bob Igo PA

Sword of Kadash walk-through

Caution: This is a complete giveaway!

Remember Sword of Kadash? Well, so do I, and Frank finally got tired of being practically the only one he knew of who'd ever gotten the sword and solved the game. So, he mapped out the steps you must follow to get really close to the sword and slay the dragon. Yes, there is a dragon. You probably didn't even know, did you?

Note: Numbers are not the room# which the game will assign to the room. Steps are numbered by the order in which you enter



them.

1. go up
2. shoot wall and go up
3. go left
4. go left
5. go left
6. go up/left
7. go left
8. shoot wall and go up
9. go left
10. go left
11. go left
12. go left
13. go up
14. go up
15. go up
16. go up
17. go up
18. shoot wall and go up
19. go up
20. go right
21. go right
22. go down/right

- 23. go right
- 24. go down
- 25. go down
- 26. go right
- 27. go down
- 28. go right
- 29. go down
- 30. go left
- 31. go down
- 32. go down
- 33. go up/right
- 34. go up/right
- 35. go up/right
- 36. go right

37. Shoot the wall at the top of the corridor near the right side and go through the secret door.

- 38. go up/right
- 39. go up/right

40. Run as fast as you can to the 4th boulder from the right and either run through it or shoot it. All other boulders are death traps. If you get stuck here, you're finished unless you can edit your screen position.

- 41. go through up/left secret door
- 42. go left
- 43. go down
- 44. go down/right

45. go through all the unavoidable cursed items and go up/right. (You might want to save and change your character's cursedness now.)

- 46. go up/left
- 47. go down through the secret door
- 48. go down/right
- 49. go up/right

50. Go up and shoot the secret door which is dangerously close to the dragon. Keep pushing right and up while in the dragon flame. You might want to have about 87 extra lives at this point.

51. Go get the key and shoot the invisible walls to go through the secret door. Here, you are two rooms away from the infamous SWORD OF KADASH! (A programming glitch: If you save the game after claiming the Sword of Kadash, the game still says that your adventures have been saved but "you have not yet claimed the Sword of Kadash.") The mazes you will encounter are secret and invisible. Shoot around to see where you can go. You cannot get the sword if you are cursed. That means that you can't win the game if you are cursed.

Oh, by the way, you have to kill the dragon in order to win.

George Sabeh **PA**

Softkey for...

First Draft
Scholastic

Requirements:

Two blank disks

COPYA (or any similar copy program or Super IOB)

Sector editor such Copy II plus

This program will copy normally with any copier. Upon booting it prints a normal Applesoft "]" prompt. This indicates that the DOS used is fairly normal. A copy will start booting then continues to reboot. The program can be interrupted with control-reset but pushing any key causes a reboot. Checking location D6 in memory indicates 00 and does help to prevent the reboot.

This prompted me to scan the DOS on track 00-02 for 4C 00 C6. I found this on track \$00, sector \$0E, byte \$49-4B. Changing this to EA EA EA now corrects this. The copy now can be stopped and cataloged. The boot program is called Title and is only two sectors long and contains the title as well as the protection. The main boot program is called Hello and is a binary file. The file Title is needed for running the program and should not be deleted. Once it checks for the protection, it proceeds to load file Hello

which displays the title page and completes loading the program. To bypass this all we have to do is make file Hello the boot program. This is accomplished best by using CopyII plus and completes the softkey.

Step-by-step

1. Make a copy using any copy program.

2. Sector edit:

Trk	Sct	Byte	From	To
\$00	\$0E	\$49-4B	4C 00 C6	EA EA EA

3. Change the boot program from "Title" to "Hello".

Let your students have fun with the program.

Advanced Playing Technique for...

Rampage
Activision

When using this game you will notice your life slowly decrements until you die. This is displayed on the screen in a box on the upper left side as lines. If you count the number of lines you will notice that you are dead after 31 lines are erased from the screen. Converting 31 decimal to hexadecimal gives you \$1F. Now if you scan the disk and study the code you will find where this is. I was able to locate this on track 12, sector 05, byte 28. This number can be changed to the maximum of \$FF (255 decimal) giving an increase of life by a ratio of 8 to 1. I attempted to prevent the number from decrementing but could not get it to work properly.

Step-by-step

1. Sector edit:

Trk	Sct	Byte	From	To
\$12	\$05	\$28	1F	FF

If the code on your disk is different then scan for A9 1F 85 F5 A0 and change the 1F to FF.

I have attempted to explain what I have done with these programs in the hope that it may help some readers use a similar method on their other programs.

Softkey for...

Graphics Converter
Pelican Software:

Requirements:

Original disk

Copy II Plus (or similar ProDOS utility that can transfer files)

2 blank disks

This program is used to convert graphics between different formats. It will convert PRINT SHOP graphics to SUPER PRINT. It also converts to SLIDE SHOP, IIGS graphics, and Hires pictures and fonts. This program uses a modified ProDOS as its protection. We will use its ProDOS to read the files and use Copy II Plus to transfer these to a normal disk and then add ProDOS from a normal disk to our copy. Side one is labelled GRAPHIC.CONVERT and side two is labelled EXTRA.ART.

We will start by formatting two disks with ProDOS. These can be named with any name desired and when the copy procedure is complete should be renamed as mentioned above. This is best done using the rename volume feature of COPY II PLUS.

Start by booting the original. At the main menu push escape key. The program will ask if you really want to quit. Select Yes. The program exits to the ProDOS quit routine. At this point it will ask for the prefix. Remove the original disk from the drive and put COPY II PLUS in the drive and type /COPYIPLUS/UTIL.SYSTEM and push return. This will put you in the main utility section of COPY II PLUS. The abnormal ProDOS will still be in the memory.

Now we can catalog the original disk and use COPY II PLUS to transfer all the files to our normal disks. We should also transfer ProDOS from COPY II PLUS to side one of the new disk. At this point the volume should be renamed as discussed above. Now sit back and enjoy an excellent utility. I would also recommend Super Print in place of Print Shop. This program will make all Print

Shop graphics available to Superprint and make that program much more useful.

More APT's

These APTs are listed in my usual format—a string of bytes to scan for then what to change.

Advanced Playing Technique for...

Star Blazer
Broderbund

Scan for B5 B0 38 E9 01 95 B0 and change 38 E9 01 to EA EA EA for unlimited lives.

Advanced Playing Technique for...

Anti Gravity

?

Scan for CE 09 60 and change to EA EA EA for unlimited lives.

Advanced Playing Technique for...

Super Floppy

Super Floppy II

?

Scan for 0B 02 A9 04 8D and change the 04 to number of lives.



Advanced Playing Technique for...

BC's Quest for Tires
Sierra

Scan for D0 FA A9 03 8D E0 and change the 03 to number of tires.

Advanced Playing Technique for...

Berzap

?

Scan for CE 44 03 and change to EA EA EA for unlimited lives.

Bitkey for...

Prince of Persia
Broderbund

Requirements:

Original disk

2 blank disks

Essential Data Duplicator version 4

Boot EDD and enter Preanalyze. Modify parameter 00=B0 and copy both sides of the disk. Alternatively you can modify Preanalyze 00=90 if the first change does not work. I had best results with the former modification. This program is one of the best I have seen in several years. It has excellent and realistic graphics and is enjoyable to play. I have used it on a IIc and cannot judge the music. I suspect it would be outstanding on a IIGS. I would recommend it highly to all your readers.

The protection on this disk is elaborate and consists of the use of 10 sectors per track and is beyond my capability to unprotect. I have seen an unprotected version, but it requires 2 disk drives and uses 3 disks to store the information. Furthermore the cracked version does not run properly and on certain levels the figures on screen leave a shadow as they move around. This game has 13 levels and the saved game is on track 17. The values cannot be edited by using a sector editor since it can only be read by a nibble editor. At any rate the game can be completed without the need for cheats or APTs.

Steve Murray **CA**

Advanced Playing Technique for...

Pirates

Microprose

This APT was compiled using issues #66 and #70, pages 10 and 11 respectively. No new information has been added. However, inconsistencies between articles have forced me to compile an updated listing. The following procedure is the one I find easiest to use:

Step-by-step

1. Boot a Disk Editor (Block Warden on ProSel is easy to use).
2. Remove disk editor and replace with saved game disk. Use file follow command to follow one of the four SAVE.GAMEs.

Or

Game 1 resides at block \$F(15)
Game 2 at block \$13(19)
Game 3 at block \$17(23)
Game 4 at block \$1B(27)

3. Edit appropriate locations Write information to disk



Advanced Playing Technique for...

Burgertime

?

Scan for A6 29 A9 05 95 6A and change the 05 to number of lives.

Advanced Playing Technique for...

Heavy Barrel

Data East

Scan for F7 FE A9 03 8D 13 FF and change the 03 to number of lives.

Advanced Playing Technique for...

Robocop

Data East

Scan for 85 F1 A9 15 85 A0 85 and change the 15 to a bigger number. This is found on side 1, track 7, sector 5, byte 72 and on side 2, track 17, sector 6, byte 72.

If you do not have a disk editor:

1. Boot ProDOS and get into BASIC.
2. Load one of the four SAVE.GAMES.
- BLOAD SAVE.GAME_x** where $x = 1-4$
3. Enter the monitor (CALL -151) to edit appropriate locations.

Note: Your screen should have an “**” prompt instead of “[” if you are in the monitor. To edit memory, type the address (in hexadecimal) followed by a colon (:) followed by the hexadecimal value that you want to put there. (ie. “Mood of Crew” E07:00)

4. Edit all locations desired.

5. Save the SAVE.GAME_x.

BSAVE SAVE.GAME_x, A\$800, L\$700

Hex byte locations & what they do

- 4- Ruling country: 0=Spanish, 1=English, 2=French, 3=Dutch
 - 5- Number of forts (0-15)
 - 6- Number of soldiers (divided by 10)
 - 7- Number of citizens (divided by 100, minus 1)
 - 8- Gold (divided by 1000)
 - 13- 24 Name of town
- Player info: Starts at Byte \$E00
- 2- 3- Personal gold (x10) (*)
 - 4- Reputation: 0=promising, 5=well known, 9=famous, D=notorious, 11=infamous
 - 5- Acres of land (x50)
 - 6- Number of rescued relatives
 - 7- Mood of crew: 0=pleased, 1=unhappy, E=angry
 - D- Spanish rank
 - E- English rank
 - F- French rank
 - 10- Dutch rank
- Rank value - 0=Hostile, 1=Ensign, 2=Captain, 3=Major, 4=Colonel, 5=Admiral, 6=Baron, 7=Count, 8=Marquis, 9=Duke
- 14- Spouse Status - 0=Single, 1=Shrewish & Pesterson, 2=Friendly & Attractive, 3=lovely & cheerful, 4=exciting & beautiful
- 19- Present town (1-36) (minus 1)
- 1D- Pursuit of -0=Vasquez, 1=Delgado, 2=Alvarado, 3=Mendoza
- 23- 24- number of Crew (**)
- 25- number of cannons (+1)
- 27- 28- Expedition Gold (x10) (*)
- 29- Food (+1)
- 2A- Goods (+1)
- 2B- Sugar (+1)
- 2F- number of Ships (7 max) (0-7)
- 34- 3A- Type of Ship - 0=Pinnacle, 1=Sloop, 2=Barque, 3=Cargo Fluyt, 4=Merchantman, 5=Frigate, 6=War Galleon, 7=Galleon (8-Fare the same respectively, except the ship is damaged)
- 50- 58- Your Name

* = Hi Byte x 256 + Lo Byte

** = Hi Byte x Lo byte + 1

FF=255 (you can find this information in any HEXADECIMAL Equivalent Chart)

A Byte is two Bits - Hi Byte comes after LO Byte - 09FF = FF09

Example for * - 09FF = FF(255) x 256 + 09(09) = 65,789

Example for ** - 09FF = FF(255) x 09(09) + 1 = 2,296

Town info

There are 36 towns in each game. The names of towns will vary based on the scenario being played (famous expedition or certain year). The town listing starts at \$900. Each town uses 24 bytes of information.

Location

\$900-917	=	town 1
\$918-92F	=	town 2
... etc.		
\$C48-C5F	=	town 36

I have still not been able to find which bytes determine the month and year or the player age, health, or the starting skills : fencing, navigation, gunnery, wit & charm, medicine.

② I am also having a problem with the total amount of cargo. I add four ships, but still only have the cargo of 255. Can anyone help? As you can see there are a lot of blank spots still open to investigate.

I hope this information will help all those ‘Scurvy Sea Dogs’ out there. I know it’s helped me. Oops! I’ve gotta go as I’m being forced to walk the plank. I’ll try to make it to shore and make my presence known again soon.

James E. Bulman **GA**

Softkey for...

Lee Trevino's Fighting Golf

SNK Corp. of America

Requirements:

Fast Disk Copier (I used Locksmith)
Copy II+ v9
DOS 3.3 System Master

When I first tried to fast copy this program I was surprised to see that it copied with no errors. “Finally!” I thought, “A game that isn’t copy protected.” But upon trying to boot the game I saw that it would simply cycle and cycle. I then rolled up my sleeves and grabbed my newly-purchased “Computist Super Index” by David R. Hopkins (A “must” for all Computist readers!). Unfortunately neither Lee Trevino’s Fighting Golf nor SNK Corporation were in the data base. I had to start from scratch. After trying several ideas, I got lucky and cracked it with ease. No elaborate schemes here, just a modified DOS.

Here is how I discovered the crack. After fast copying side 1 of the USA Course I used Copy II+ to learn that the boot program is a binary file titled “G”. After several more experiments to COPYA the disk I exited COPYA, inserted my copy in drive 1, and simply typed “BRUNG”. It was a shot in the dark but it worked!

Step-by-step

1. Copy both sides of the USA COURSE disk and the JAPAN COURSE disk using a copier that ignores errors. (I used Locksmith Fast Copy) Set your originals aside.
2. Use Copy II+ (version 9) “COPY DOS” function to copy the DOS from your DOS 3.3 System Master onto side one of your copy of the USA COURSE disk. Repeat the same procedure for side one of your copy of the JAPAN COURSE disk.
3. Use Copy II+ “CHANGE BOOT PROGRAM” to change the boot program from HELLO to G on side one of both disks.

That’s it! You now have a complete COPYA-able backup of Lee Trevino’s Fighting Golf. See you on the links!

Kris Kirk **TN**

② This is a plea for help! A friend of mine just got rid of his Apple IIe (OK, ex-friend) and he has given me a lot of nifty, neat, keen things to put in my computer. Trouble is, I don’t know what to do with them once they’re in there. The first item is an old WildCard 2 from Central Point Software. I know it’s used in copying protected software but that’s the extent of my knowledge. I don’t know what slot it should go in, when to push the little red button, or anything about it for that matter. It would be great if someone out there could explain this card’s operation to me, or better yet, supply me with a copy of the documentation. I’ve already called Central Point Software, it’s been so long since they distributed this card, they didn’t know what I was talking about at first.

② I also received a Trak Star by Midwest Microsystems. I have a DuoDisk Drive and have been told that I need a special adapter to use this piece of equipment. Anybody got one you want to sell real cheap. Oh yes, I need the documentation for this one too. I tried to call Midwest Microsystems. I believe they’ve gone out of business. I’ve seen these items advertised in Computist many many times. I hope someone out there can help me.

I’ve also got some things I’d like to sell. They’re very old and they’re for the Apple II+, I think.

The first item up for bid is the Apple Encoder Board. Manufactured by The Keyboard Company and distributed by

Apple this card is used so the keyboard can talk to your Apple II+.

Next, I have the Apple ROM Card. As it was explained to me this card has the capability of having both Integer and Applesoft Basic on it at the same time and with the use of the switch on the card you can flip between the two.

Item number three is 16K Card from Microsoft Consumer Products it gives your 48K Apple II+ a whopping 64K.

Number four is a CP/M card also by Microsoft.

I’ve also got a Scooter II, this plugs into the I/O game port and allows for external plug in of game port accessories.

Speaking of game port accessories, I’ve got a set of Hand Controllers by The Keyboard Company. (I believe the controllers and the CP/M card are the only items that work with the Apple IIe.)

Number seven is the old Videx Softswitch, I believe this is used with the old 80-column cards to help the computer to know when to go to 80-column mode (Thank God for the Apple IIe, seems things are much easier now).

Once again, these things are really old and if you don’t have an Apple II+ your probably just wasting memory space reading this, but if you have an Apple II+ and are interested in any of these items drop me a line at 408 Bancroft Drive, Clarksville, TN, 37042.

This really should be in the back as an unClassified Ad.RDEXed

I like the idea of putting the BBS messages in the magazine, seems like a more convenient way of getting information, and for those who can’t wait to get there next fix (in the form of the magazine I mean) it seems a good way to get information quicker, just make a phone call and quench that hunger. It would be nice once you get the upload and download feature online to have a directory of the uploads with a description of each. This would allow people to get on, get what they need, and get off much faster. Of course, you should ask people to upload something if they are going to download.

Notes on Copy II+

“TRY” it you’ll like it

With older versions of Copy II+ if you used the Auto Copy feature you could enter the word “TRY” and a few preset parameters would pop up on the screen such as “TRY HEADER”, “TRY NIBBLE COUNT”, and “TRY SYNC”. With version 9.0 entering the word “TRY” will not only get those parameters previously mentioned but will also get you parameters preset to copy software written by specific companies.

Let’s say you’re trying to copy the program Wasteland by Electronic Arts using the Copy II+ Auto Copy feature and enter the word “WASTELAND” but you get the dreaded “Parm entry not found” message. Enter the word “TRY” and choose the “TRY ELECTRONIC ARTS” parameter available on this newest version. There are more than just one parameter for some of companies. This is not to say that these preset parameters will work on every piece software written by a certain company. This is just another avenue to take before getting hot and heavy into the Nibble and Sector Editors (Where it really gets fun?)

Parm File madness

Something I’ve recently discovered about Copy II+ is that you can read the parm files with any version of Copy II+, that is to say that version 8.4 can read the parm files of version 7.2 and vice-versa. Did you ever notice that the newer versions of Copy II+ sometimes do not contain the parameters for older programs. This is because the older programs have been deleted so as to make room for the newer program parameters. Since it is possible to read the parm files of a different version all you have to do is keep popping different version into the disk drive until you find the parameter you’re looking for.

If you have a hard disk drive you can forgo all this disk swapping. I have copied all the PARM.DATA and PARM.KEY files from version 7.1 to present to my Copy II+ directory. Before doing this of course, you must give each version its own set of file names. You could name the PARM.DATA and PARM.KEY files for version 7.1; PARM.DATA7.1 and PARM.KEY7.1. To make it easy I just named mine PARM.DATA1 and PARM.KEY1. The parm files in my Copy II+ directory are numbered with each number representing a different set or a different version of Copy II+, the parm files in my directory look something like this:

Directory: /HARD1/COPY/	
Filename	Type
PARM.DATA	
PARM.KEY	
PARM.DATA1	
PARM.KEY1	
PARM.DATA2	
PARM.KEY2	
PARM.DATA3	
PARM.KEY3	
PARM.DATA4	
PARM.KEY4	

Now, keep in mind that Copy II+ can only read the parm files named PARM.DATA and PARM.KEY exactly as shown so, looking at the directory above you see that Copy II+ can only read the top two parm files. If the parameter I’m looking for is not in this set of parm files all I need to do is rename a few files. I’ll explain; let’s say I want to look for a certain parameter in the set of parm files named PARM.DATA3 and PARM.KEY3. I must first go to the utilities menu, from there I choose to rename files. I change the files PARM.DATA3 and PARM.KEY3 to PARM.DATA and PARM.KEY then I change the files originally named PARM.DATA and PARM.KEY to PARM.DATA3 and PARM.KEY3. In effect, what I have done is swapped file names. I then go back to the bit copy menu and check for the parameter again. If I still don’t find it I just repeat the above steps with the remaining sets of parm files until I find my parm or I find that it doesn’t exist.

This seems like a lot to go through but it’s better than hunting for a disk every time you need a different version of Copy II+. Practice a couple of times on this method and that should be all you need to get the hang of this long winded procedure. Sure would be nice if I could just combine all the parm files some way and just have one huge set of parm files. Anybody got a way around typing all the parms in by hand.

Well, I hope this info helps someone, if anyone has a better way let us all know about it through the Computist.

John C. Tucker **IL**

If you have an old reliable parallel printer that you hate to throw away but need a printer that works with the Apple IIgs, I have the solution. After writing to COMPUTIST (Issue #73, Page 12), I read the Programs Plus Advertisement in Nibble and decided to order the Superwriter 924 Printer Interface by Xetex. The Superwriter 924 makes it possible to emulate the Imagewriter Printers using many popular parallel printers. Printers supported are

Blue Chip
C. Itoh 8510 Parallel
C. Itoh 8510 Serial
C. Itoh Prowriter Jr. Plus
Epson MX,Rx,FX,JX and LQ 1500
Fujitsu DL Series
Fujitsu DX Series
IBM Graphics
NEC 8023
Okidata 192 and 292
Panasonic KXP 1080, 1091, 1092
Panasonic KXP 1124, 1524, 1624
Panasonic KXP 1180, 1191, 1192
Prowriter
Star Old
Star NB 24 - 10/15
Star NX-1000, 1000R and XA 1500
Star XB - 2410/2415

I ordered the Superwriter 924 and a Supra 2400 Baud Modem. The items arrived the next day via Federal Express Overnight. The Superwriter was \$69 and the modem was \$119 plus shipping. The people at Programs Plus were very helpful and both products have performed up to expectations.

Rob Fiduccia MD

Advanced Playing Technique for...
Magic Candle Vol 1
Mindcraft

In COMPUTIST #70 (pg 12), The Tuck gave some very helpful APTS. After I did some editing, and enjoyed having power, I went back to my original characters and their status. While I was editing, though, I noticed that The Tuck didn't have an edit for the days, so I set out to find them myself.

I've taken into consideration that only Apple IIgs users have the Control Panel (so far), with the very helpful Visit Monitor option. So below I have edits for the IIgs user while you are playing the game (The Magic Candle does NOT lock the Control Panel out if you don't boot from it, thank goodness!) and a BASIC program for the non-panel person.

Type in the BASIC program and save it (DOS 3.3 only) as "MQCE".

MQCE

```
10 CLEAR : NORMAL : TEXT : HOME :
PRINT CHR$(21)
20 CKB = - 16368:RKB = - 16384:T =
0:S = 0:D = 1:SL = 6:Y = 32768
```



```
30 HTAB 7: VTAB 2: PRINT "THE
MAGIC CANDLE DAY EDITOR"
40 HTAB 13: VTAB 3: PRINT "BY ROB
FIDUCCIA"
50 IF PEEK (768) < > 169 THEN
PRINT CHR$(4); "BLOAD DOS
UTILITY"
60 HTAB 6: VTAB 20: PRINT "INSERT
$SIDE$ AND $PRESS$ SPACE"
70 POKE CKB, 0
80 K = PEEK (RKB): IF K < 127 THEN
80
90 POKE CKB, 0
100 IF K < > 160 THEN 70
110 POKE 34, 3: HOME
120 HTAB 1: VTAB 7: PRINT "WHICH
SAVE POSITION?"
130 HTAB 1: VTAB 9: PRINT "A$00B$0
$C000D"
140 POKE CKB, 0
150 K = PEEK (RKB): IF K < 127 THEN
150
160 POKE CKB, 0
170 IF K = 155 THEN HOME : GOTO 60
180 IF K < 193 OR K > 196 THEN 140
190 IF K = 193 THEN T = 32:S = 10
200 IF K = 194 THEN T = 32:S = 1
210 IF K = 195 THEN T = 33:S = 8
220 IF K = 196 THEN T = 34:S = 15
230 HOME : CODE = 1: GOSUB 440
240 HTAB 1: VTAB 7: PRINT "SAVE
POSITION:$"; CHR$(K)
250 HTAB 1: VTAB 24: PRINT "CTRL-
$TO$SAVE."
260 D1 = PEEK (Y + 62): D2 = PEEK
(Y + 63)
270 HTAB 1: VTAB 9: CALL - 868:
HTAB 1: VTAB 9: PRINT "DAYS:$"
;D1; "$"; D2; "$"
280 HTAB 1: VTAB 11: PRINT
"CHANGE?"
290 POKE CKB, 0
300 K = PEEK (RKB): IF K < 127 THEN
300
310 POKE CKB, 0
320 IF K = 147 THEN CODE = 2:
GOSUB 440: GOTO 290
330 IF K < > 217 AND K < > 206
THEN 290
340 IF K = 206 THEN GOTO 110
350 HTAB 1: VTAB 11: CALL - 868
```

```
360 HTAB 1: VTAB 11: INPUT
"NEW$DAYS:" ; ND$
370 ND = VAL (ND$)
380 IF ND < 0 OR ND > 9999 THEN
350
390 IF ND$ = "" THEN 350
400 IF ND = 0 AND ND$ < > "0" THEN
350
410 N1 = INT (ND / 100): N2 = ND -
INT (ND / 100) * 100
420 POKE Y + 62, N1: POKE Y + 63, N2
430 HTAB 1: VTAB 11: CALL - 868:
GOTO 260
440 REM RWTS
450 POKE 784, T: POKE 789, S: POKE
779, D: POKE 774, SL * 16: POKE
799, Y - INT (Y / 256) * 256:
POKE 804, INT (Y / 256): POKE
794, CODE: CALL 768: RETURN
```

Checksums

10-\$A269	160-\$7D5C	310-\$12CD
20-\$DD4D	170-\$1B05	320-\$C3ED
30-\$4A87	180-\$2DE2	330-\$AC44
40-\$EDB5	190-\$E658	340-\$16CE
50-\$3B2E	200-\$0791	350-\$32B9
60-\$E615	210-\$2820	360-\$F83C
70-\$83A9	220-\$759E	370-\$7A94
80-\$504F	230-\$9C6C	380-\$9960
90-\$BBD3	240-\$2CE6	390-\$00AA
100-\$BA2C	250-\$5F6D	400-\$56FD
110-\$8548	260-\$0411	410-\$031D
120-\$B505	270-\$9421	420-\$8AOF
130-\$DF5E	280-\$F2B9	430-\$40A3
140-\$9F92	290-\$14E7	440-\$7FF2
150-\$8BF0	300-\$1EB3	450-\$42C7

DOS UTILITY

```
CALL -151      to enter the monitor
0300:A9 00 8D EB B7 A9 00 8D $689F
0308:E9 B7 A9 00 8D EA B7 A9 $39BD
0310:00 8D EC B7 A9 00 8D ED $90D4
0318:B7 A9 00 8D F4 B7 A9 00 $DA09
0320:8D F0 B7 A9 00 8D F1 B7 $7009
0328:A9 B7 A0 E8 20 D9 03 90 $2FD0
0330:05 AD F5 B7 85 06 60 $41DF
BSAVE DOS UTILITY, A$300, L$37
```

Advanced Playing Technique for...
Magic Candle vol 1 (gs)

?

Note: If you boot the game from Visit Monitor, you cannot get to the Control Panel while playing the game.

Bytes are in hex (ie. 99 = \$63). Use hex.

Days

\$033A: High byte of days
\$033B: Low byte of days

Don't combine the bytes. Example: to change days to 1234 regardless of what it is currently. Decimal 12 is \$0C in hex, decimal 34 is \$22 in hex so the proper command form the monitor is:

033A:0C 22

Done. You now have 1234 days to save the Magic Candle. Changing the days to 0 will... well, you'll see.

Dragon Wars notes

Recently, I was at my computer shop looking at the diminishing amount of Apple II and Apple IIgs games available (getting worse each day), and saw Dragon Wars. I bought it, naturally, and started to play the moment I returned home.

With all the excitement stirring up inside of me, I ignored the documentations except maybe the loading instructions which said I have to copy all the disks. It also stated that I could get a 3.5 disk format of the game through Interplay for \$5.00. This is when my mind started to think: "If Interplay can put it on a 3.5 disk, so can I".

Next, I pulled out my Copy II+ v9.1 and copied the 6 ProDOS 5.25" disks to a 3.5" disk in about 7 minutes. "Cool", I thought, "this game is going to move now". Well it did, very fast to be honest.

But like most 'serious computer users', I want it to operate as fast as possible. I thought, "My IIgs has 3 megs (hard cash put into that), so why not install it on my RAM disk? Why, that's what I'll do!".

So, likewise, I headed for the Control Panel and gave myself a nice 1000K of RAM space. Then used Copy II+ to transfer all the files from my 3.5" disk to the formatted RAMDISK; which took about 3 minutes. "Man, this game is going to move be-

yond playability! So what! I'll win it faster!" I thought.

Next I went to ProDOS BASIC and started up the games ProDOS with -PRODOS, as we all know. And as I predicted, it operated very, very quick. I was happy, and thought about other IIgs users who might not have thought about this, and here I am telling you. To be direct, this process of using the RAMDISK is useful and fast but if the power goes off, bye-bye game! So, you might take that risk. And to save your character and game info, you must quit the game and use a file copier to copy the 'DATA1' file back to your 3.5" or 5.25" disk so you can go on from there later.

Lastly, I should have some Control Panel APTS soon for Dragon Wars and definitely for Deathlord, so be looking...now let's change the topic.

Ultima V Dungeon Construction Set

OK Ultima V fans, I've got the ultimate news for you, the Ultima V Dungeon Construction Set (DCS) is complete. Yes, all done. It is unreal. The power is great! And it can be in your disk drive for \$8.00 with the large manual I've made. You can send \$1.00 and a 5.25" disk to get a deep description about ALL its uses and capabilities. Hey, if you love Ultima V, you'll love making your friends go through YOUR dungeon! Or maybe COMPUTIST readers can start a DCS club; tell me how you feel about it in your letter.

Here's what your \$8 gets you:

User's Manual (covers everything plus tips and 2 tours)

Level Editor (all dungeons)

Chamber Editor (all chambers)

Contents Editor (edit treasures and monsters)

View Editor (change the power of a gem)

Entrance Editor (Rename dungeons, make new Words of Power, collapse dungeons, destroy dungeons)

Type Editor (Make a Cave, Mine or Dungeon)

Chamber Resurrector (Used to restore chambers after a party was victorious in it)

I do strongly suggest you send the \$1 to get a review of all the programs. (There are no surprises here.) It is finally done, one year I spend doing it. Trust me Computist's, the ultimate power of dungeons is here.

Send request or comments on DCS to:

Ultima V DCS
2809 Broadview Terrace
Annapolis, MD 21401

It will be mailed back First Class. Disk is in fast DOS 3.3 format. Sorry if I sounded like a salesman. Until next time.

Another letter that should be in the unClassifieds. RDEXEd

Susan the Bee

MA

② I have an Apple IIc that is three years old. I am trying to make a backup copy for a game called Lucky's Magic Hat by Advanced Ideas of California. It is the 1984 version.

I have tried copying it with COPYA using POKE 47426,24 (ignoring checksum and epilog errors). I did not get a copy that ran. However, I could view the files with Copy II+. There was no HELLO file. I then copied all the files and a HELLO file to a DOS 3.3 formatted disk. That did not work either. I am pretty good at following softkeys. I tried the one in Computist #68 for this game, but it did not work. I could not even find the bytes that were listed.

③ I also want to make a copy of Animal Kingdom by Unicorn. I have the 1985 version. I tried to copy this one with COPYA ignoring checksum and epilog errors. It did not work. Again I could view the files with Copy II+. This one however had a "JELLO" file which I changed to a "HELLO" file and copied the other files and the changed file to a formatted DOS 3.3 disk. That did not work. I am now stuck.

I did not get the piece to break into the monitor so I cannot do that. But I could sure use some byte change suggestions using the sector editor of copy II+.

I sure hope someone out there can help me.

Prime Minister Australia

Softkey for...

Gertrude's Puzzles
Learning Co.

Requirements:

Gertrude's Puzzles write protected original Blank disk
Copy II+ 5.0
New Advanced COPYA (by the Disk Jockey)
NMI card

To Carl D. Purdy: request for softkey for Gertrude's Puzzles in Issue #71. Well, I did this one back in October 1987, so I thought I'd share it with him.

Possible NMI sources: Integer card, any cracking card, SeniorProm, FingerPrint card, or my favorite: the Apple keys and reset.

For those of you who may not know, ctrl-open apple-reset wipes two bytes on every page of memory (to prevent copying). The machine test ctrl-closed apple-reset sequence clears some at the low end of memory, but if you interrupt it quickly then you minimize the loss. So my favorite NMI is to hit ctrl-closed apple-reset, then hit ctrl-reset twice. This works on any //e, //c or GS. Who needs to pay extra money for any other NMI??

Here's a detailed discussion of how I did it.

Try booting it. Ahh... Up comes the 'J' prompt. A sight for sore eyes. We now know that it is a modified DOS load.

Next I pulled out the Copy II+ 5.0 sector editor (it's quick to load) to check out the formatting. By trying to read track \$00, sector \$00 and a few random ones over the disk, it wasn't hard to establish that the whole disk was in a different format. Ok, so [P]atch DOS and take a look at what Copy II+ tells us it found. Oh look. Address and Data trailers are FFFF. Ok so patch DOS 3.3 to ignore all trailers and exit back to re-read. That's better, we're getting somewhere. Page through the DOS sectors on track 0. Hmmm we can't read sector \$A. Try a few more random sectors. Nope, they all give checksum errors.

Ok. So what do we know from this? Well we know that it's a modified DOS, the trailers have been changed, and also because of the checksum errors, we know that the read translate tables have probably been changed. When the translate tables have been changed then it gets difficult (impossible?) to make an error free copy without changing them. I find that changing the tables gets ridiculously laborious, so I reason that if the original disk can read it, then I should be able to use their routines to read it also. In that case we have to try capturing the DOS.

To capture the DOS, boot the disk until you see the 'J' prompt, lift the lid, wait for the drive to stop, then hit your NMI.

Get to monitor (if you're not there already) (CALL -151) then move the DOS down to where New Advanced Copya wants it (8400<B700.BFFF). Boot New Advanced Copya (6<CTRL>-P). Answer yes to the first question (Are you using a foreign DOS at \$8400?). Copy tracks 3 to 34 (\$3..\$22). Boot Copy II+ and copy the DOS from the Copy II+ disk over to your copy. Make sure the boot program is 'HELLO'. That's it! You now have a fully working unprotected version of Gertrude's Puzzles.

Softkey for...

Centauri Alliance
Broderbund

Requirements:

Centauri Alliance write protected original Fast copier
Sector editor which can scan for a byte sequence

Expecting an 18 sector protection, I tried a fastcopy first. Well, amazingly it seemed to go ok. But it didn't boot. There must be a check in the boot process. I next pulled out

my trusty sector editor and had a look at the boot stages on track \$00 of my copy.

Sector \$00 was normal. Sector \$01 was interesting. Towards the end of the code was the sequence that printed the inverse D's at the top of the screen. I therefore reasoned that the protection must be called before here. There are only two other JSR's to check. I started with the first, JSR \$BC00.

\$BC00 sits on sector \$06 of a normally skewed disk. The code in sector \$06 is the "funny stuff" we are looking for. I scanned through the code.

First it turns on the drive and JSR's to the main routine. If it comes back from this routine, it then turns off the drive and returns to the code in sector \$00.

The main routine sets up the number of errors it thinks is acceptable, reads the disk for a certain sector (physical sector \$07), and then enters the actual scan sequence. This searches for a series of \$E7's and then tries to find a certain 7 bytes. If they are found, carry is cleared and the routine exits. Otherwise the error count is decremented and the bytes are scanned for again. If the error count reaches zero then the it re-reads the sector and goes through the whole process again.

Clearly, all we need to really do is change the first two bytes of sector \$6 to clear the carry and return. So go into edit mode at byte \$00 of sector \$06 and enter 18 60. When you disassemble this, it should read:

CLC
RTS

Make sure you write the sector out to disk.

At this stage I again tried booting it. It managed to load in the initial introduction, but when I hit a key the 'Headquarters' screen came up all jumbled and the disk drive didn't stop spinning. Ahah! More...

I didn't really know where to start looking for the next "funny section". But because Broderbund programs usually let you use any slot you like for disk access, I used the sector editor to scan through the disk for \$8D \$8C \$C0. This sequence is the normal way of loading a byte off the disk using the X register for holding the slot number multiplied by \$10:

LDA \$C08C,X where X holds \$60

I started scanning from track \$01 (the rest of track \$00 has some occurrences, but they are not doing anything weird).

I found a few. One section was a normal DOS 3.3 loader for reading the Address and Data sections of a sector. Another few were for writing out a normal DOS 3.3 sector. Yet another few were for turning on the disk drive for this code. These sections are called to read characters and parties off the roster disk and to write them back again.

Finally on track \$0D, sector \$0D I again found another batch of them. These were incorporated into another disk check the same as the one on track \$00, sector \$06. Only this time the code was displaced from the sector editor buffer address by about \$9 bytes (making it hard to find locations on the disk compared to where they appear in actual memory).

The description for this code is roughly the same for this section as for the last. The only difference being that some zero page locations are saved before the code is executed and then restored afterwards. I just found the location on the disk where the code started (track \$0D, sector \$0D, byte \$27) and again entered "18 60". I made the patch and saved it to disk.

Just to be sure, I continued scanning through the disk for more occurrences. I didn't find any so, with fingers crossed, I again booted the disk. It loaded with no worries. Because the other scenario disks and the roster disk could not be booted and they were COPYA-able, I assumed that they were not protected. The boot disk could use its routines to check them, but we just disabled them, didn't we?!

Step-by-step

Irk	Sct	Byte	From	To
\$00	\$06	\$00	?? ??	18 60
\$0D	\$0D	\$27	?? ??	18 60

Softkey for... **Explore Australia**

Dataflow

Requirements:
Explore Australia write protected 5.25" Basic knowledge of machine language blank disk ProDOS formatted disk containing ProDOS and BASIC.SYSTEM

I was very pleased to be given the chance to deprotect Explore Australia. I was actually surprised that it wasn't a lot harder. I haven't yet managed to get my hands on a 3.5" version to deprotect, so apologies to those with 3.5" versions.

About the protection:

The disk was only protected on track \$00. This track contains two track 'starts'. Bit copiers failed because they took the first track start. In between the two track starts is a section of code that is read directly from the disk. Also, a nibble count is performed on this code. The version of ProDOS on the original disk is a legitimate unpatched version. The fun starts when ProDOS starts to execute STORY.SYSTEM. This file decrypts the protection check onto the text page while displaying a blank hires screen, jumps to the protection check which does the nibble count and loads the code off the disk, before clearing the text page and executing the code that was loaded in.

The code that was loaded from track \$00 is actually the first part of the code from the STORY.SYSTEM file itself. So if this code is not correct then the whole program misses out on its initialization.

Basically to deprotect this program we need to stop the code loader just after it has finished loading the STORY.SYSTEM code, then save the complete STORY.SYSTEM file to disk. Easy.

Boot ProDOS and start up BASIC.SYSTEM. Insert the original Explore Australia disk and type:

BLOAD STORY.SYSTEM, TSYS, A\$2000
CALL -151 *enter monitor*
\$2000 jumps to \$23A1.

\$23A1 clears hires page 2 and displays it. \$23CF-2402 copies text page to \$800 and decrypts loader to text page.

To let us have a look at the loader we have to stop it loading into the text page. To do this type:

23E8:EA EA EA EA *Ignore text page*
23D2:44 *Decrypt to \$4400*
23FF:60 *Set a breakpoint*

Execute STORY.SYSTEM to our breakpoint with:
2000G

That leaves us with the loader decrypted at \$4400. The loader code thinks it is at \$400, so do not run it, and remember to add \$4000 if you want to disassemble a certain address!

OK. STORY.SYSTEM executes this loader with an indirect jump (\$[4]407) to another indirect jump (\$[4]425). The loader code actually starts execution at \$[4]409.

\$[4]409 reads block 6 into \$1000. This has the effect of leaving sector 9 under the head. (If you tried to copy the disk with a normal copier, track \$00, sector \$09 gave you an error.)

\$[4]430 searches for sector AF AE and does the nibble count. If the nibble count fails, then the AUXMOVE call at \$2218 is toggled so that memory is moved from the AUX card to main memory (instead of from main to AUX), thereby trashing the program. If the count is successful then the call is set the correct way.

Next sector AF AF is searched for, and the loader is called. If this fails then it is reread until it is successful.

\$[4]47E Does the nibble count.

\$[4]4BD Loads the 4 & 4 code off the disk into \$2000

Bit copies mess up the nibble count because of the two track starts, but they do copy the 4&4 code. Therefore, the STORY.SYSTEM file is able to continue on and read in the title page and display it, before executing the modified AUXMOVE call and crashing.

Normal copiers didn't copy the extra code correctly, therefore they sat there spinning away merrily.

Anyway, back to the code. The loader section exits with another indirect jump to \$2405.

\$2405 restores the text screen from \$800 and finally jumps to \$2000 to execute the code we just loaded in.

Step-by-step

Now that we know all this. Explore Australia essentially becomes a one byte deprotection.

1. Load STORY.SYSTEM and get into the monitor.

BLOAD STORY.SYSTEM,TSYS,A\$2000
CALL -151 *enter monitor*
2421:60

2. This sets a breakpoint after the whole protection check and code loading has finished. Execute this code.
2000G

3. When the drive stops, type:
C054 *Display page 1*
C051 *Display text page*
BSAVE STORY.SYSTEM

You should now be able to see the code again. You should now be left with a perfect STORY.SYSTEM sitting at \$2000.

Note: If for some reason you wanted to deprotect a BIT COPY of Explore Australia, you need to keep in mind that the nibble count will fail. In this case, the deprotection takes two bytes. One for the breakpoint (that you already did) and the other to set \$2218 correctly afterwards. So type "2218:38". (Only do this on a BIT COPY, the original has this set correctly already.)

4. Save the final file out to your ProDOS formatted disk.

BSAVE STORY.SYSTEM, TSYS, A\$2000, L\$3A1

So there it is. All you need to do now is copy the latest version of ProDOS and the rest of the files from Explore Australia onto your disk. An added bonus with this deprotection is that now you can load Explore Australia onto a 3.5" or hard disk.

Softkey for...

Rosie the Counting Rabbit

Collamore

This is a very easy one. Just a changed header and modified ProDOS. So we use a modified COPYA to ignore checks to the header. Again, New Advanced COPYA will do the trick, as will DOS Buster or good old COPYA with error checking turned off. When the copy is finished, delete the version of ProDOS on the disk (v1.2), and replace it with a newer one that does not try to do a disk check (and thereby bomb out the program).

Comments on 18 sector programs

Airheart, Wings Of Fury, Beyond Zork: These programs use 18 sectors on every track of a disk. Therefore, the person who deprotects it has to find places to put the extra data. When you start doing this, the ease of deprotection decreases rapidly.

Broderbund products in general: Broderbund doesn't mind putting on very nasty protection schemes.

Legacy of the Ancients: Well, this one is very tricky.

People who do these programs are not likely to give out details on how they did it for a few reasons: a) you probably would not be able to understand. b) there is an ego argument here, but because Computist is aimed at legal backups, I had better not elaborate! c) it would take virtually ages (and probably more pages than one issue of Computist) to write it out.

That is my point of view, and those reasons certainly hold true for me. I deprotected Last Ninja (18 sectors) last year. That effort involved rewriting the WHOLE operating system. Pretty involved stuff. There is no way that I could present how I deprotected that program without a hell of a lot of work, a ream of graph paper, \$1000 bytes of source code (at least) and three weeks to write it.

What is the point of all this? Hmm I wish I knew. I suppose I just wanted to point out that some programs on the Most Wanted List will never appear in Computist and certainly very few of them can be done with Super IOB.

Now somebody is sure to come out with a very involved deprotection, and explain it well. Good luck to you. Great to see it. I would join you, but time, time, time...

Don Westcott CO

The following softkeys & APT's were obtained from various sources.

—from Jay Krell on GENIE—

Softkey for...

Prince of Persia 3.5"

Broderbund

1. Copy the Prince of Persia disk.

2. Perform these edits:

Blk	Byte	From	To
\$7	\$16	90	80
\$A	\$8C	18	38

—from Doug Davies—

Softkey for...

Tunnels of Armagedon GS

California Dreams

1. Copy the Tunnels of Armagedon disk.
2. Change byte \$6696 in the file TEXE from F0 to 80.

This will allow you to click any button in response to the question. If you'd rather use a sector editor, search for A0 03 00 B7 F6 29 FF 00 C5 D2 F0 05 and change F0 to 80.

Patch for Life & Death GS (Software Toolworks)

This patch allows you to dial any number on the telephone when you receive a page, rather than having to look up the number.

Change bytes \$833D-833E in file / L.AND.D.DISK.1/L.AND.D/HOSPITAL from D0 24 to EA EA. This will get rid of the BNE (branch if not equal) which does the test of the phone number.

If you'd rather edit the disk:

Blk	Byte	From	To
\$1F2	\$13D	D0 24 AF	EA EA AF

—from America Online—

Softkey for...

Task Force GS

Britannica

1. Copy the Task Force disk.
2. Load STARTUP.SYSTEM from the copy, alter the code and save it.

BLOAD STARTUP.SYSTEM, A\$2000, TSYS
2262:A9 18 8F 2E D4 02 EA
2268:18

BSAVE STARTUP.SYSTEM, A\$2000, L\$2BAD, TSYS

—from Frank Polosky—

Advanced Playing Technique for... Bandits

Sirius

Requirements:

a cracked copy of Bandits

This edit changes the number of lives:

Irk	Sct	Byte	From	To
\$0F	\$0D	\$43	05	xx

Where xx is a hex number from 00 to FF. Or scan for A9 05 8D DF 8F and change the 05 to the number of lives wanted.

Advanced Playing Technique for... Viper Patrol

Keypunch

1. Copy Viper Patrol. (I used Copy II Plus' Copy Disk.)

2. Perform these sector edits:

Extended lives

| Irk |<th
| --- |

Or scan for 60 A9 19 85 F0 A4 and change the 19 to 29 (maximum).

Unlimited lives

Trk	Sct	Byte	From	To
\$10	\$03	\$85	C6 F0	EA EA
		\$8B	C6 F0	EA EA
		\$0A	\$52	C6 F0

Advanced Playing Technique for...

Rod's Revenge

Keypunch

The Viper Patrol disk also contains the game Rod's Revenge.

Extended lives

Trk	Sct	Byte	From	To
\$15	\$02	\$A4	02	90

Softkey for...

50 Mission Crush
Cytron Masters
Epidemic
Ringside Seat
S.E.U.I.S.
SSI

Use Mike McConnell's 'RDOS 3.3' softkey method (Computist #30, Pg 21 and Peter Iber's correction in issue #42, pg 5) to copy these S.S.I. RDOS games.

I used my Senior Prom to get into the monitor after booting these disks to determine which RWTS to use. They all returned:

BC76 - D4
BC8B - B7

Other SSI notes

My only other RDOS game, Galactic Gladiators, wouldn't yield a working copy. It returned:

BC76 - 48
BC8B - B7

② Super IOB copied it smoothly until it got to tracks \$21 and \$22. The drive clattered twice on each sector read of these two tracks. Scanning the copy, I couldn't find the byte sequence 49 EE D0 nor 49 AA D0 for the secondary protection.

Could Mike McConnell or anyone else tell me how I might alter this method or even use a completely different method to copy Galactic Gladiators? It's the only S.S.I. game I have that has resisted all attempts to back it up.

② I also tried M.M. McFadden's method for converting RDOS game disks to ProDOS (Computist #52, Page 24; correction #53, P.37) without success. Thomas Raphael (#65, P.27) reported trouble with this method also.

Trying this method with either originals or RDOS 3.3 copies gave the same result. I run the Transfer program. It instructs me to insert the RDOS disk and hit return. I do. The disk drive clatters and the screen displays:

"SYSTEMBOOT"
TYPE T, 1 BLOCKS, START = 26
45

Disk drive 2, into which I'd put an empty ProDOS disk, is accessed briefly and then the program crashes into the monitor. Could M.M. McFadden or anyone else shed any light onto this problem?

② I recently bought Datasoft's 'Alternate Reality: The City'. I softkeyed it using Stephen Lau's method in Computist #38, page 19 and corrections from Leigh Rowan-Kelly in Computist #47, page 32. The resulting copy worked just fine. Then I tried Michael A. Horton's 'Alternate Reality Character Editor' from Computist #55, page 11. I discovered it would only work on Character Disks made from the original but not ones made by the softkeyed version. Character Disks made by the original won't work with the softkeyed version either.

Would Mr. Horton (or possibly another clever Computist) be able to alter the Alternate Reality Character Editor program so it would work on Character Disks made by the softkeyed 'Alternate Reality'?

② A few months ago I downloaded an incredible game from America Online called

'Star Wizard' which features astounding 3D graphics. If anyone out there has figured out some APT's for this game please share them with us Computists.

Blain Johnson **WY**

Softkey for...

Electronic Arts Software

Electronic Arts

Softkey for...

Deathlord
Strike Fleet

Electronic Arts

Requirements:

Apple II with 64K

Sector editor

DOS 3.3 disk

Note: If you don't have a captured Electronic Arts (EA) RWTS you will need an Apple II with 128K and a copy of Computist #62.

At long last, the softkey you have been waiting for. A solution to the almost impenetrable protection scheme that Electronic Arts introduced over three years ago. My softkey in Computist #62 was apparently a success to defeat this scheme. But, I soon discovered that my softkey didn't work... for Deathlord or any other Electronic Arts games. I labored for weeks to make the softkey work, but after a handful of failures, I gave up. I didn't own Deathlord, so I had no pressing need to deprotect it. Then Alan Zak contacted me inquiring whether I could try to deprotect his Strike Fleet. I did think about not helping, but then I realized that there were quite a few owners of Deathlord, Strike Fleet, and other EA games that had no backup. It was then that I decided to make a wholehearted effort to break the protection. I answered Mr. Zak's letter and soon thereafter he supplied me with Strike Fleet.

The main problem for applying my Deathlord softkey is that Strike Fleet doesn't have a normal RWTS at \$B800-\$BFFF with which to read normal DOS sectors. I knew that not all games would have a RWTS, so I tried to find similarities between Deathlord and Strike Fleet. The one and only similarity is their RWTS. I figured that all I had to do was to adapt the RWTS to read normal sectors and the program would work. It sounds easy in theory, doesn't it? Well, after meticulously dissecting the RWTS, I made routines similar to DOS 3.3's and inserted them in the proper places. Although the EA logo appeared during bootup, soon thereafter the drive made a grinding noise and rebooted.

By tracing the boot process with Locksmith's Boot Trace, I discovered another RWTS almost identical to the first in a different location. Accounting for the address differences, I duplicated the patches made to the first RWTS and the program booted. I then tried to apply the same principle to Deathlord. Fortunately, these two programs have such similar protections, that they both worked. But then, once again, there was more protection. With Deathlord, it turns out that if I try to sail from Kodan island, an INSERT BOOT DISK message appears, and then the disk goes berserk. Thanks go out to Mr. Edward Kelso for alerting me to this problem. I would have submitted another incomplete article had it not been for him. It turns out that Deathlord, has two more RWTSes on the first Scenario disk. But not only are there two, they are in descending order, not ascending, like the main RWTS. I knew that modifying these RWTSes by hand would be tedious, so I automated the process.

I figured that other EA programs would have the same protection and could be deprotected in the same fashion as Deathlord and Strike Fleet, so I made programs that would install the modifications to any RWTS anywhere on the disk. I will later discuss the application of these programs to other EA games.

The first order of business is to determine whether or not your EA program can be

deprotected with my programs. Here is a list of EA programs that are on the very probable list: Chuck Yeager's AFT, Wasteland, and Legacy of the Ancients. Other EA programs on the Most Wanted List are: Halls of Montezuma, Questron II, and Tomahawk. The most probable list was compiled from different readers who suggested a similarity in protection. If you have an EA program which cannot be backed up so far, try out my softkey. If you have success, by all means, write to Computist about it and let everyone know you did it. Here is a quick way to check if your program might be unprotectable.

1. If your program displays a blue EA logo on a white background immediately upon booting, the program is most likely unprotectable.

2. If you have Locksmith or Copy2+, use its hi-res track scan. This should give you a graphic display of the information on the boot disk. If track \$00 contains only 11 sections of white (most look like dots), and the rest have 16, then the program is probably unprotectable.

3. If its disk access seems relatively fast compared to other DOS 3.3-based games, it's probably unprotectable.

4. Use the method in Computist #62 (p. 11), steps 1-5, to capture the program's RWTS. Save it with the filename ECA.RWTS. If it works with my programs, you know that the program is unprotectable.

Now, onto the deprotection of Strike Fleet and Deathlord, specifically. If you think your program is unprotectable, follow along. The new programs copy the disk (boot and scenario) without modifying any code and also modify the protected RWTS. All of this automation should make deprotection a breeze for most EA games. Enter the following two (2) BASIC and three (3) binary programs and save them to disk.

ECA.BAS

```
10 PRINT CHR$ (4); "BLOAD\ECAB.RWTS", A$1300"
20 PRINT CHR$ (4); "BLOAD\ECAB.COPY", A$1200"
30 PRINT CHR$ (4); "BLOAD\ECAB.BOOT", A$1900"
40 HOME : LOMEM: 36865
50 POKE 4889,112
60 PRINT "ARE YOU USING 10 OR 20 DRIVES?"
70 GET D$:D = VAL (D$)
80 IF D < 1 OR D > 2 THEN 70
90 HOME
100 PRINT "CONVERT (B) OOT OR (S) CE NARIO DISK?"
110 GET I$: IF I$ < > "B" AND I$ < > "S" THEN 110
120 HOME : VTAB 10: HTAB 10: PRINT "FORMAT\BLANK\DISK?"
130 GET F$: IF F$ = "N" AND D = 1 THEN 200
140 IF F$ = "N" AND D = 2 THEN 170
150 HOME
160 IF D = 1 THEN 500
170 MS = "INSERT\PROGRAM\DISK\IN0 DRIVE\01": GOSUB 450
180 MS = "INSERT\BLANK\DISK\IN0 DRIVE\02": GOSUB 450
190 IF FS = "Y" THEN GOSUB 520
200 T = 34
210 IF D = 1 THEN GOSUB 390
220 POKE 4609,2: POKE 4613,26: CALL 4608
230 CALL 4641
240 POKE 4609,19: POKE 4613,2: CALL 4608
250 POKE 4891,T: CALL 4877
260 POKE 4609,26: POKE 4613,2: CALL 4608
270 CALL 4652
280 IF I$ = "S" THEN 300
290 IF T = 6 THEN GOSUB 410
300 IF D = 1 THEN GOSUB 400
310 POKE 47092,2: POKE 47082,D
320 POKE 47084,T: POKE 47085,15
330 POKE 47083,0: POKE 47091,0
340 POKE 47089,143: POKE 47073,112
350 CALL 46995
360 T = T - 7: IF T = 6 THEN POKE 4889,96
370 IF T > 0 THEN 210
380 PRINT : PRINT "COPY\FINISHED."
: END
390 MS = "INSERT\PROGRAM\DISK" :
GOTO 450
```

```
400 MS = "INSERT\TARGET\DISK" :
GOTO 450
410 CALL 4663
420 CALL 4716
430 CALL 4704
440 RETURN
450 POKE 241,1: POKE 243,0
460 VTAB 10: HTAB 1: PRINT SPC(40)
470 VTAB 10: HTAB (20 - (LEN(M$)/2)): PRINT M$
480 VTAB 14: HTAB 11: PRINT "AND\PRESS\ANY\KEY";
490 GET A$: PRINT : RETURN
500 MS = "INSERT\BLANK\DISK" :
GOSUB 450
510 GOSUB 520: GOTO 200
520 POKE 47082,D: POKE 47083,0
530 POKE 47092,4: CALL 4898:
RETURN
SAVE ECA.BAS
```

Checksums

10-\$936D	190-\$0088	370-\$051C
20-\$3EC7	200-\$1D51	380-\$45C4
30-\$A9CA	210-\$0FC9	390-\$706D
40-\$E6F5	220-\$0E48	400-\$072A
50-\$0807	230-\$4DC8	410-\$2ADD
60-\$6D48	240-\$5DE0	420-\$6046
70-\$D129	250-\$67F7	430-\$0B6F
80-\$4879	260-\$DCC9	440-\$D88C
90-\$2248	270-\$BFB9	450-\$7D0A
100-\$EC0D	280-\$DAE1	460-\$A971
110-\$F416	290-\$F53D	470-\$0779
120-\$6957	300-\$827F	480-\$1674
130-\$4B53	310-\$FFA9	490-\$7D21
140-\$7004	320-\$97F6	500-\$98E0
150-\$5B94	330-\$633B	510-\$2BAB
160-\$9319	340-\$181D	520-\$DF4A
170-\$57C7	350-\$FD24	530-\$886C
180-\$5EA0	360-\$667E	

ECA.COPY

```
1200:A9 1A 85 FD A9 02 85 FF $0E9B
1208:A9 00 85 FC 85 FE A8 AA $B266
1210:B1 FC 91 FE C8 D0 F9 E6 $225D
1218:FD E6 FF E8 E0 06 D0 F0 $89D7
1220:60 A2 E0 B5 00 9D 00 19 $94E4
1228:E8 D0 F8 60 A2 E0 BD 00 $9D41
1230:19 95 00 E8 D0 F8 60 AE $0E97
1238:F8 1D BD E9 C0 A9 12 8D $87BC
1240:78 04 A9 00 20 A0 B9 A9 $AA1E
1248:20 85 2D A9 00 85 2C A8 $D13B
1250:A9 11 91 2C C8 D0 FB E6 $5BFB
1258:2D A5 2D C9 30 D0 F1 60 $4706
1260:A0 88 B9 FF 18 99 FF 1F $15DA
1268:88 D0 F7 60 A0 01 98 48 $69DF
1270:18 69 20 8D D0 12 84 2C $8BDO
1278:AE F8 1D BD 89 C0 BD 8E $8F54
1280:CO BD 8C C0 10 FB 49 D5 $CECC
1288:DO F7 BD 8C C0 10 FB C9 $25C5
1290:AA D0 F3 BD 8C C0 10 FB $FF89
1298:C9 FD D0 EA BC 8C C0 10 $1EF3
12A0:FB B9 00 16 C5 2C D0 DE $D01F
12A8:BD 8C C0 10 FB C9 D5 D0 $FA16
12B0:F7 BD 8C C0 10 FB C9 9C $49DB
12B8:D0 F3 A0 00 84 2E BD 8C $0AA0
12C0:CO 10 FB 38 2A 85 2D BD $C858
12C8:8C C0 10 FB 25 2D 99 00 $90B9
12D0:21 45 2E 85 2E C8 D0 E6 $92DB
12D8:BD 8C C0 10 FB 38 2A 85 $09DD
12E0:2D BD 8C C0 10 FB 25 2D $28D4
12E8:45 2E D0 17 BD 8C C0 10 $AF4E
12F0:FB C9 C9 D0 0E 68 A8 C8 $727C
12F8:CO 08 F0 03 4C 6E 12 BD $8B82
1300:88 C0 60 68 20 DD FB 20 $A9B9
1308:DD FB 4C 6C 12 AE F8 1D $58C0
1310:BD 8A C0 A9 8F 20 5C 04 $8A7B
1318:A9 70 A0 06 A2 0F 20 5F $BFE3
1320:04 60 20 E3 03 4C D9 03 $9A45
BSAVE ECA.COPY, A$1200, L$128
```

ECA.BOOT

```
1900:01 A9 60 8D 01 08 A6 2B $245A
1908:8A 4A 4A 4A 4A 09 C0 8D $C77C
1910:4B 08 A9 6A 45 00 45 01 $1575
1918:A8 2C 82 C0 20 2F FB 20 $0673
1920:58 FC A0 40 84 E6 20 F2 $CA6B
1928:F3 2C 50 C0 2C 52 C0 2C $8167
1930:55 C0 2C 57 C0 A0 06 98 $F9EF
1938:4B B9 68 08 85 3D B9 78 $A1A9
1940:08 85 27 A9 00 85 26 85 $570A
1948:41 20 5C 00 68 A8 88 D0 $8933
1950:E6 B9 00 09 99 00 03 C8 $ED23
1958:DO F7 8A 18 69 38 AA 4C $08E9
1960:03 04 00 00 00 00 00 00 $D94A
1968:00 0D 0B 09 07 05 01 00 $D2D9
1970:00 00 00 00 00 00 00 00 $F209
1978:00 09 04 05 06 07 02 00 $57CE
1980:00 00 00 00 00 00 00 00 $E72E
BSAVE ECA.BOOT,
```

```

DOS, A$2000"
20 VS = "0123456789ABCDEF"
30 HOME
40 PRINT "DEFAULTS? (Y/N) ?";
50 GET IS
60 IF IS = "Y" THEN T = 0:S = 1:AD
= 3:OS = "A": PRINT IS: GOTO
230
70 IF IS < > "N" THEN 50
80 HOME
90 INPUT
"TRACK$START$OF$ECA$RWTS:$"; TS
100 IF TS = "" THEN TS = "0"
110 INPUT
"SECTOR$START$OF$ECA$RWTS:$"
;SS
120 IF SS = "" THEN SS = "1"
130 PRINT : PRINT "FOR$ADDRESS$"
ONLY$ENTER$PAGE$NUMBER": PRINT
"IF$LOAD$IS$AT$300$THEN$ENTER
$3.": PRINT
140 INPUT "LOAD$ADDRESS$OF$ECA$"
RWTS:$"; AS
150 IF AS = "" THEN AS = "3"
160 PRINT : PRINT "IS$RWTS$IN$ASC
ENDING$OR$DESCENDING": PRINT
"ORDER$? (A/D)": ;
170 GET OS: IF OS < > "A" AND OS <
> "D" THEN 170
180 PRINT OS
190 IF AS = "" THEN AS = "3"
200 HS = TS: GOSUB 680:T = A
210 HS = SS: GOSUB 680:S = A
220 HS = AS: GOSUB 680:AD = A
230 IF OS = "D" THEN 260
240 IF T = 0 AND S = 1 AND AD = 3
THEN GN = 1
250 S = S + 4: IF S > 15 THEN S =
S - 16:T = T + 1
260 IF T < 0 OR T > 34 THEN PRINT
CHR$(7) "PAST$DISK$LIMITS.":
END
270 IF AD + 4 > 191 THEN PRINT
CHR$(7) "PAST$MEMORY$LIMITS.":
END
280 PRINT: PRINT "INSERT$UNPROTEC
TED$DISK$WITH$RWTS": PRINT:
PRINT "AND$PRESS$ANY$KEY"
290 GET IS
300 HOME : PRINT "READING$RWTS...""
310 POKE 47083,0
320 POKE 47084,T: POKE 47085,S
330 POKE 47088,0: POKE 47089,71
340 POKE 47091,0: POKE 47092,1
350 POKE 47073,5: CALL 46995
360 IF OS = "D" THEN RS = "EDITS"
: GOSUB 760
370 PRINT: PRINT "EDITING$RWTS...""
380 IF GN < > 1 THEN POKE
17392,96: GOTO 410
390 FOR I = 17418 TO 17432
400 POKE I,234: NEXT I
410 FOR I = 0 TO 127
420 X = PEEK (I + 8192): POKE (I +
17647),X
430 NEXT I
440 FOR I = 0 TO 105
450 X = PEEK (I + 8320): POKE (I +
18048),X
460 NEXT I
470 FOR I = 0 TO 124
480 X = PEEK (I + 8426): POKE (I +
18240),X
490 NEXT I
500 POKE 17565,76: POKE 17566,64:
POKE 17567,(AD + 4)
510 POKE 17639,53: POKE 17642,85:
POKE 17645,96
520 POKE 17694,(AD + 2): POKE
17700,(AD + 3)
530 POKE 17712,(AD + 2): POKE
17728,(AD + 2)
540 POKE 17752,(AD + 3): POKE
17756,(AD + 3)
550 POKE 18338,(AD + 4): POKE
18344,(AD + 4)
560 IF OS = "D" THEN RS =
"WRITING": GOSUB 760
570 PRINT: PRINT "WRITING$RWTS...""
580 POKE 47083,0
590 POKE 47084,T: POKE 47085,S
600 POKE 47088,0: POKE 47089,71
610 POKE 47091,0: POKE 47092,2
620 POKE 47073,5: CALL 46995
630 PRINT : PRINT "OPERATION$COMP
LETE."
640 END
650 IF T = 0 AND S = 1 AND AD = 3
THEN GN = 1
660 S = S + 4: IF S > 15 THEN S =
S - 16:T = T + 1
670 RETURN
680 HS = RIGHTS ("0" + HS,2)
690 CS = LEFTS (HS,1)
700 FOR X = 0 TO 15
710 IF CS < > MID$(VS,X + 1,1)

```

```

THEN NEXT X
720 A = 16 * X:CS = RIGHTS (HS,1)
730 FOR X = 0 TO 15
740 IF CS < > MID$(VS,X + 1,1)
THEN NEXT X
750 A = A + X: RETURN
760 PRINT : PRINT "INVERTING$RWTS
$FOR$? R$"
770 PRINT : Y = PEEK (37) - 1
780 FOR I = 0 TO 255
790 POKE 37,Y: PRINT INT (I / 255
* 100) "%COMPLETE"
800 Z = PEEK (17152 + I):X = PEEK
(18176 + I)
810 POKE 17152 + I,X: POKE 18176 +
I,Z
820 Z = PEEK (17408 + I):X = PEEK
(17920 + I)
830 POKE 17408 + I,X: POKE 17920 +
I,Z
840 NEXT I
850 PRINT : RETURN
SAVE ECA.INSTALL

```

Checksums

10-\$8C97	300-\$85F5	590-\$AA1E
20-\$9F9A	310-\$E7E2	600-\$66A2
30-\$E5AF	320-\$29A5	610-\$47E7
40-\$B543	330-\$B1A2	620-\$2BA3
50-\$CD3C	340-\$2319	630-\$7E00
60-\$4629	350-\$2EDF	640-\$7584
70-\$93FC	360-\$1280	650-\$50EE
80-\$43E4	370-\$B2D5	660-\$663E
90-\$D69D	380-\$EC4E	670-\$3AAB
100-\$D9FB	390-\$00FF	680-\$7F52
110-\$AFBD	400-\$E474	690-\$B88D
120-\$2DB3	410-\$8AAF	700-\$9FFD
130-\$9277	420-\$B3E7	710-\$70DE
140-\$2D1C	430-\$05FF	720-\$A1D2
150-\$7D7C	440-\$CB7	730-\$E477
160-\$4B03	450-\$5F14	740-\$E6EC
170-\$7CF3	460-\$E428	750-\$9FE5
180-\$F6B2	470-\$6FBE	760-\$B001
190-\$D3EF	480-\$5E05	770-\$2449
200-\$1BC7	490-\$16ED	780-\$6724
210-\$CEFF	500-\$0B4D	790-\$S8E7
220-\$944F	510-\$2A7A	800-\$C6EA
230-\$3841	520-\$D99E	810-\$A999
240-\$C0BA	530-\$469B	820-\$0404
250-\$27D5	540-\$E51A	830-\$FE31
260-\$871E	550-\$9D31	840-\$9B84
270-\$31F2	560-\$4EB3	850-\$DDBC
280-\$407A	570-\$72FC	
290-\$D228	580-\$B0B6	

ECA.NEWDOS

2000:A0 20 88 30 73 BD 54 C0 \$961D
2008:10 FB 49 D5 D0 F4 BD 54 \$80B0
2010:C0 10 FB C9 AA D0 F3 A0 \$5C08
2018:56 BD 54 C0 10 FB C9 AD \$42B4
2020:D0 E8 A9 00 A0 56 84 26 \$186D
2028:BC 54 C0 10 FB 59 EA 05 \$C604
2030:A4 26 88 99 EA 06 D0 EE \$921B
2038:84 26 BC 54 C0 10 FB 59 \$8829
2040:EA 05 A4 26 99 00 00 C8 \$7473
2048:D0 EE BC 54 C0 10 FB 59 \$84E5
2050:EA 05 D0 24 BD 54 C0 10 \$92E0
2058:FB C9 DE D0 1B A0 00 A2 \$426D
2060:56 CA 30 FB B9 00 00 5E \$D4A3
2068:EA 06 2A 5E EA 06 2A 99 \$7B08
2070:00 00 C8 D0 EC 38 B0 01 \$E864
2078:18 AE FE 02 BD 50 C0 60 \$4745
2080:00 01 98 99 02 03 9C 04 \$CDCA
2088:05 06 A0 A1 A2 A3 A4 A5 \$2D19
2090:07 08 A8 A9 AA 09 0A 0B \$0909
2098:0C 0D B0 B1 0E 0F 10 11 \$FCA4
20A0:12 13 B8 14 15 16 17 18 \$134C
20A8:19 1A C0 C1 C2 C3 C4 C5 \$4DA1
20B0:C6 C7 C8 C9 CA 1B CC 1C \$4865
20B8:1D 1E D0 D1 D2 1F D4 D5 \$3C4C
20C0:20 21 D8 22 23 24 25 26 \$B042
20C8:27 28 E0 E1 E2 E3 E4 29 \$EDF0
20D0:2A 2B E8 2C 2D 2E 2F 30 \$9658
20D8:31 32 F0 F1 33 34 35 36 \$8031
20E0:37 38 F8 39 3A 3B 3C 3D \$F511
20E8:3E 3F A0 FC 84 F4 C8 D0 \$69A8
20F0:04 E6 F4 F0 59 BD 54 C0 \$D2F2
20F8:10 FB C9 D5 D0 F0 EA BD \$38C6
2100:54 C0 10 FB C9 AA D0 F2 \$5B8A
2108:A0 03 BD 54 C0 10 FB C9 \$40A5
2110:96 D0 E7 A9 00 85 27 BD \$9233
2118:54 C0 10 FB 2A 85 F4 BD \$54A8
2120:54 C0 10 FB 25 F4 99 2C \$2981
2128:00 45 27 88 10 E7 A8 D0 \$008B
2130:1D BD 54 C0 10 FB C9 DE \$982F
2138:D0 14 EA BD 54 C0 10 FB \$8D6C
2140:C9 AA D0 OA A5 2E 85 F5 \$4C88
2148:A4 2D 4C A6 07 60 18 60 \$C4BA
2150:B9 AD 07 85 F6 38 60 00 \$F9E9A
2158:07 0E 06 0D 05 0C 04 0B \$54C6
2160:03 0A 02 09 01 08 0F \$02BC

If you have used my Deathlord programs, you will see a lot of similarities plus some

enhancements. They are as goes:

- (1) The deprotection is not for only Deathlord
- (2) You are prompted for disk formatting
- (3) The copy's code is unmodified
- (4) More than one RWTS can be modified
- (5) No odd string of characters printed on the screen
- (6) A 100% accurate reading of 4&4 sectors on track \$00
- (7) No trashing of Applesoft after program runs
- (8) Both ascending and descending RWTSes can be fixed
- (9) BASIC programs can be rerun without loading binary files

To make a preliminary backup of your boot and scenario disk, run ECA.BAS. (If you have already run the BASIC program, just type RUN 40 to bypass loading of the binary files) It will load the files it needs. The ECA.RWTS file loaded by ECA.BAS can be any captured Electronic Arts RWTS from Deathlord, Strike Fleet, etc. Just rename it to ECA.RWTS. If you don't have a captured RWTS, use the procedure outlined in Computist #62(pg 11) steps 1-5. Just save the RWTS as ECA.RWTS instead of DEATHLORD.RWTS.

After using the programs to make a preliminary backup, run the ECA.INSTALL program. It loads ECA.NEWDOS which contains the new RWTS routines. ECA.INSTALL then loads, edits, and re-saves the programs RWTS. For all EA programs, answer 'Y' to the 'defaults' prompt. This uses the values of track \$00, sector \$01, address \$03, ascending.

Strikefleet

Because Strike Fleet has another RWTS the ECA.INSTALL program must be used again. Since the second RWTS is in a different location, the defaults cannot be used. If you just used the program, type run 20. (this bypasses loading the binary file) For the second RWTS in Strike Fleet, use the values track \$1F, sector \$03, address \$60, ascending.

Deathlord

After using the ECA.INSTALL program on Deathlord, the boot disk is deprotected, but the scenarios are not. Reuse the ECA.INSTALL program twice on Master Scenario A. Use these values. track \$1F, sector \$5, address \$8, descending and track \$22, sector \$F, address \$8, descending.

Now, the only problem is that Deathlord makes slightly protected scenario copies just like the original. Unfortunately, changing the RWTS to make normal disks causes the game not to work. I have tried to track down the problem, but due to very confusing code, I just can't do it. I think you can survive with slightly protected scenario copies. To edit the scenarios (your character) just use these values:

Address prolog: D5 AA D6

Address epilog: DE B7

Data prolog: D5 AE AD

Data epilog: EA AA

Other EA Programs

If your program does not boot after modification of the first RWTS, or it grinds a few times and then reboots, you probably will have to find a second RWTS. Since I have found second RWTSes on both of the programs I deprotected, the probability of finding another RWTS is high. Here is the procedure for finding it. Search the disk(s) for the sequence: 01 30 28 24 20 1E 1D 1C. The sequence should be at byte \$00. If it is at byte \$11 and the beginning of the sector is: A2 11 CA D0 FD, then you have found part of a normal RWTS. Ignore this and search for another occurrence of the first string. Strikefleet has a few "stray" RWTSes. These are used for saving and loading missions and campaigns. They do not start at byte \$00, so ignore them.

To verify that a string found is truly a second EA RWTS, two sectors forward should start with: 10 FB C9 AA D0 F3. For example, in Strike Fleet, the first string is

found at track \$1F, sector \$03. Track \$1F, sector \$05 does contain 10 FB C9 AA D0 F3, so it is a second RWTS. To find out the loading address of this RWTS, go back to the first track, sector found. (\$1F, \$03 for Strike Fleet) At byte \$2C of that sector is the value \$60. That is the load address.

This procedure can be used to find any EA RWTS located on any disk. If the first string is found, but two sectors ahead doesn't contain the second string, you might try two sectors back from the first sector. Some RWTS are saved on the disk in descending sectors instead of ascending sectors (just like the two RWTS on Deathlord's scenario disk). Now that you've found the second RWTS, you can run ECA.INSTALL and input the information you've found. The program will automatically patch the RWTS. These programs are "supposed" to work for ANY EA program. I tried to make them as flexible as possible, while still reducing the effort on your part. They, therefore, might not work completely. If you have successfully completed the copying of the original disk(s) but cannot make any further progress, write me a letter via Computist and describe what you have tried. I will be glad to help.

Charles R. Haight WA

SuperCharge your 8-bit Apple II

Oops! Ran outta space on this issue but I wanted to put in a teaser, so here goes.

I've been thinking about all those 8-bit Apple IIs and their owners. I suppose a lot of them are in closets (the AppleII, not the owners). We've been left behind in the forward rush of technology. The 8-bit Apple II needs so many things to bring it up to speed. But trying to stuff everything into the AII will cost a bundle and if you had a bundle, you already bought a IIgs or a MAC.

My question is "What can you do to an 8-bit Apple II that will give you the greatest performance increase at the least cost?" I think I have an answer!

I've come up with a hardware project for all of the 8-bit AII's (and II compatibles) with slots. It will give your Apple a brain transplant. This project will be a board (or boards) that will replace supplement the Apple processor with a 65C816 processor (the same chip used in the IIgs). The board uses a 4Mhz clock. It will come with 1Mbyte of memory and is expandable to 4Mbytes using 1M SIMMs or to 16Mbytes using 4M SIMMS. With the price of 1M SIMMs at around \$35 each, I figure that the kit will cost between \$250-300.

The idea is to convert all of the older Apple IIs to a single standard platform. This will make it easier for programmers to write software for the Apple II. No more dinking around with bank switched memory or trying to stuff 200K of code into 64K of memory. Everyone will have the same processor, running at 4Mhz with at least 1Mbyte of memory. That means we're running faster than a IIe with an 8Mhz Zip Chip. If programmers can't do something with that, then they're not really trying.

The circuitry has been modeled on an electronic CAD and everything works on paper. We only need to decide on what options we want and finalize the design. Then we can contract for someone to make the bare boards.

The big question is whether enough of you want to build this card. If you are interested, write and let me know. I need at least 25 to 30 people before I can proceed with this project.

I don't have the room here to go into details. I'll give you everything in the next issue. In the meantime, think about it

My apologies to IIgs owners but you already have a 65C816. It's the rest of us, driving around in our Model-T Apple IIs, that need some help.

P.S. For the speed demons: one of the options is to put the DRAM memory on a separate board. This increases the cost but allows a later upgrade to a processor cache. This would allow an 8Mhz clock. Bye!

Jeff Johnson

IBM Softkey for...

Interlude II

?

To unprotect Interlude II, first make a copy of the disk using DISKCOPY. Put the master disk away in some safe place. Next, put the copied disk in drive A:. Put the file INTERZAP.COM on drive B: or C: (or wherever you can access it). Type:

A>b:interzap(Or type c:interzap, or whatever)

This is a little program I wrote that modifies 2 bytes on track 5, sector 9, side 0 on the Interlude II disk. A program listing follows:

```

2377:0100 50 PUSH AX push some registers
2377:0101 53 PUSH BX
2377:0102 51 PUSH CX
2377:0103 1E PUSH DS
2377:0104 B400 MOV AH,00
2377:0106 CD13 INT 13 reset drive
2377:0108 BA0000 MOV DX,0000 set up for drive a:, side 0
2377:010B B90905 MOV CX,0509 track 05, sector 09
2377:010E B80102 MOV AX,0201 command to read 1 sector
2377:0111 BB0003 MOV BX,0300 tell pgm where to put sector
2377:0114 CD13 INT 13 execute the read from disk
2377:0116 72EC JB 0104 if something mungs up, reset the disk & try again
2377:0118 B91A00 MOV CX,001A we need to fiddle with the 2 bytes at offset 1A & 1B in sector 09
2377:011B B88B8A MOV AX,8A8B change [1A] to 8A, [1B] to 8B this nops out an encrypted error check
2377:011E 88671A MOV [BX+1A],A H change byte at 1A in memory
2377:0121 88471B MOV [BX+1B],A L change byte at 1B in memory
2377:0124 B400 MOV AH,00
2377:0126 CD13 INT 13 reset the drive
2377:0128 BA0000 MOV DX,0000 set up to save changes to disk
2377:012B B90905 MOV CX,0509 track 05, sector 09
2377:012E B80103 MOV AX,0301 command to write 1 sector
2377:0131 CD13 INT 13 execute write command
2377:0133 72EF JB 0124 if a boo-boo, reset drive and try again
2377:0135 1F POP DS restore all the registers
2377:0136 59 POP CX
2377:0137 5B POP BX
2377:0138 58 POP AX
2377:0139 CD20 INT 20 end of pgm, return to DOS

```

The Interlude II program boots, loads an encrypted form of the software from disk, decrypts it, and eventually verifies a weirdly formatted track 9 on the master disk. This patch tells it to ignore the results of that error check. For those adventurous souls out there, you can use U-ZAP from the ULTRA utilities (great set of software tools, by the way) to directly change the bytes at track 5, sector 9, side 0 (the disk is 2 sided by the way - so tell U-ZAP this when the error occurs), offset 1A and 1B hex from 68 1E to 8A 8B. This has the effect of changing a JB xxxx to a NOP NOP once decrypted. I tried using DOS debug & Norton's Utilities to find & modify this sector, but the folks who brought us Interlude II screwed with the FAT tables on the floppy to confuse those programs. U-ZAP seems relatively immune to their meddling.

• By the way, I'm not sure if there is more than 1 version of this program, so INTERZAP.COM might not work on all of them. The only way to find out is to try.

Vendegar

CA

A Reader review for the IBM version of...

Knights of Legend

?

Like most of us, I experience those moments of stress so aptly described by the signs posted in many offices. My method of relieving this stress is to go into a computer dungeon and take out my frustrations on a hundred or so assorted nasties. (This method is far more socially acceptable than thumping on associates, family or neighbors.) I prefer the close up, face-to-face, look them in the eye while you get blood all over you, relaxed, take your time to enter the commands method of combat, rather than the

frantic, but sanitary, blow them away from three miles arcade action of things like the fighter simulations. Thus the choice of this program.

Knights of Legend is an adventure game that takes place in the Heroic Knights era. The player has a choice of thirty five different character classes from four different races. They are Human, Elven, Dwarven, and Kelden (a Winged race). Female classes are available only in Human and Elven races.

A character is created by selecting a Name, Race, Sex, and Class. Re-roll opportunity is available simply by pressing "R" if you don't like the stats. My personal recommendation is three strong front liners, and three bowmen in the rear.

The Stats play an important part in this game since they determine damage done to opponents, carrying capacity, endurance, etc. One Stat called "Balance" (the average of Strength and Intelligence) represents character courage, which SUPPOSEDLY allows you to fight certain powerful creatures, otherwise your character will "freeze in terror", and the monsters will merrily beat on them. After much re-rolling of characters to get the best possible stats for each class, and with a MINIMUM of 76 and a MAXIMUM of 82, the party still got stomped because they were all frozen in terror practically every round.

Characters start in their underwear, with one basic weapon and, depending on class, 200 to 3000 gold. This sounds like a lot, but as you will see later on, this is not enough to keep your character useful very long. You will soon be too weak from wounds (since you cannot afford food or healing) to do any of the necessary fighting. A semi-legitimate "CHEAT" (short of actually making changes to the character itself) is to create "throw-away" characters so that you can use their gold to purchase items for the "real" characters, then delete these extra characters.

The Character Icon, a full body representation of your character, is then selected from a large assortment of figures. If you so desire, you can enter an edit mode and perform a dot-by-dot change to the Icon to suit your taste.

Play MUST start and end at an Inn, and characters are called up and saved ONE AT A TIME. There is no "in progress" or Batch mode load or save game available. Since this game can go on for weeks, this is a real problem. This is especially true since rooms are expensive at the good inns in each town (around 60 gold PER CHARACTER). Each town also has a free flop-house for poor adventurers, but some items are almost always missing when you leave.

When your party is created and called up, you leave the Inn. Your first order of business (since all of your troops are in their underwear) is to find the local armory for some equipment. Take three of your "real" troops, and three of the "throw-aways".

Search this (and all other towns you will later encounter) for Weapons Shops, Armories, Training Grounds, Mages, Shops, Points of Interest, and the ABBEY. The Abbey is the only place where your characters can be healed (for a price) unless you are fortunate enough to encounter wandering healers in the wilderness. (Healing costs considerable gold at the Abbeys, but also removes hunger). Food is important in this game because hunger reduces your efficiency in combat. You can carry food in your backpack, however food, as with other items, is not cheap (15 - 50 gold in your first town). Some places in some towns have prejudices against certain races and will not sell them anything.

When you finally find the Armory you can select from a large assortment of armor ranging from Cloth to Plate, and three sizes of Shields. (Any of your characters using Two-handed weapons will be unable to use a Shield). You will quickly learn why you need the extra characters you created - everything is EXPENSIVE!! Be warned NOT to buy the heaviest armor you can afford because Encumbrance (the weight you are carrying) causes fatigue, and your character

will fall unconscious from fatigue during combat unless you are very careful or very lucky.

You cannot exchange gold between characters, but you can have your extra characters buy items, then trade them to your "real" characters. Your characters can then either use these items or sell them back at the purchase price, then buy the desired equipment

Go to the local flop-house and drop off your now stripped extra characters and bring in the next three "extra" characters and return to the armory. repeat the buy and trade procedure until the "extra" troops are out of gold, then return to the flop-house and remove the "throw-away" troops, and bring in your last three regular characters. return to the Armory and finish outfitting the party. My personal preference is Ring Mail for the characters with a Shield, and scale Mail for those with Two-handed weapons in the front line, and leather for those in the rear. Your characters should now have full equipment and about 2000 gold.

If all of your characters are defeated in combat, they are not killed, only knocked unconscious (Very strange monsters in this world). This will immediately solve your encumbrance problem since the monsters take all weapons, equipment and gold. Your troops are back in their underwear, without weapons, and in the middle of the hostile wilderness.

After your characters have accumulated sufficient experience, they may exchange experience (and gold) at the local training ground, IF the training ground can train you in the desired weapon. Training costs about 200 gold (prices vary between towns), and each trainer specializes in only five weapons. Finding the place to train in the preferred weapon can be a problem. After a while, the trainer will refuse to train you, but will send you to the Arena.

Characters start as the lowest form of peasant, so low in fact, that they must work their way up to Serf. It is a VERY long, hard road to Knight. Advancement to the next status is available only by successfully winning in the arena.

The arena is several days from anywhere, so the character is generally somewhat beat-up by the time he gets there (use the food from the back pack to remove hunger). Combat is one-on-one until one of the combatants drop. No trainer will train you again until you win. If you lose, the monster strips you of all armor, weapons, and gold. My experience is limited to six defeats, and one win. In two of the encounters, my troop was "Frozen in Terror" and the monster pounded him into the ground (Reboot time!). In the other four, the monsters simply ran around until my troop dropped from exhaustion. Every time he stopped to rest the monster would perforate him with arrows. (Reboot time Again!!) Let me state here that "he" and "him" are used simply because none of my female characters (and I DO have some) were sent to the Arena. They couldn't find anyone to train them in their weapons.

Combat is cumbersome, if realistic. Each character must enter all of their actions individually, movement, direction, attack, etc.:

MOVEMENT specifies direction and amount. Be warned that long, fast moves add to fatigue.

MISSILE WEAPONS specify target (cannot be adjacent). Remember that you only have 20 arrows per bow per combat. YOU CAN AND WILL RUN OUT.

ATTACK (MUST be adjacent). Specify target, type of attack (hack, thrust, slash) - Where (high, midsection, legs) - Defense (Panic, stand, backup, duck, dodge, jump)

A single combat can take an hour (real time) and the reward is usually something like 20 experience, and 5 gold.

Frequent use of the save feature is a must to get anywhere in this game, but the time spent getting to town, putting the troops to bed, and then recalling them again makes it hardly worth while. As I mentioned at the start of this review, I like a relaxed, take your time to enter the commands, combat system. This program gives the player lots of this, so

much in fact that there is very little time for anything else. This is definitely NOT a program to use to get rid of frustrations. My impression of this game is that a person has to be something of a masochist in order to enjoy it.

This review of Knights Of Legend was done on the Itty Bitty Machine version of the game, since I could not find the Apple version at the time. The IBM version supports VGA graphics and is very well done from the video standpoint. Unfortunately, I think some of the effort used in making a video showpiece could have been used more efficiently in making the game more playable and less ponderous. I suspect that the Apple version has the same problem. I give the game 3 stars for graphics and 1 star for play.

IBM Playing Tip for...

Ultima VI

Origin

Here are a few tips for Ultima VI that may help:

Characters may be brought in from previous Ultimas. This is not really necessary, fresh rolled characters work fine if STR, DEX, and INT are reasonably decent. Try for at least 21 INT, 20 DEX, and at least 16 STR.

Do NOT get all eight characters to start with, you will find another character you need to join you towards the end of the game. There is also a bug in the program (admitted by the company) that sometimes bombs the program if you have more than 7 persons in a skiff.

DO NOT kill the mouse in the Castle, You will need it's help later. (Another reason not to get Eight troops right away - the MOUSE will join your party for a short time!)

Learn to use your stone. It is a fast way around the various places you need to go. The most important place to put it is directly to the north of you. Try all the other locations in two circles (Squares) around you. Save the game before you do this so that you can always "Restore" the game until you figure out all the locations.

Free the Shrine of Spirituality first, (You will need the Rune stone from Skara Brae, and the Mantra) and take all characters there for advancement. You get 1 point to STR, DEX, and INT (each) when you advance a level. The other shrines give varying amounts as per Ultima V. You can take ALL level advancement at this shrine, it is not necessary to use the others.

Stealing is a strange thing in this game, in some places you can rip things off with impunity, while in other places you get tagged for stealing. If there is any doubt about doing something, "Move" it rather than pick it up and drop it. You can Gravetrap without penalty in the Catacombs, but if you pick up a flowerpot to get the Rune stone underneath it you are stealing. You can also clean out the hermits home north of the Shrine of Honesty without penalty.

Go thru the sewers of the castle to the caves below for initial equipment and gold. There is an endless supply of Cyclops in the one room. Just kill them and their cohorts, and take the loot, go back north to the ladder and return. You may have to do this a couple of times until the combat resets. Watch your characters Stats. When they get low, use your stone to return to the King's Chamber for healing. Keep going back until the characters are loaded with all they can carry, then use the stone to get to Britian, find the weapons shop, and sell everything you can.

You will find that not everything is worth picking up after the first few loads. Clubs and wooden shields are not saleable items. Some items weigh more than they are worth in gold. Some items bring more gold in one place than another. Shop around. Some items can only be sold in one inconvenient location. Do not take anything from the battleground that you do not want, you will have to drop it later. This game has a few bugs (admitted by the company) that will bomb the game if excess items are added to the landscape. These items dropped later do not

disappear as they would if they were left on the battlefield. A safe (but expensive) way to prevent the game from hanging is to "Vanish" any unnecessary item wherever you find it. Be careful not to Vanish the wrong things.

If you Gate to Skara Brae, then walk out of town across the ford, and walk north to the road east toward Britian, you will often encounter a battle in progress. You can walk into it and kill of the combatants and pick up good loot. If there is no battle when you reach the road, backtrack to the ford and do it over again until you do find a battle. Be warned, the Mongbats are pretty tough for low level troops.

Sell the plate armor and shields, and equip the fighters with scale (you can upgrade to chain from the encounters on the road), and two handed weapons (preferably Swords). You probably won't have to buy anything if you change as you find it. This cuts their encumbrance, and allows them to carry more loot. Equip Shamino with a Bow as soon as possible, and Keep Iolo equipped with the crossbow.

You will need Reagents and spells. You can get to Cove without going thru the Shrine of Compassion before you clean it out. You must have a skiff (You can borrow one in New Magincia) and go north past the turn-off to the shrine, to the bridge, walk south along the river as far as you can, use the skiff to cross over, and walk into Cove.

Reagents are available from the roving Gypsies, at Skara Brae, at Moonglow, at Cove, and from Nickodemus. (Found near the rivers to the East of Yew). Spells and Spell Books are found at all of these except the Gypsies. Shop around for the best prices. Regardless of what the book says, there are only TWO 8th level spells available. (another Bug!)

When your Avatar reaches 5th level, and you have the spells Dispel Field, Vanish, and Pickpocket, go to the level below the Cyclops den in the Palace sewers, and find Phoenix. Don't fight her. If you play it right, you will end up with Magic Armor, Magic Helm, Magic Shield, 3 Glass Swords, and a Thieves Guild belt. Search the area around her house, there are lots of goodies there.

After you have Visited and ripped off Phoenix, you are almost ready to start cleaning out the Shrines. You need the Spells Great Heal, Disable, and Explosion. By this time you should have accumulated enough Gold to buy Magic Armor for all of the party. Get the Rune Stones and the Mantras at the towns, and Gate into the Shrines using your stone. The safe (Chicken) way to clear a shrine is to "Use" the Rune stone, "Get" the Moon stone, "Use" your Gate stone, and get out. The more fun way is "Use" the Rune Stone, "Get" the Moon Stone, then go fight the Gargoyles.

When you start to explore the dungeons, first be sure that you have picked up your other fighters. The characters who can join are shown in table 1.

My preferences are the first 4. Beh Lem is a Gargoyle, who will join you on the other side of the world.

A good place to run up experience points for your troops is the Ant Mounds, near the Shrine of Sacrifice. Take your troops to the altar on level 4, and go into solo mode. Just move around the area killing off ants until you have the desired Experience, then change to the next troop. When everyone has the experience you want, go the Shrine of Spirituality and keep meditating until everyone has topped out on levels, then go to Lord British for Healing.

Table 1.

Seggallion	Serpent's Hold	Lvl 5 Ftr	28/21/19
Sentri	Serpent's Hold	Lvl 3 Ftr	26/18/16
Gorn	Under Blackthorne's	Lvl 4 Ftr	26/21/14
Beh Lem	Hythloth Entrance	Lvl 2 Ftr	23/24/26
Leona	Pirates Den	Lvl 3 Ftr	15/15/18
Julia	Minoc	Lvl 2 Ftr	21/18/17
Jaana	Yew	Lvl 4 Ftr	16/21/18
Katrina	New Magincia	Lvl 5 Ftr	19/16/16
Blaine	With Gypsies	Lvl 2 Ftr	16/21/18
Capt. Ledon	Pirates Den	Lvl 3 Bard	15/19/15
Gwenno	Minoc	Lvl 2 Bard	18/21/17

There is a small castle where the Shadowlords keep was in Ultima V. It is the home of friendly Cyclops who you need to visit in order to get the Vortex Cube. Look at the walls carefully for secret doors.

It will be necessary to find the NINE parts of the pirate's treasure map in order to find the Pirate's Cave. Once you are a member of the Thieves Guild you can get some information at the Pirate's Den.

The Dungeons you will want to clear out are the Catacombs under Blackthorne' Castle, where you find Gorn. The Swamp Cave. (Negate Magic is a useful spell against Reapers, use it BEFORE they cast Insect Plague.) Level 2 has some Goodies, Level 4 has the Jackpot. Level 2 of the Thieves Cave has good Items. The Pirates Cave level 4 has all the pirate loot. Level 4 of the Dragon Caves has the Dragon Hoard. The Dragons are Difficult, but not impossible. It helps to have Shamino and Iolo equipped with a spell book and reagents. The dungeons You DON'T want to bother with are Hythloth (You can get to the other side much easier) and the one north of Dagger Isle. The others have varying amounts of gold and loot.

After you have cleaned out the Dungeons, you are ready for the other half of the game. You need to get your Balloon constructed. (You did find the balloon plans in the dungeon where you found Gorn, didn't you?) Use your Stone to go to the Gargoyle side. The first thing you must do is to "acquire" the broken Vortex Lens. You will need to visit the four Gargoyle shrines, find the entrance to Hythloth, and meet Beh Lem and Capt. John. Then all you have left is to get the broken lens fixed, get the second lens and take all the necessary items to the Codex and follow instructions.

With the information you have now you probably don't need to edit your characters. Properly played, you can complete the game without serious harm to any characters.

I played this on the Itty Bitty Machine version because I couldn't find the Apple version, so I can't guarantee that the Apple version has all of the Bugs, however Origin indicated that it does.

Mike Canada

Many programs coming out these days are not copy protected in the usual way, in that it is possible to make copies easily, but it asks for a word from a certain page of the manual before letting you continue. Even if you can find your manual, it's a nuisance to say the least. So most "cracks" today are the removal of this check. It is often very simple, and I'll use a new game, "Mean Street" to illustrate. By the way, this is an excellent game, with true VGA graphics, and digitized sound, emanating from your speaker. It is like an adult version of "Where in the World is Carmen Sandiego". In order to remove the question about the manual, you need to "borrow" a manual, at least for a couple of minutes! When you are asked for a word, write down the word, do this several times, until you have 2 - 3 words written down. Then use PC Tools to search all the files, starting with the main program, in this case MS.EXE. Sure enough, PC Tools finds a list with all the key words in it. At this point you want to use PC Tools editing function to change these words to something you'll remember, or, better still, use the Hex editor to change them all to 00's. Make sure you start with the first letter of the first word, and change them all up to, and including, the last letter. How did I decide on 00's? Well, if you compare the ASCII with the Hex, you'll see that the "delimiter" between the words is

a 00. In the case of other programs it could be something else. In that case, just use what is between each word, and blank out everything. Now, when it asks for a word, simply hit "ENTER" and away you go! If you try this and find it works for you, please post the name of the program for the rest of us. Oh, and with Mean Street, you'll STILL need the manual for clues etc., but it is available on disk from several excellent BBS's <grin>. I can hot-key into PC Tools from the game, and read the manual when I need to.

By the way, here's a list of the words, in the right order, from Mean Street.

mean going realsound is the before layer fog streets an fly data here have of visit down that find gun all you extra and keep log

Now, get cracking!

UNK

IBM Softkey for...

Lotus 123 release 3

?

The Lotus Release 3 install disk is copy protected until you enter your name and your company name in a registration screen. There is NO WAY to update this registration information even if you have the original disks. This patch will allow you to create a working copy of the install disk that does not contain this information.

Make the patches on the installed copy on your hard disk.

1. First, zap the registration info contained in the file "INSTEEXT.RI":

C:\123R3 >debug Instext.rl

F 8c39 8c99 00

D 8c39 8c99

28B9:8C30	00 00 00 00 00 00 00 00
28B9:8C40	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00
28B9:8C50	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00
28B9:8C60	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00
28B9:8C70	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00
28B9:8C80	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00
28B9:8C90	00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00

W Writing 8B99 bytes

Q

2. Now the names are out of the title screen but the program won't run!

To make "123.EXE" runnable again:

C:\123R3 >rename 123.exe 123.xxx

C:\123R3 >debug 123.xxx

U 6580

28B9:6580 55 PUSH BP

28B9:6581 8BEC MOV BP,SP

28B9:6583 B87600 MOV AX,0076

28B9:6586 9A3C0B0000 CALL 0000:0B3C

28B9:6588 56 PUSH SI

28B9:658C 8E062409 MOV ES,[0924]

28B9:6590 26 ES:

28B9:6591 833E541000 CMP WORD PTR [1054],+00

28B9:6596 7458 JZ 6F0

28B9:6598 8E062609 MOV ES,[0926]

28B9:659C 26 ES:

28B9:659D 833E201200CMP WORD PTR [1220],+00

A 6580

28B9:6580 JMP 88a4

28B9:6583 U 73ea

28B9:73EA 55 PUSH BP

28B9:73EB 8BEC MOV BP,SP

28B9:73ED 33C0 XOR AX,AX

28B9:73EF 9A2A170000 CALL 0000:172A

28B9:73F4 8E065E09 MOV ES,[095E]

28B9:73F8 26 ES:

28B9:73F9 C706FE030100 MOV WORD PTR [03FE],0001

28B9:73FF 8E066009 MOV ES,[0960]

28B9:7403 26 ES:

28B9:7404 C706120E0019 MOV WORD PTR [0E12],1900

A 73ea

28B9:73EA JMP 7424

28B9:73EC W

Writing D615 bytes

Q

C:\123R3 >rename 123.xxx 123.exe

3. You also have to fix "INSTALL.EXE"

C:\123R3 >rename install.exe install.xxx

C:\123R3 >debug install.xxx

U cb40

28B9:CB40 55 PUSH BP

28B9:CB41 8BEC MOV BP,SP

28B9:CB43 33C0 XOR AX,AX

28B9:CB45 9AFFFF0000 CALL 0000:FFFF

28B9:CB4A 8E06C13 MOV ES,[13EC]

28B9:CB4E 26 ES:

28B9:CB4F 833E8E0A00 CMP WORD PTR

[0ABE],+00

28B9:CB54 7410 JZ CB66

28B9:CB56 C45E06 LES BX,[BP+06]

28B9:CB59 26 ES:

28B9:CB5A C747023200 MOV WORD PTR [BX+02],0032

28B9:CB5F 2BC0 SUB AX,AX

A cb40

28B9:CB40 jmp cb00

28B9:CB42 W

Writing ICC17 bytes

Q

C:\123R3 >rename install.exe install.exe

It's a good idea to try running 123 and INSTALL from your hard disk at this point. They should work the same as before except 123 will display the opening screen without your name in it.

To make a working install floppy:

unClassifieds

How to place an UnClassified Ad

Send a typed sample copy with appropriate instructions. (If possible, send text on a 5.25" Apple format disk.) Use up to 40 characters per line, we will adjust word wrap.

Special Graphics Instructions: The first three words of the first line are printed in bold for free. If you want other words bolded, use 5 characters less per line. Use 10 characters less per line if you have a lot of uppercase bold letters. Bold letters are wider than normal. If the typed copy does not show bold, circle the words you want bolded and, on the side, write BOLD. If you want a line centered, write CENTER next to that line. There is no charge for centering any line.

You must check your ad for errors, the first time it runs. Errors on our part will be corrected, then, for free. Errors or changes on your part will be charged a \$5 processing fee.

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Computist club member	25¢
All others	35¢

The minimum order is \$5.

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Pgh, PA 15223

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Epson APL board (no docs)	\$12
SpeedDemon Accellerator card (3.5Mhz)	\$60
Apple IIe 80 column card (only)	\$10
Apple IIe 80 column card (*.64K)	\$20
Dumpling-GX printer card (no docs)	\$12
Apparate PROM blasting System	\$25
Apple II+ motherboard (works OK)	\$60
Grappler clone printer card	\$20

I also have a few Apple One items, send SASE for more info.

Joe Torzewski
51625 Chestnut Road
Granger IN 46530

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Mike	22	Hard Hat Mack	?
The CPR Agent	8	High Orbit	Softsmith
Vincent Andrews	7	Horizon V	Softsmith
Susan the Bee	17	Hunt for Red October GS	Datasoft
Blackbird	11	Impossible Mission	Epyx
James E. Bulman	16	Indoor Sports	Mindscape
J. C.	12	Infocomics	Infocom
Dr. Debug!	22	Jane	?
Rob Fiduccia	17	Joker Poker	Mindscape
Ross A. Holmes	12	Kabul Spy	Sirius
Jeff Hurlburt	4	Keyboarding Klass	Mastery Developement
Bob Igo	14	King's Bounty	New World Computing/Broderbund
Bill Jetzer	13	Kingdom of Facts	Santa Barbara/Thunder Mountain
Blain Johnson	19	Kobayashi Alternative (The)	Simon & Schuster
Jeff Johnson	21	Lane Mastodon	Infocom
Paul A. Johnson	10	Lancaster	SVS
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B.M.E. Upp ("Scotty")	5,11	Mystery of Hotel Victoria	Tom Snyder Productions
Vendegar	21	National Inspirer	Tom Snyder Productions
Jim Wallace	12	Neptune	Softsmith
Don Westcott	18	Observatory (The)	Mindscape/Lightspeed Software
		Ocean Life	Focus Media
		Odin	Odessta
		Operation Wolf	Taito
		Pensate	Datasoft/Softdisk
		Phantasie II	SSI
		Phantoms 5	Sirius
		Pig Pen	Datamost
		Plants & Animals of the Desert	Focus Media
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		Project: Space Station	Avantage
		Promethean Prophecy (The)	Simon & Schuster
		Pulsar II	Sirius
		Pure Stat Basketball	?
		Quadratic Equations II	Olympus Educational Software
		Questron II	Electronic Arts
		Rails West	SSI
		Rear Guard	Adventure International
		Renegade	Taito
		Rescue Raiders	Sir Tech
		Rings of Saturn	Level 10
		Rocket Ranger (IIgs)	Cinemaware
		Roundabout	Datamost
		Russki Duck	Softsmith
		S.D.I. (IIgs)	Cinemaware
		Sea Stalker	Broderbund
		Serpentine	Broderbund
		Seven Cities of Gold	Electronic Arts
		Skeletal System	Brainbank
		Sky Shark	Taito
		Sound Song & Vision	Advanced Software
		Space Ark	Datamost
		Spare Change	Broderbund
		Spectre	Datamost
		Speedy Spides	Readers Digest
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		Star Maze	Sir Tech
		Star Rank Boxing II	Gamestar
		StickyBear Math: Add & Subtract	Optimum Resources
		Stickybear GS Versions 3.5	Xerox
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		Superstar Indoor Sports	Mindscape
		Surveys Unlimited	Mindscape
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		Tangled Tales	Origin Systems
		Tetris (Ile)	Spectrum Holobyte
		Theatre Europe	PBI
		The Other Side v2.0	Tom Snyder Productions
		Thunder Chopper	?
		Ticket to Washington D.C.	Blue Lion Software
		Time Explorers	Gameco
		Time Liner v1.1	Tom Snyder Productions
		Tomahawk	Electronic Arts
		Tomahawk (IIgs)	Datasoft
		Track Attack	Broderbund
		Triad	Thunder Mountain
		Triango (IIgs)	California Dreams
		Trinity	Infocom
		Unicorn 5.25" software	Unicorn
		Vincent's Museum	Tom Snyder Productions
		Volcanoes v1.8	Earthware Comp. Services
		War in the Middle Earth	Melbourne
		Wasteland	Electronic Arts
		Wayout	Sirius
		Wings of Fury	Broderbund
		Wizardry:Return of Werda	Sir-Tech
		Word Attack Plus (IIgs)	Davidson
		Works (the)	First Star Software
		Zenith	Softsmith
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1	□	23	○	□	47	□	□	71	□
2	○	24	□	□	48	□	□	72	□
Core2	□	□	25	□	□	49	□	□	73	□
3	○	26	□	□	50	□	□	74	□
4	○	27	□	□	51	□	□	75	□
5	○	□	28	☆..	□	□	52	□	□		
6	○	□	29	□	□	53	□	□		
Core3	□	□	30	□	□	54	□	□			
7	○	□	31	□	□	55	□	□		
8	○	□	32	□	□	56	□	□		
9	○	□	33	□	□	57	□	□		
10	○	□	34	□	□	58	□	□		
11	○	□	35	□	□	59	□	□		
12	○	□	36	□	□	60	□	□		
13	○	□	37	□	□	61	□	□		
14	○	□	38	□	□	62	□	□		
15	○	□	39	□	□	63	□	□		
16	☆..	□	□	40	□	□	64	□	□		
17	○	□	41	□	□	65	□	□		
18	○	□	42	□	□	66*	...○	□	□		
19	☆..	□	□	43	□	□	67	□	□		
20	□	□	44	□	□	68	□	□		
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Some disks apply to more than one issue and are shown as taller boxes.

- ☆ Limited supply — first-come-first-serve basis.
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