81 COMPUTIST

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CONTENTS

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

Apple //e, //c: Install a modified CD ROM on the computer's motherboard 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:

`10HOME:REMCLEAR 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:

3D0G

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:

a. You are writing about a bug or other printing error.

b. You are writing to ask for help.

c. You are answering another readers help request.

d. 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 relevent 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 authors name (as it appears in RDEX) and *the correct postage* on the envelope. Put this envelope into another and send it to RDEX. We will put the correct address on your letter and mail it for you. Check to the right of the authors 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.

Editorial Notes:

I just got back from vacation. Guess you noticed? I wasn't planning to take any time off this summer but something special came up and I couldn't pass on it. So anyway, we're back on track.

Inside this issue you'll find some notes on the NEW System 6.0 for the IIgs that are purported to be more than just rumors.

Also, I worked up a memory map for the IIe as the centerspread for this issue. Take a look and see what you think. Let me know if you find any errors or if you think something should be added. I haven't received any suggestions about what you would like to see on future centerfolds. So think about it and write me sometime.

Complaints $1.50

I received a nasty note recently from a reader who moved and missed an issue. I sent him a card that said that the Post Office had notified me of his new address and that I would replace his most recent issue if he would send me $1.50 for the postage. He was indignant and stated, in very colorful language, that he had already paid for that issue and didn't intend to pay again. Oops! We obviously have a misunderstanding here. Unless you have a First Class subscription (he didn't), the Post Office will not automatically forward your issue. You must tell them to forward your 3rd Class mail! If you don't do this then they will destroy your issue and send me your new address. They charge me 35¢ for this service. Now let's figure this out.

USPS address notice	.35
postage for postcard to let you know about your issue	.19
First Class postage for a replacement issue	.98
Envelope	.18

Not counting the cost of the second issue or the time it takes to process and pack your order, that comes to $1.70.... Thanks for complaining! I forgot to upgrade the charge for replacement issues to include the new postage. Guess I'll have to change the postcard to say "We'll send you a replacement issue for $2.00".

Features, Notes & such:

Table of Contents

The PRODUCT MONITOR

RATINGS

Superb	★★★★★
Excellent	★★★★
Very Good	★★★
Good	★★
Fair	★
Poor	☹
Bad	☹☹
Defective	☛*

Vacation Time

Evidently, some weirdo has programmed a bank of Crays to crank out reams of quality software soley for the purpose of burying reviewers alive. Well, she can forget it! 'The stack' SHALL be reduced. Meanwhile, I have a really neat suggestion for software/hardware developers and vendors (and the weirdo). Hey, it's the good old summertime! Why not take off a couple months, see the world, visit software shops, play computer games... . When you get back, Computist will be here, ready to go (and, just maybe, caught-up).
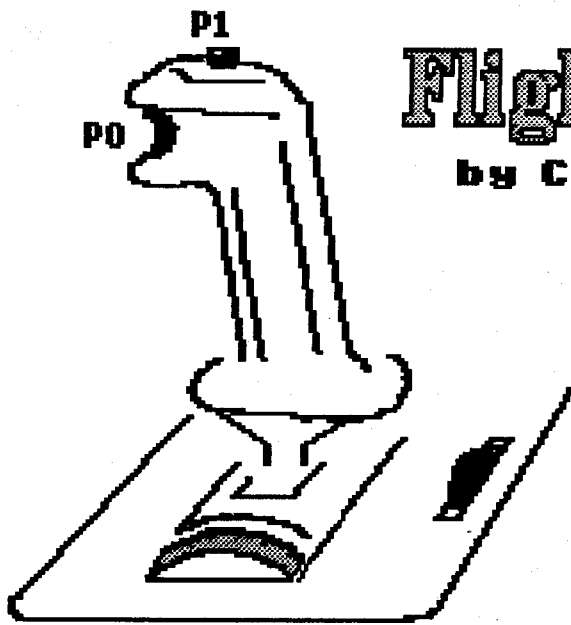
FlightStick

★★★★★

Joystick for PC (Apple II series version available)

$44 (approx. retail)

CH Products

Size: 6.5"W x 5.9"D x 1.7"H x 5.75" Handle
Centering Tension: approx. 170 gm.
Handedness: none (Right, if using throttle)
Centering Error: none H, 0.01%V
Centering Defeat: none
Movement Range (Horiz. sample): 50 degrees
Useful Range (Horiz. sample): 45 degrees
Centering Adjust: two top-of-case thumbwheels
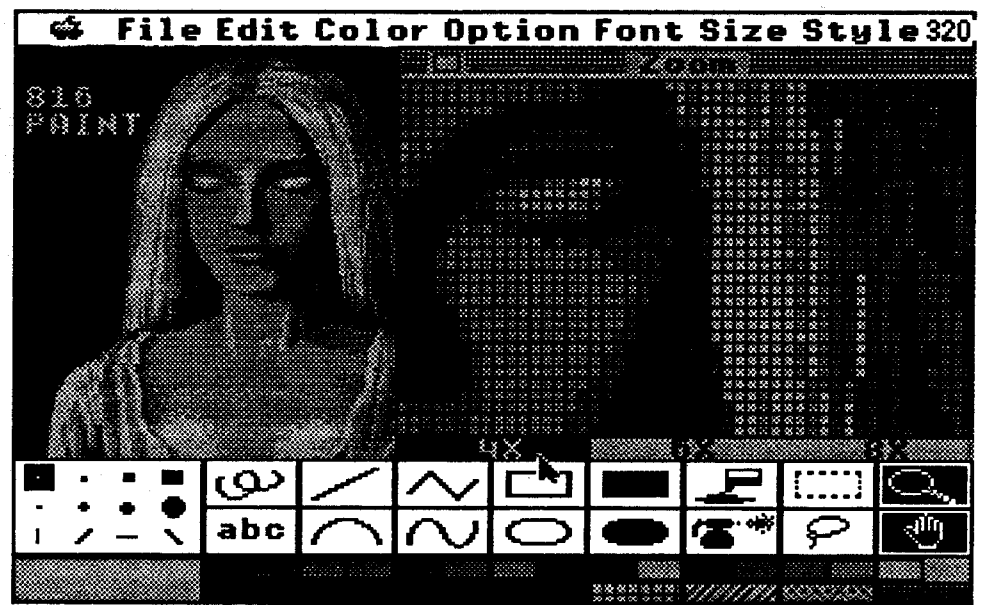**Connector:** PC DIN
Case Access: four screws (remove feet)

Boasting a flat-black pistol grip handle firmly seated atop a large-footprint 'computer white' base, FlightStick has changed little in the two years since my last (Apple II version) PM review. Why should it? The click-action red trigger (STRIG 0) and top-of-stick button (STRIG 4) are just where they belong. The large, full-wrap handle fits like a glove. Set in a heavy-duty gimbel mounting, it drives an oversize slotted bands mechanism to assure many glitch-free replays on even the roughest stick-slamming arcades. The 'feel' is the industry standard: smooth, with NO center bottoming, and at the right tension with just enough 'bump' at axis crossings for good feedback. Placed just left of the handle, the thumbwheel "throttle" IS new. For games offering this option, the output is to your game port's Joystick 2 vertical input.

FlightStick remains one of the few console-style units to forego optional suction cup feet. I tried the stick on various surfaces at different heights—even as a sit-away lap unit. Button/trigger placement, handle size and angle, the large base, and (considering handle size) moderate tension... all work to make the unit at home just about anywhere. CH doesn't offer suction cup feet because FlightStick doesn't need them.

The test specs, of course, are unbelievable. I used the Electronic Arts Joystick Tuner utility (included with some EA products) to obtain the "Useful Range" and "Centering Error" samples. First, "CE": There wasn't much room for argument; on FlightStick, "Centering Error" doesn't exist. However much you shove around the handle, when you're at center, you get at-center outputs. On a spring-tensioned stick with standard pot elements, THAT isn't supposed to happen! Only pressure-sensor sticks are supposed to deliver zero CE (at the price of rather high tensions and a somewhat mushy feel).

"Useful Range" sampling proved to be another "say what? that can't be!" situation. The EA tuner showed smooth output changes over the entire 50-degree handle movement swing. That is, if a program wants reliable full-swing control, the CH unit can supply it. What about some standard measure of useful range? Since BASIC has built-in 'ideas' about X and Y endpoints, I hopped to Microsoft's "Quick BASIC", wrote a short output-display program, and, with a freshly EA-tuned stick, gave "Useful Range" another try. The nearly-full-swing 45-degree result is the one shown above. More? How about a true 'perfect square' response pattern?! At X-min or X-max, X varies less than 1% while you vary Y over its entire vertical range. The same holds at Y extremes for X swings.

Translation: If "at-center" means your spacecraft is flying straight and level, then that's what it will mean after a hard-turn evasion maneuver; if you need to cross-hair an incoming heat-seeker FAST, you've got plenty of glitch-free precision. In short, whatever your game, FlightStick has the reliability, accuracy, and precision to get the job done.

Naturally, as per S.O.P., I zeroed-in on possible weaknesses. Placing the throttle wheel to the handle's left clearly leaves left-handers with less than optimal on-case throttling. Still, WHAT is the control doing on the case in the first place? Few games use it; and many which might will also have to place "Throttle" on the keyboard along with many other (view, arming, targeting, weapons select, etc.) controls. When your non-stick hand has to sit on the keyboard anyway, what good is a case-mounted control? Mainly, I suspect, it's there so you can say "Sure, my stick has a throttle control."

Sooner or later you will want to spray some control cleaner into the pots; having to remove the stick-on feet is inconvenient. FlightStick's 7-foot cable is fairly supple; but it could be more so. The plug's fastener bolts need a bit more play as well. On our game port, both did not line up precisely with posts on either side of the socket; so, only one could be turned-in. Leaving the case free of painted logos and stick-ons is smart—there's nothing to wear off or peel— but what about more COLOR?! Perhaps a sky blue, day-glo green, etc. option would be a good idea. Then, again; maybe not. After much thought, I have to admit that CH Products' somewhat stodgy black-and-white motif 'fits' most computer color schemes; AND 'the big black stick on the large off-white case' has become a kind of quality trademark.

To prevail in Sierra's "Stellar 7", US Gold's new "'Soccer", Spectrum's "Stunt Driver", ... do you absolutely need the kind of durability and test numbers one expects to find on the typical Space Shuttle console? Probably, not—at least, not often. Beyond some point, super specs become, chiefly, a guarantee of exceptional quality; software designers can't very well afford to produce games playable by owners of just one particular stick model. If, however, you want the unmatched feel and looks of the #1 joystick, you will just have to live with over-designed ruggedness and published parms that friends will insist prove you've got an unfair advantage. You may never really need the 'FlightStick edge'; but, it's kind of nice to have— just in case!

Painters/IIgs

Okay, guys, THIS is a mouse ('click', 'click'). THIS is a computer screen ('tap', 'tap'). A mouse is not a pencil or a brush. A computer screen is not a sheet of paper. A super-res computer "painter" utility is not, mainly, for painting!

Painter boxes always seem to come plastered with beautiful pictures of tigers, temples, and flowers; so, it's no wonder that everyone thinks everyone else is creating piles of artwork. Well, I have yet to see anyone produce a high quality portrait or scene from scratch using a painter utility. Why bother to master mouse-drawing when it's so easy to transfer-in digitized images? Most users, including those with genuine artistic talent, depend upon computer painters for A. relatively simple original drawings; B. cutting, pasting, moving around, and otherwise processing graphics.

Once you dump the notion that your mouse is supposed to be a paintbrush, deciding what a painter utility SHOULD do well is much easier. Since you want to harness computer 'smarts' for doing anything and everything to graphic items, a good place to start is the utility's tools; generally: the more the better. As the '90's opened, IIgs users could choose from among four major tool-rich painters:

Paintworks Gold (Activision/Mediagenic) ★★
Deluxe Paint II (Electronic Arts) ★★
Graphics Studio (Accolade) ★
816 Paint (Baudville) ★★

Each offers the 'standard' set of drawing functions (e.g. freehand, lines, brushes, filled/unfilled shapes) along with magnify, rotates, cut & paste, color editing, multiple text fonts, etc.. "Paintworks'" and "Deluxe Paint'" add powerful perspective and masking commands; and, overall, are the more 'feature-loaded' painters. "Graphics Studio" suffers from an odd tool arrangement but does permit loading-in pictures on top of existing graphics at the current screen position on the 'page'. (The IIgs screen is 200 scanlines or "dots" from top to bottom. A painter "page" is a scrollable two-screen workspace which, if printed, fills a standard 8.5" x 11" sheet. GS and DP offer 400-line pages; the PWG page is 396 lines, and 816 has a 378-line page.)

Of the four products, only "Paintworks'" allows instant switching between 320 and 640 modes with no need to save and reload the current graphic. A notable "Paintworks'" deficit is that the user can not view any part of the current picture while editing palette colors. In 640 mode, none of the four products offers both dithered colors (for 16-color

work) and true non-dithered drawing (for higher detail).

Given the way major utilities divvy-up most-wanted features, serious graphics work on the IIgs has inevitably required access to at least two painters. Even owners of two, three, or all four packages often add a powerful non-painter utility from Roger Wagner.

The Graphics Exchange

★★★

($49.95, 768K IIgs)

Roger Wagner

The problem is formats. Usually, you can expect to access just $C1 and BIN type unpacked screen files and Apple Preferred packed pages. TGE not only lets you convert from just about any Apple graphic to (among other formats) a loadable 320 or 640 mode super-res file. It also permits down-sizing, expanding, and cropping PLUS capabilities for placing multiple imports on a single screen.

Being able to 'bring in anything' turns out to be a very desirable painter feature. A utility that can 'work on lots of different stuff' (e.g. hires, double-hires, and super-res) is much more useful than one which can't. This explains why I went to the trouble of moving "816 Paint"'s files to GSOS. (Actually, it's not all that much trouble. Just be sure to put "816"'s PRINTERS folder in the GSOS SYSTEM folder.) The Baudville product is a collection of four separate painters (hires through 640 mode super-res) PLUS a format conversion utility. By the time Beagle's new painter arrived, I was only mildly surprised to discover that "816 Paint" had become established as my 'usual choice' for graphics work.

Platinum Paint 1.0.5

★★★

$99.95 for 1MB IIgs (1.25MB and two drives recommended)

Beagle Bros

Competition for the "#1 IIgs Painter" spot was still fairly tight when, 'from nowhere' Beagle swooped down and changed the rules. The much-touted Spare Page offered by other packages is just a handy **Platinum Paint** option. Naturally! Accessing up to four scrollable, resizable, movable windows right there on the desktop PLUS a Spare Page (swap-able with any window), the new-

est super-res painter more than doubles your graphics landscape!

Each window represents a separately loadable/savable 320 or 640 x 400 'page' complete with its own palette, sixteen patterns, and optional mask. Thanks to a compact tool bar and 'pull-out' color/pattern palettes, you can retain the convenience of clickable functions with a large portion of any page in view. A window can also be viewed full-screen (without tool bars, etc.) and worked upon using KB-selectable tools. (Note: for KB access to all tool functions the Option key must be uncommitted; this means you must have set "Alphabet Translation" in the GSOS Control Panel to "None".)

A couple of years of working with and among several painters plus TGE has driven home at least one lesson: real painter "power" depends upon ready access to graphics material. With **PP**'s four independent pages plus a Spare, you can maintain several clip art screens 'at the ready' and still have quick access to other imports plus alternate versions of the current workspace. Since access is via windows (instead of simply adding Spares), selected parts of up to four pages can be viewed simultaneously— and THAT makes a world of difference! So much of computer graphics work involves deciding 'where to put how much of what' that it now seems absurd to try anything serious without windows! Calculating the Beagle painter's "landscape" gain is easy: 5/2 —> x 2.5; the actual "power" gain is much greater.

The other side of the 'graphics access coin' is format variety. **PP** accepts super-res screen and page files produced by the other painters, including "Paintworks'" Paint and Animation files. Super-res stuff comes in via the usual OS Load procedure. Each Load opens a new window. Since the Beagle painter is, now, exclusively GSOS 5.04-based, users automatically acquire the operating conveniences (e.g. the Volume button) of the new OS.

Acceptable non-super-res formats include Hires, Double-hires, MacPaint, and Print Shop. Each of these comes in as an "Import" overlay to some existing window— you decide where, on the 400-line page, to place the overlay. Due to a bug which appears to reside in an 'OS tool, the painter currently recogniz-

es only 'full size' files ($2000/$4000-length) as valid Hires/Double-hires pictures. (See "Real World Platinum", later on, for a 'working fix' to allow importing common $1FF8/$3FF8-length Hires/Double-hires files.) All **PP** saves are super-res. It can save screens as standard unpacked $C1 files. Full-page workspaces and individual brushes save as Apple Preferred packed files.

Like designers of earlier painters, the Beagleans have chosen, so far, to settle for single-resolution, single-palette displays. (I have seen a few small-vendor and experimental utilities which let users mix 320 and 640 modes and/or switch among different palettes on a line-by-line basis. None, however, would qualify as a ready-for-market, full-featured painter.) You can, however, quickly switch between 320 and 640 modes with-out having to reload any workspace; AND (via a "Dither Lock" option) select either dithered or non-dithered drawing in 640 mode.

To 'keep it simple', **PP** is fairly consistent about enforcing two easily grasped window working conventions. First: "What you see is where you work." If you've 'selected' (via the marquee or lasso tool) a big figure and do a normal paste onto a small window, only the part of the figure that 'fits' window limits gets pasted. Similarly, fills can affect only the part of the page you see in the window.

The second convention is more general. Putting it economically: between-window operations "work the way you expect them to". For instance, once an area or item is selected and in your grasp, you are free to let go in order to select, move (scroll, resize, etc.) the target window prior to pasting the selec-

tion. You may also force a "selection" to fit the target window's current dimensions (or, in fact, any pre-defined area); AND, if source and target palettes differ, have **PP** adjust ("remap") the selection OR target palette to minimize color shifts.

At any given moment, the program allows you to have, in effect, two brushes. One is the current selection; the other is the current "brush". Via a tool bar pull-out, **PP** offers the usual collection of circular, square, and line brush shapes in several sizes. Besides the latter, your "brush" brush may also be a Brushified selection or loaded-in via a Brush file. Most of **PP**'s numerous shaping, sizing, rotation, perspective, shadowing, mirror, coloring, ... commands treat the current selection and the current brush exactly the same.

When **PP**'s designers were haggling over which tools to include, the Big Beagle happened to walk in. BB pointed to the four major-vendor packages on the table and said: "Those". Filled-un-

filled shapes, color smearing and other brush 'effects', gradient fills, patterns, color AND area selection of mask colors (for EACH window), ...; as a rule, if your 'old' painter does it, so does **PP**. There IS one notable exception: practically all of the older painters offer a better Magnify function. **PP**'s "Fat Bits" is limited to x4 power and uses a pointer to select the center of an area to be magnified. It SHOULD offer x2-x8 powers and a moving-box selector.
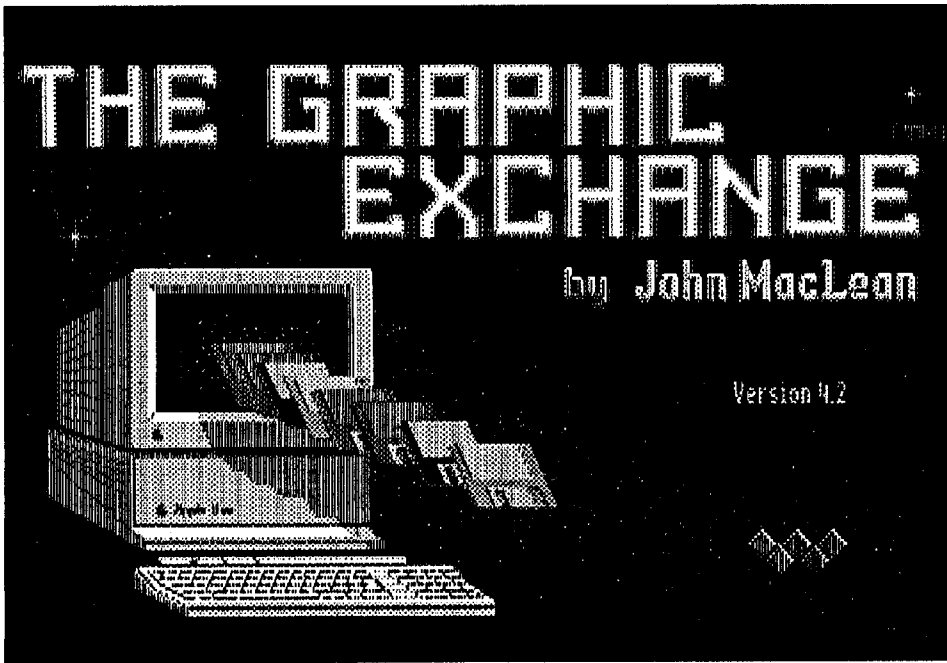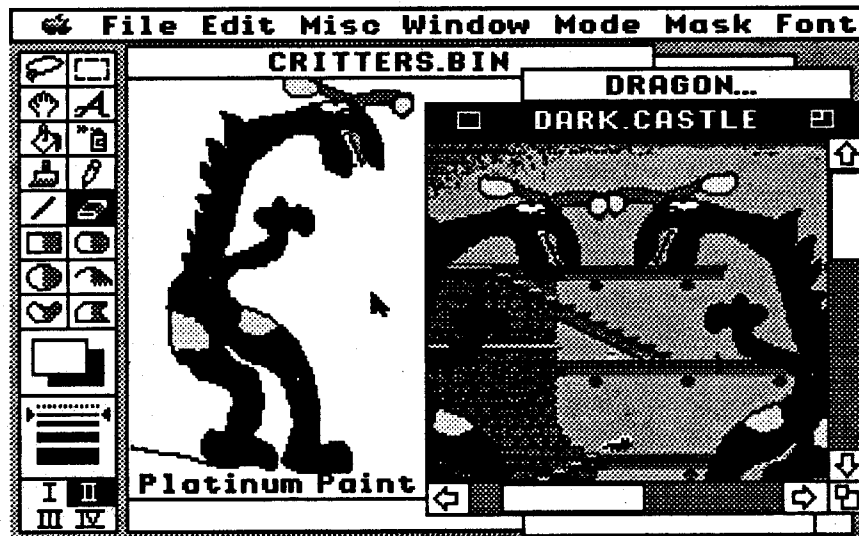
Most **PP** tools at least match the competition and several have been enhanced. For color editing, you have a scrollable view of the currently selected workspace and slidebar controls. For more precise settings, you have a full-screen color-scale map. Color cycling and fills are controllable by one of four independent Fill/Range settings (selected by clicking I-IV on the bottom of the Toolbar). For example, Range I can be set so that Fill will treat several selected colors as fillable. That the Text tool automatically sets a loaded font to currently selected size and attributes rates as a 'toss-up'. Sometimes you will appreciate not having to remember the last-used font's settings; sometimes you will wish **PP** would, automatically, pick one of the new font's preferred sizes. On **PP**, a CR 'sets' each text line entry. This makes it easy to make color and font changes on a line-by-line basis.

As one might deduce from the version number, getting a multi-window, feature-loaded painter utility 'up to snuff' takes a bit of doing. Version 1.0.5 fixes the most objectionable bugs— e.g. Print functions work— but **PP** is not yet altogether free of bugs and quirks. I've already discussed Import's file-recognition bug; probably, it's the single worst flaw encountered. Others? The program still refuses to let users reach the last few right-most pixels when drawing on a window in 640 mode. (You must switch to full-screen.) When editing palette colors, the eye-dropper picks up the wrong color from your picture. Sometimes, just after setting a mask for a window, you will find that non-masked regions of the workspace (to the right and down) have become inaccessible. The problem seems to crop up only near the start of a session and appears to relate to a failure to fully initialize a window's workspace. Freeing the offending window's mask (or Filling the background with the background color) reopens the lost areas.

Often, what appears to be a quirk or bug is simply a matter of being unfamiliar with all of **PP**'s features. You really can, for example, edit the custom brush's palette; but, be sure to let go of the brush (e.g. click on the pencil tool) before going to Palette Edit. A Brush file can, as claimed, be loaded as a 'picture'. When it is, however, you will find that your new window has a (memory gobbling) Mask. ... You are not, in short, likely to fully master all of this new painter's powers at a single sitting. On the other hand, a well thought-out Toolbar, explicit menus, and, in general, tools that "work the way they should", ... all make 'getting into' and using a IIgs platinum-class painter an enjoyable experience.

Lots of nice things happen when your product 'changes the rules'; mainly, everyone else is caught flat-footed. Yes; Beagle's platinum wonder is quirky enough to merit a few more polishings (e.g. versions 1.0.6... 1.0.7). The Import and color edit bugs NEED fixing; and, it would be nice to have a way to get sequential window Printouts uninterrupted by form feeds. Rating as 'just fair', documentation needs more examples, more depth, better indexing, and **certainly** a separate Commands Card. ... It's really true: the more you get, the more you want! Opening IIgs painting to the 'world of windows' is bound to generate piles of feature 'wish lists'. For now, **Platinum Paint** is already so far beyond the competition that there's just no contest!

Links:
The Challenge of Golf

★★★

$59.95 for VGA 640K PC
(10MHz min. recommended)

Access Software

The box-back says: "So realistic, you'll think you're there!" NOT too far off. 256-color VGA and good AdLib/SB effects get things going; but the real 'secret' is attention to detail. You are ON the carefully contoured fairways and greens; the roughs look rough indeed; and, when you catch the edge of a trap, the sand gets in your sneakers. For 1-8 human players, **Links** goes beyond the usual 'Beginner...Pro' setup options to include adjustable stance/swing parms and pre-recorded custom "special swings".

Lie, wind direction, distance to pin,... all appear in a compact control panel beneath a large on-course view. The 'C'-shaped power bar works much like those in other golfs; and you will find the expected pre-tee-off overviews, scorecard displays, and practice facilities. The latter have special significance because, unlike other golf sims, the Access version supplies no fixed numbers for putter distance. Instead, you go to the Chipping & Putting practice green to master these shots. Aside from being good fun in itself, the practice actually works! Substituting 'feel' and skill for putter numbers is a good idea. Except for offering an optional grid overlay on the greens, **Links** offers no special putting display. Given available detail, it doesn't need to.

The 10 MHz minimum speed recommendation is for-real. On the typical (12-16MHZ) '286 machine, you can expect full-screen updates to run a little below 10 seconds. This assumes you have an extra half meg or so of RAM to take advantage of the program's caching options AND that Drawing Detail is set no higher than Med/Med/Min or Max/Med/Min (foreground to background). Most users, in short, can count upon beautiful displays (a bit short of Max detail) at the cost of tolerable update delays.

Supplied with manual on five 5.25" diskettes (3.5" available), the newest PC golf includes one course, Torrey Pines, but no Course Designer. While Torrey, especially at Pro skill settings, is good for many challenging hours, (and, I have seen one additional course) a designer utility would be a solid plus. **Links'**

could also do with a hefty dose of 'Sports Hype'. Hole fly-throughs, famous player advice inserts, and TV-style shot coverage won't shave a single stroke off your game; but they do add to the fun. Despite these slip-ups, when it comes to realistic on-the-course action AND fun, the Access product is clearly the choice. Offering play ranging from "easy", for children, through demanding Pro levels, **'The Challenge'** rewrites golf simulation standards. Once you boot **Links'**, it's a whole new ball game.

How much did you say the toll was?-|-

Fast Frames, Updates, Etc.

Note: "AdLib/SB" means a product (for PC) supports the AdLib and Sound Blaster sound boards. "/Roland" may be added to indicate support for Roland LAPC-1 and compatibles.

The Secret of Monkey Island ★★★★★

Why should a fine young lad like Guybrush Threepwood (you) want to be a pirate? Well, for one thing, its the most popular occupation on Melee' Island. For another, it looks like fun! In Lucasfilm's spectacular new adventure ($69.95, for VGA PC), your quest for piratehood starts at the village tavern with three tests set by the Pirate Chiefs. You must Master the Sword, Steal an Idol, and Find the Treasure of Melee' Island. Alas, while stealing the idol from the governor's mansion, you meet Governor Marley— and SHE is a real cutie! Naturally, when your true-love-as-soon-as-you-become-a-real-pirate is kidnapped by a renegade ghost buccaneer

named LeChuck, you have no choice but to collect a crew, grab a ship, and set sail for LeChuck's base on mysterious Monkey Island.

Take the motion picture-like soundtrack and 256-color animated artwork of Lucasfilm's "Loom", wrap it around a clever, long-play adventure, and make sure you've got user-friendly clickable commands: THAT is **The Secret of Monkey Island**. For practical purposes, this must be as close as entertainment software can get to putting YOU in charge of your own pirate movie. There is an optional Hintbook ($12.95); but, the game supplies ample clues and everything fits so well that reasonably experienced adventurers won't need extra help. Barrels of fun and a great way to show off your PC, 'Monkey Island's AdLib/SB/Roland music grabs you, and the scenario doesn't let go. Expect a masterpiece!

Real Treasure Map!

In the process of wending my way through the Melee' Island woods to The Treasure, I happened to produce a genuine, guaranteed map. Just follow a route to the Treasure and you're one step closer to rescuing Governor Marley and cracking **The Secret of Monkey Island**!

Earthrise ★★★

The popular 'trouble shooter on a monster-infested space station' theme gets another run in Interstel's new for-PC adventure ($49.95). This time a rocket-powered asteroid destined for near-

Earth mining has run amuck. Station personnel, after logging several complaints about hostile intelligent life forms seeming to come "out of the rock", no longer answer; so, you are dispatched to 'shoot the trouble' before IT 'mines' a very large chunk of Earth. Partially-animated, colorful EGA screens, old-PC sound, and decent parsing complement a well-developed walk-around-and-do-things picture-text scenario. From touch-down to near-orbit earthrise expect a solid monsters & mystery puzzle-busting challenge.

Math Plus ★★★

First, the lumber clerk called up an inventory program on the store's terminal to check the price of my boards; THEN he whipped out a $5 calculator, punched-in some numbers, did some quick figuring on the back of an invoice, and (finally) entered the result on the terminal! Too bad he didn't have something like **Math Plus**! ($69.95) Aimed chiefly at contractors, job costers, and others in the construction/maintenance trades, Racine Technology's new TSR utility delivers standard and advanced math calculations (e.g. trig) w/wo units, unit conversions, and fifty memory locations of storage. Just pressing the hotkey pops up the calculator insert over "Lotus'" or other text-mode application. You do your calculations; and, if you wish, press another key to enter the result directly into the spreadsheet! To eliminate pencil and paper scribbling, **Math'** lets you tag results with labels and even get an audit trail printout. Supplied with tutorial and directions card, **Math Plus** can multiply the power of spreadsheet and accounting software faster than you can say "Hey Bo, where's that darn calculator!"

Rotox ★

"Survive and you will build yourself into a lethal fighting machine. Fail and your soul will wander the galaxy forever." Now, that's what I call incentive! Regrettably, in constructing this attractive ten-level arcade challenge, someone at U.S. Gold forgot to plug in the joystick interface. Using the Q, A, O, P, and SPC keys, to handle four-quadrant movement and 'fire', you CAN manage to pot many of the monsters and traverse
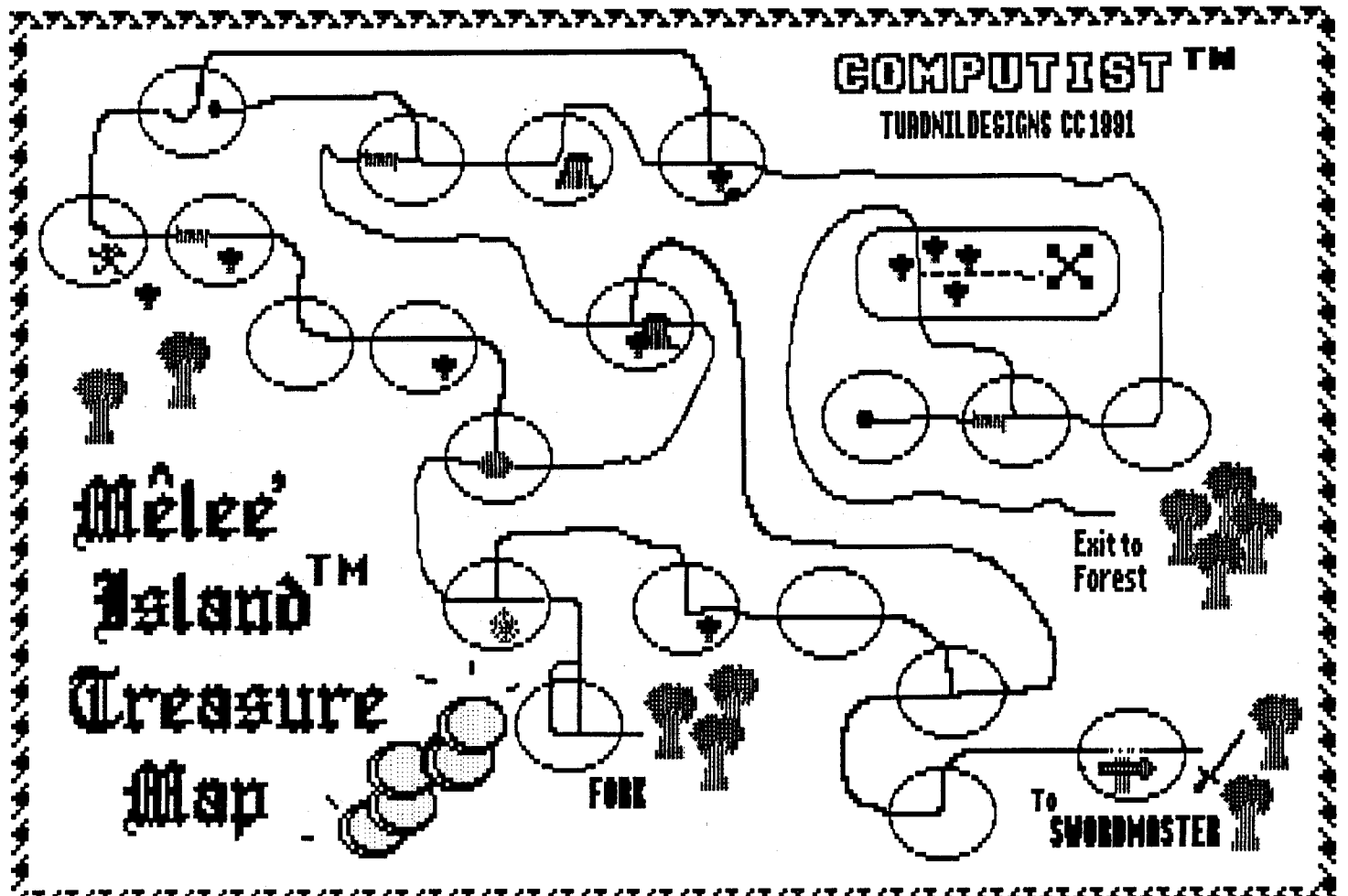
some obstacles. You can; but it's more work and less fun than it should be. **Rotox** ($39.95, for CGA-VGA PC) NEEDS joystick control. It also needs more sound SOCK than old-PC crack and ftzzp effects can deliver plus, of course, a Save Game option. That, even so, the game rates a star shows just how good Rotox could be.

"I'LL TAKE THAT!", SAYS A STRANGE VOICE...

Wizardry: Bane of the Cosmic Forge ★★★★ R

Sir-Tech has come through! The promised mouse and AdLib/SB upgrade of the latest **Wizardry** is ready at last. Look for boxes with a silver label listing the new features. ($59.95 for CGA-VGA 640K PC)

DOS 5

It's still too early to rate Microsoft's latest PC DOS update. However, after a couple of month's experience with a beta DOS 5.0, I can say one thing for sure: If you want to run those BIG memory-hungry applications without the bother of bare-bones DOS boots, get DOS 5!

Real World Platinum

Beagle Bros's **Platinum Paint** is one of those special products that users simply 'latch onto'. Like "Copy II Plus" and "AppleWorks", it seems assured of a long run of updates, enhancements, and add-ons. This month I won't suggest any changes to the program itself. Instead, the aim is to make the surrounding 'environment' work better for the everyday 'real world' user.

I. Import Whatever

As observed in the review, one of **Platinum Paint**'s star features— the capability for importing hires and double-hires pictures— still does not work correctly. PP version 1.0.5 will recognize only $2000-length hires pics and $4000-length DHR pics. It SHOULD also accept the much more common $1FF8 and $3FF8 sizes.

What to do? Clearly, if one must worry about re-sizing most hires or DHR picture imports, the Import feature isn't worth much. Once you decide to put up with 'pre-processing', why bother with Import at all? Baudville's "816 Paint" utilities and "The Graphics Exchange" from Roger Wagner can handle super-res conversions for ALL unpacked hires and DHR files. Either is a better approach than a 'maybe/ maybe not' Import option or fussing with file stretching tricks. To 'work' in the Real World, **Platinum Paint** must be able to deal with each import 'as is'.

The Beagle people did not, as far as I can tell, program the file non-recogni-

tion error into **Platinum Paint**. Evidently, the bug is in GSOS's "Standard Files Tool" (a set of functions also known as "TOOL023"). This would, in part, explain why the error persists. I say "in part" because, after all, it HAS been five (5!) releases. People are starting to talk: "What's wrong with Beagle Bros? Have they lost their touch?!" (See! That's what happens when you let someone else dictate a "correct" way for your program to function.) It's time for the Head Beagle to step in, toss Apple's Standard File guidelines into the can, and order a fix.

Meanwhile, I've come up with a one-byte 'Import Whatever' patch that lets **Platinum Paint** bring in all hires and DHR pics. Just start Glen Bredon's "Block Warden" or other utility with a 'Follow File' editing function. Make the following change to byte $006 in Block 10 (i.e. the tenth block in the file) of TOOL023 found in GSOS 5.04 SYSTEM/TOOLS:

Current	New	
$004: A5 E8	A5 E8	(no change)
$006: 29 00 A0	A9 00 A0	(change AND to LDA)
$009: C9 00 20	C9 00 20	(no change)

The surrounding code is shown in case you wish to do a 'search and change' using Copy II Plus's Sector Editor. I found the code in diskette Block $3FB.

What 'Import Whatever' does is allow you to trick GSOS's Import function. GSOS Import works and looks very much like the familiar Open function. When selected, Import updates and displays its list of files for the currently selected folder. Changing disk volume and/or folder produces fresh updates and new lists, just like Open. Unlike Open, Import also includes a clickable pull-down 'Format' box for showing/ selecting the Import format (e.g. "Mac-Paint", "Hires", etc.). Also, Import's list of displayed files includes only those which may fit the currently selected format. Changing format leads Import to recheck each file and produce a new list of candidates. The IW patch turns OFF this recheck. With 'Import Whatever' installed, you can change Format 'til the cows come home'; but the candidate files will remain the same as when the volume and/or folder was opened.

"So what?" So, now, you can click "Import" and bring in any unpacked hires or DHR pic. The key is "Mac-Paint" format. All sorts of non-"Mac-Paint" files pass the "MacPaint" check, including all of your favorite hires and DHR pics! Just select "MacPaint" format, open a source volume/folder, and switch to "Hires" or "Double-hires".

Before IW, the list would change to show only "standard" $2000-length (or $4000-length) "Hires" or "Double-hires" choices. With IW, the list is still the one derived for "MacPaint". Click the file you want to bring in; and, ZOOP!, you've got it!! GSOS Import is completely fooled.

"Yikes! Another BUG!!" True enough. We've sic'ed OUR bug on their bug. 'Import Whatever' trades away some of Import's friendliness in return for expanded capabilities. It is a temporary solution; not the ultimate fix for **Platinum Paint** users. (If you come up with THE fix, send it to COMPUTIST, get published, and become famous!)

II. Space

Among the more audacious claims Beagle makes for its new painter is the "Required Hardware" statement found on page 3 of the manual. Here you are told that, along with a computer, mouse, monitor, and 1MB RAM, you will need a 3.5" disk drive. The manual neglects to point out that, given separate GSOS and Program diskettes, using the painter is hopelessly cumbersome without a second 3.5" drive. Even this setup requires too much swapping; your Work and/or Source diskettes have to go somewhere. Basically, **Platinum Paint** 'wants' to run from hard disk. If you've got one, carve out some room for PP and you're set. If not, read on.

The challenge is getting **Platinum Paint** to work smoothly on the typical dual 3.5" drive system. ("Smoothly" means you can load in, work upon, and save graphics with little or no concern about swapping diskettes.) The problem is 'the final frontier'; there just doesn't seem to be enough of it. Or is there?!

For starters, boot the GSOS System Disk included in the Beagle package and format a 3.5" floppy (800K, 2:1 interleave) named "PP.AND.SYS". Copy the System Disk to PP.AND.SYS. Now, on PP.AND.SYS, delete the following:

1. All of the files in SYSTEM/CDEVS
2. All of the files in SYSTEM/ DESK.ACCS
3. START in SYSTEM
4. MODEM in SYSTEM/DRIVERS
5. TOOL025, TOOL026, TOOL034 in SYSTEM/TOOLS
6. All of the files in ICONS.

If you copied the Beagle-supplied GSOS 5.04 System Disk, all of the BASIC and ProDOS /8 files should already be deleted. If they're present, delete them. Similarly, in SYSTEM/DRIV-ERS many files should already be missing. You should finish with APPLE-DISK3.5, APPLEDISK5.25, CONSOLE.DRIVER, IMAGEWRITER, PRINTER, and PRINTER.SETUP in the SYSTEM/DRIVERS folder. If you do not plan to access 5.25" diskettes, delete APPLEDISK5.25. This also eliminates some delay during volumes-online checks. I also dropped FAST-FONT— it is supposed to speed up text drawing— with no obvious bad effects; but, since I'm still experimenting, the file is not included in the scrap list.

In SYSTEM/SYSTEM.SETUP I have not scrapped CDEV.INIT because it uses only 3K; and leaving it alone simplifies restoring all or part of the Control Panel functions (in DESK.ACCS and CDEVS) should you wish to do so. TS2 and TS3 are retained as well. Users of ROM01 IIgs's need the

Tool Setup patching performed by TS2 (41K). ROM03 machine users need TS3 (15K).

At this point you should have freed around 300K on PP.AND.SYS. Insert the Program Disk and copy PLATINUM.PAINT to SYSTEM on PP.AND.SYS. Rename it to START. When created, your Preferences config file uses only .5K. All of which results in a surprising 85K+ of Space!

Trade-offs? PP.AND.SYS is dedicated to **Platinum Paint**; the GSOS Finder and NDA Control Panel access are both gone (along with several drivers, Sound Tool files, BASIC, and ProDOS /8). The painter is your START; so you have no way to Quit to another program either.

You CAN, of course, get back to a less restrictive OS environment by trading away some of your hard-won Space. For instance, you might add program selection capabilities by moving an old ProDOS /16 Launcher (version 2.2 uses only 6K) to SYSTEM and renaming it START. (In which case PLATINUM-.PAINT is copied to the PP.AND.SYS main directory instead of to the SYS-TEM folder.) To expand your launch options, you can put GSOS 5.04's ProDOS /8 file, P8, into SYSTEM; and, to control Alphabet "translation", the Control Panel NDA goes back into SYS-TEM/DESK.ACCS and ALPHABET goes back into SYSTEM/CDEVS. Then, there are all of those snazzy fonts you can add; and ... . Truly, Nature AND computists "abhor a vacuum"!

Your PP.AND.SYS diskette will start Beagle's new painter a bit faster than the original two-diskette set. More important, it frees up the second 3.5" drive for loading and saving your graphics creations. For single-drive users, disk fiddling is reduced to a tolerable level— at least, there's only one program/system diskette to keep track of. On a two-drive system, swapping is virtually eliminated.

III. Setup

So far so good. The other side of Space is the IN-side, RAM. To get the most from **Platinum Paint** on a typical 1.25MB IIgs, the first RAM-saving step is to cut OS memory usage. This means booting GSOS, going to the OS Control Panel, clicking the Memory icon, and making sure that RAM Disk and Cache are set to zero. (New settings go into Battery RAM and take effect upon the next cold start.) Unless you've got 2MB or more RAM, experimentation with cache and RAM Disk sizing is probably a waste of time. Speedier disk access is less important to user convenience than ready availability of painter features. Each open window, custom brush, masks, cut-and-paste "selection", any fonts you load, ... all need RAM. For example, setting a mask for a window uses as much memory (a complete 64K segment) as the window itself.

Note: Why, you may ask, does a mask use so much memory? Good question. At the time a mask is set or changed, any colors 'in the mask' are just for selecting areas are to be protected. Only areas (not specific colors) are 'remembered'. At one bit per pixel, a mask should require 32K bytes for a 640 x 400 'page' (256000/8) and just 16K bytes for one in 320 mode. The explanation appears to be that "It makes for easier programming".

Indeed, while one may point to **Platinum Paint** as an illustration of what can be accomplished using Toolbox calls; the painter also reveals some weaknesses. At 1.25MB, you CAN access all four windows, the Spare window, and support two masks— all with enough leftover memory to create a custom brush and load-in several fonts. I emphasize "can" because everything depends upon how you set up your workspace. When all windows are opened and masks set before you start to cut and paste, load fonts, etc., then the 'big stuff' is nicely packed together and memory is efficiently managed. On the other hand, should you start by opening one or two windows and doing a lot of work on them (e.g. load-in some fonts, move around picture pieces, ...), then, 'little stuff' gets in the way of subsequent window openings. Memory "fragmentation" can easily whack your space for windows and masks in half! No doubt, sluffing off 64K blocks which become 'contaminated' with font loads and brushes makes life easier for the Memory Manager. If the MM didn't behave like such a klutz— OR, if it were simply fired!— 1.25MB could easily guarantee five or six windows with plenty of room for fonts, brushes, and a clipboard.

As for the in-program start-up "Preferences" settings, I experimented with the options and ended up retaining Spare Page and Screen Blanker along with Scroll Bars, Title Bar, and Space Windows. A Spare Page, of course, gobbles 64K; but the additional flexibility it offers is worth the cost. The Shadow Screen option didn't deliver enough extra speed to justify its 32K RAM overhead.

Practically every major productivity package takes a bit of 'fitting in'. On a large-RAM hard disk system, it's no trouble at all getting **Platinum Paint** comfortably ensconced; on the typical floppy-only 'real world' IIgs, it's as easy as I, II, III!

Next

As may have guessed, **Platinum Paint** absorbed more attention and space than was anticipated last issue. ("Excuses, excuses...") Next time you can, for-sure, count on ByteWorks' "Talking Tools", Spectrum's "Stunt Driver", SSI's "Death Knights of Krynn", Data East's "Continuum", Disney's "Mickey's 123's'", U.S. Gold's "'Soccer'", and Sir Tech's "Freakin' Funky Fuzzballs". Likely, there will be more, and, as usual, whatever.

Vendors

Access Software
545 West 500 South, Suite 130
Bountiful, Utah 84010
Attn: Susan Dunn (800-800-4880)

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

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

Baudville
5380 52nd Street SE
Grand Rapids, MI 49508
Attn: PR/Mktg. (616-698-0888)

Beagle Bros.
6215 Ferris Square, Suite 100
San Diego, CA 92121
Attn: Bevey Minarovich (800-345-1750)

Brown & Wagh/Sound Blaster
130D Knowles Drive
Los Gatos, CA 95030
Attn: LouAnn Meir (800-451-0900)

CH Products
970 Park Center Drive
Vista, CA 92083
Attn: Dan Hayes (619-598-2518)

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
Attn: Lisa Higgins (415-571-7171/ orders 800-245-4525)

Interstel
P.O. Box 57825
Webster, TX 77598
Attn: Jynn Halten (orders 800-245-4525/ 713-486-4163)
Ref:Electronic Arts

Lucasfilm Games
P.O. Box 10307
San Rafael, CA 94912
Attn: Sue Sesserman (415-721-3334) (orders 1-800-STARWARS) dist: EA

Mediagenic/Activision
3885 Bohannon Drive
Menlo Park, CA 94025
Attn: Kelly Zmak (415-322-0260)

Microsoft
1 Microsoft Way
Redmond, WA 98052
Attn: Marilyn McKenna (800-541-1261)

Product Monitor
7814 Santa Elena
Houston, TX 77061
Attn: Jeff Hurlburt (713-645-8680)

Racine Technologies
P.O. Box 477
Alpine, CA 92001
Attn: Marsh Racine (619-445-3692)

Roger Wagner
1050 Pioneer Way, Suite P
El Cajon, CA 92020
Attn: Garland Buckingham (619-442-0522)

Sir-Tech
P.O. Box 245
Charlestown Mall
Ogdensburg, NY 13669
Attn: Sheri Mitchell (800-447-1230/ 315-393-6633)

Apple Leaks & Rumors from Kansasfest

Source: a "post to all BBS's" report from Centaur C at Kansasfest posted by Tanis on Club Apple

System 6.0

Yes, System 6.0 is real, yes it's awesome, yes it has an HFS FST (as well as DOS 3.3 and Pascal FSTs), tons of new features, even MORE speed, and a really really really improved Finder.

Some of Finder's new features:

A "Windows" menu that allows you to select windows that are hidden under other windows.

The "About..." item now displays a modeless dialog with memory counts (Finder, NDAs, free, max block) that is updated every 15 seconds.

The title of a window can be clicked on and a list of folders drops down so you can select directories previous to it.

Option-clicking in the close box of a window closes all windows (just like the Mac Finder).

Option-clicking open a folder closes the window you clicked in after opening the new folder.

Options can be set to suppress the size, type, creation date and/or modification date in a window when files are displayed in list format.

The info bar now expands to double-height when files are displayed in list format, so that you can still see the disk memory use display.

The info bar now displays the file system of the file in the window. It also displays sizes in megabytes when they are more than 999K.

Folders can now (legally) be placed on the desktop. (instead of by using some of the "illegal" patches for the Finder that are floating around)

System 6.0 includes full read/write HFS FST, read-only DOS 3.3 FST, and read-only Pascal FST. New applications: Teach (editor that can import Apple-Works, AWGS, & MacWrite files) and it supports the styled Teach format, of course.

Archiver is their new backup program that has a host of options for selecting files. It can backup to a volume or a single file. They talked about some new support for resources, the Finder will now use rIcon and rComment resources.

rBundle is a new resource format that will let the Finder know which icons go with which Applications/documents and what documents go with which apps. Lots of speedup in the OS, but not as much as we saw from 4.x->5.x system versions.

The Console Driver has been redone, and there are new hooks to get direct access to character output and input routines.

Lots of new tool calls and updates... This includes a SysBeep2 call that allows you to specify which sound file to play for specific events. Some other neat things include a disk full of fonts up to 96pt! These fonts help ensure that the StyleWriter printer driver has the best output possible. There are drivers for Apple's flatbed scanner and tape drive too.

One really neat thing is that the Installer is completely revamped and is VERY intelligent now (that means there's absolutely no reason not to use it. SSW 6.0 will be shipping on 5 (count 'em, five) disks. The first disk boots to the installer, from there it's a SINGLE mouse click to update your system! Disks 2 & 3 contain the SSW, the fourth is the fonts, and the last disk is configured to boot from an 800K disk drive.

Hardware

Continuing the trend, Apple has made networking much better, there'll be an Ether net card allowing quicker networks. The SuperDrive card will allow us to use the 1.6 Meg disks, as well as accessing MAC HFS disks. Both of these cards will run on an enhanced Apple IIe. There's also a new ProDOS-8 (v2.0) which will allow more than two devices per slot! Up to a max of 14. There is a sacrifice for this though - it requires a 65C02 at least (shouldn't be much of a problem since the SCSI card also requires a 65C02 at minimum).

Rumor Rumor Rumor Rumor

Has Apple finally realized their grave mistake in avoiding the Apple II and trying to let it wither away and die? It seems so. Some say the Mac LC is the perfect home computer, color, speed (well...), and hey, it's a Mac. BUT at Apple, people know better. The IIgs is reportedly doing extremely well in computer specialty stores although the price of an LC (approx $1,700 - $2,100) is similar. And so..., Apple will make a new GS with an internal 40 meg drive, SWIM chip, 640 x 400 res, faster processor, and of course, System 6.0.

Don Westcott   CO

⊕ I have tried copying Hard Hat Mack with methods in past issues of COMPUTIST to no avail. The latest, on page 17 of COMPUTIST #79, didn't work either. After making the first two monitor entries I entered 9600G to load the first stage loader. The disk spins and the monitor prompt reappears fairly soon but the disk keeps on spinning. I continued on through the rest of the softkey but BRUNing the resulting file crashes me into the monitor.

Other softkeys that didn't work are:

Crypt of Medea—#55, pg 32 (copy works but it won't save games)

Cyclod—#38, pg 14

Mabel's Mansion—#48, pg 23

Rescue Raiders—numerous issues

Silent Service—numerous issues (copy appears to work but we get sunk right away)

I assume I have different versions than the softkeys were intended for. If anyone has alternative softkeys for these games please send them to COMPUTIST.

My Apple II Most Wanted

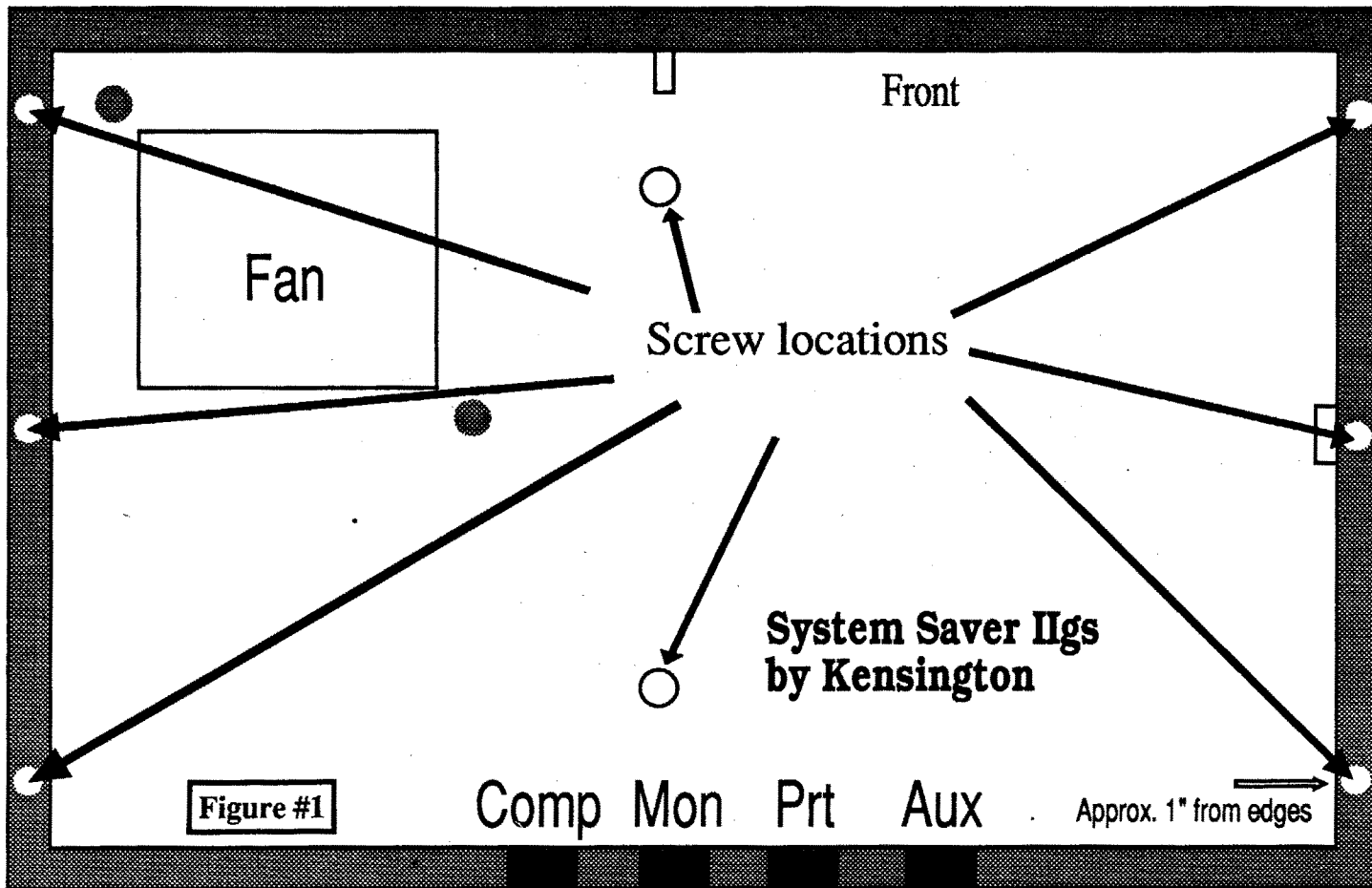
Guardian   FL

Notes on Where in Time is Carmen Sandiego

In issue #77 is a softkey for "Where In Time Is Carmen Sandiego?". I just received a new version of this on 5.25" and the patch for 8C 35 44 20 7D 7C 20 00 96 has been altered by one byte. The 7C has been changed to 5B, changing this 5B back to 7C and patching the 20 00 96 to 18 EA EA makes the transfer to 3.5 work.

⊕ Also in issue #77 is a softkey for Estimation Quicksolve from MECC for the 3.5" version. I tried it on my 5.25" disk and it does not work; however, if I transfer this over to a 3.5" it does work. I need some help to patch the 5.25" version so that it will work because my lab is set up for 5.25" disks.

⊕ I am in desperate need of a program like the MECC Copy program. I run a junior high school lab of 30 computers and nearly every day I have a damaged disk. I can request another copy from the central office but that does not help with the classes until they get around to sending me the copy which can take two weeks or more. Could someone please send me a program that will work like the MECC copy program?

Front

Fan

Screw locations

System Saver IIgs by Kensington

Figure #1

Comp Mon Prt Aux

Approx. 1" from edges

Tools required:
Screw driver (standard or Philips whichever is required)
Pliers or wrench
Soldering Iron (70 watt)
Drill (1/2" shank preferred)
Drill bit (for 3/4" hole)

Substitutes:
Dremel tool with cutting attachment half moon or circular file

Parts Required:
Key lock switch
14 gauge wire (6 inch) preferably black
Power center (or AC strip with enough clearance for 1" diameter hole and 4" depth)

Opening the Surge Guard Power Supervisor

Remove the four screws on the bottom of the case. (See figure #2.) The tilt/swivel monitor stand can be removed by unscrewing the wing nut located in the top center of the stand. I recommend removing this for ease of handling while cutting the hole for the key switch.

Opening the System Saver IIGS

On the System Saver carefully move the rubber strip to one side and use a small four inch #1 Philips screwdriver to remove the screws. (See figure #1.) The screws along the edges should be left in the hole after removing. DO NOT remove the entire rubber strip or peel back an excessive piece, the screwdriver will easily fit around the adhesive strip.

Installing the Key Switch

Using a 1/2" drill or whatever you decide to use, make a 3/4" hole where you'd like the switch located (recommend centering it between the Power & Computer switch on the Power Supervisor, and about halfway between the logo and Aux switch on the front of the System Saver. This gives it a professional look as well as easy access, however there is plenty of room for various locations as long as you remember to ensure enough space behind the switch on the interior to solder the necessary wires.) If your drill cannot make a 3/4" hole (3/8" shank or too small a bit) then you'll need to enlarge it. Be careful not to make the hole too big or it becomes a conversation piece (Hey! Who goofed up your power center?—YOU!?, really?) rather

Figure #2   **Bottom View**

Feet

Retaining screws

Feet

Surge Guard Power Supervisor
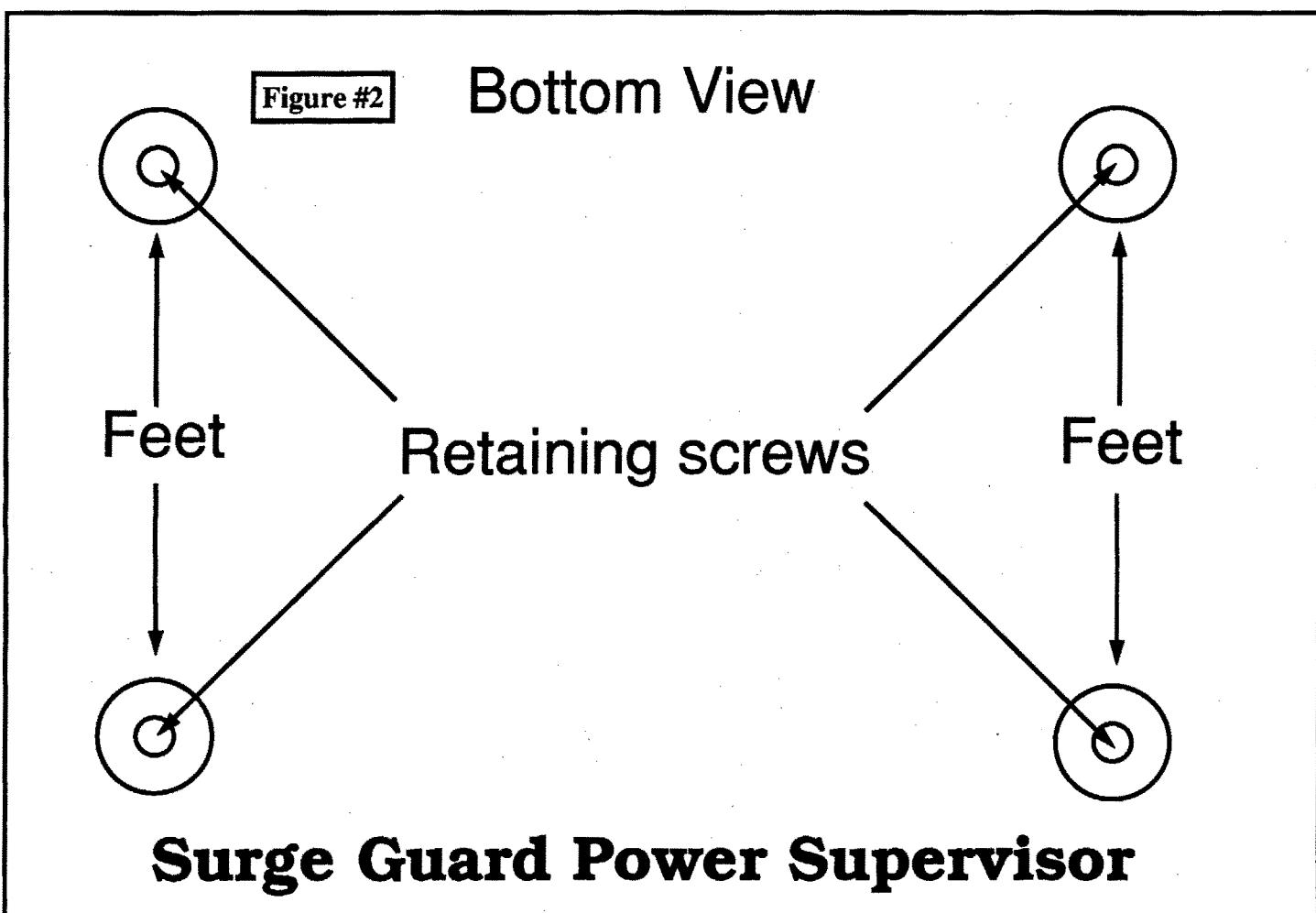
Computer Lockout!

David Goforth   WA

Computer Lockout!

As with any modification, the following procedure will void any warranties that you may have on these items. Neither Computist nor I will be held responsible for any damages or injuries incurred in attempting this modification. Perform at your own risk.

Sometime back I received a message on the Computist BBS about a way to prevent unauthorized individuals from using one's computer equipment in the form of a password protected ROM or card. I replied that a much simpler and less expensive way was to use a key switch on a power distribution panel to prevent any portion of the computer equipment to be turned on. Well I finally gathered all the data, measurements, suppliers, etc. and here it is.

Master Switch   **Key Switch**   Moved wire from Master Switch

Added wire

Fan

Circuit Board

Gnd

Circuit Breaker

Figure #3

Comp Mon Prt Aux

AC

AC

Circuit
Breaker

PC
Board

Cut here

Outlets

Internal View

Switches

Master   Key   Aux   Aux   Printer   Monitor   Computer

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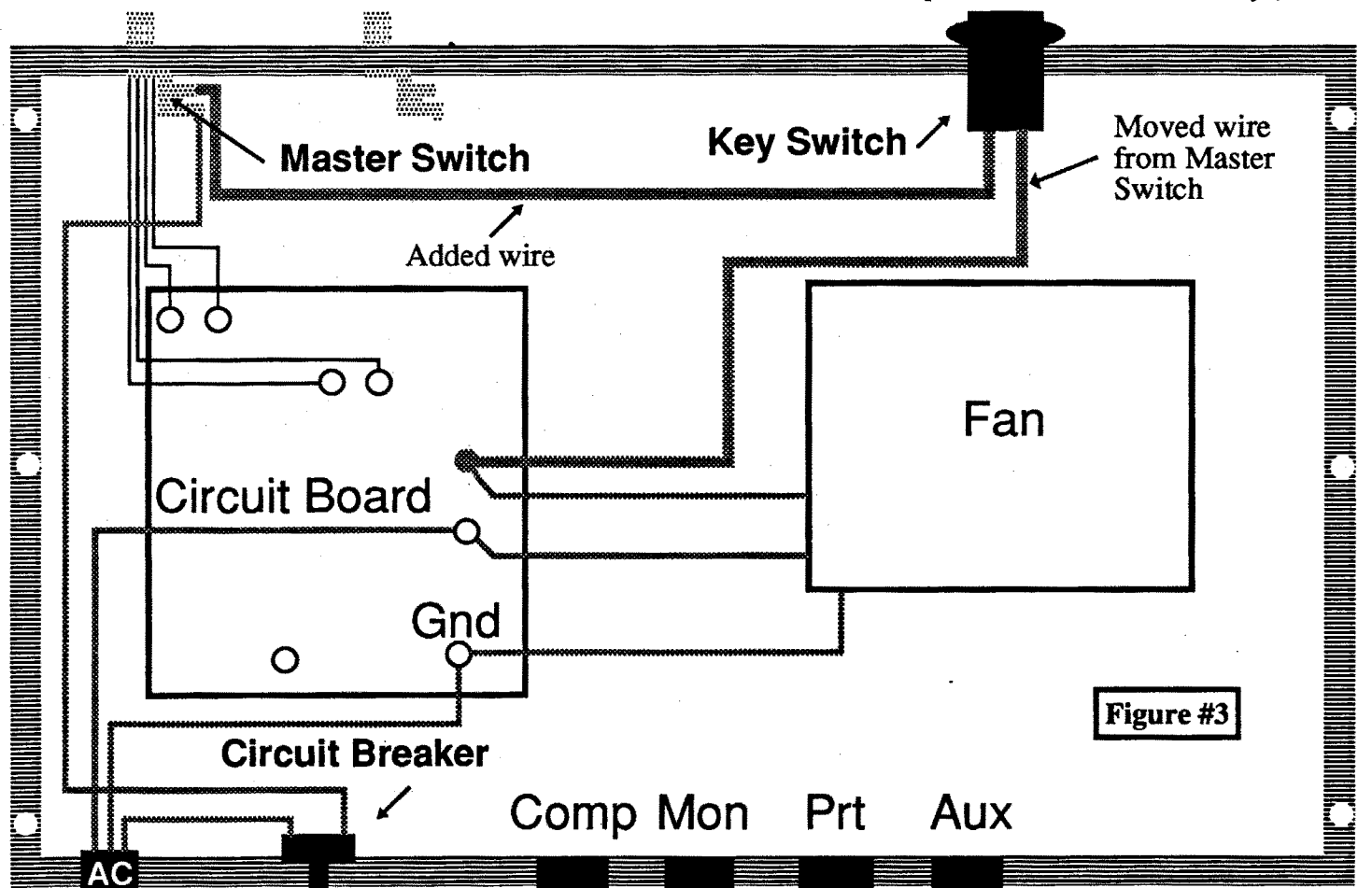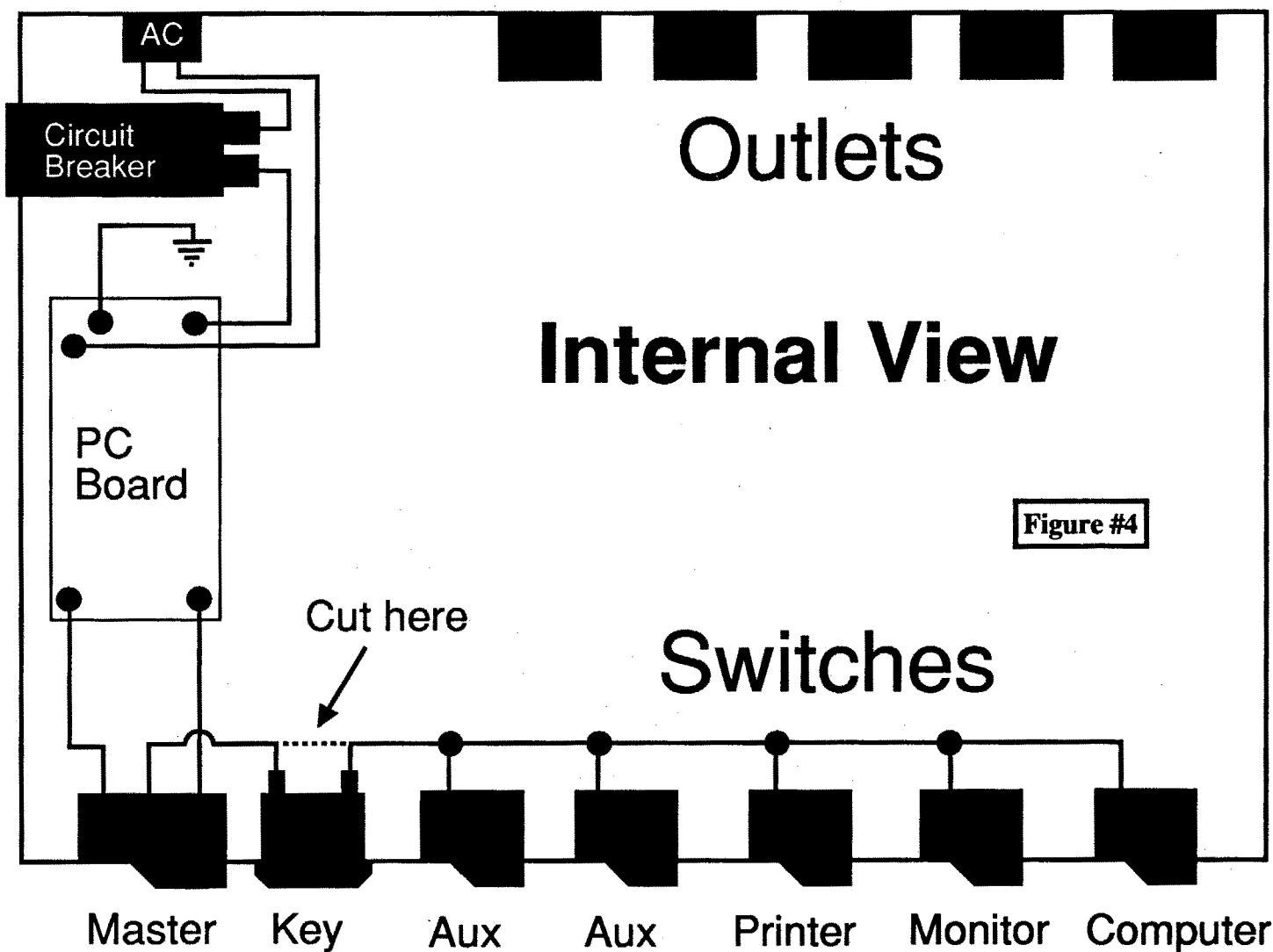
than a professional looking power source. By using the nut for the switch and a pencil, draw a circle inside the nut so you'll know when your getting close to the proper size. A half-moon or circular file will work but is slow, if you have access to a DREMEL tool with a cutter, it's MUCH faster but take your time, especially if you're not familiar with using a DREMEL tool. The hole is drilled & the switch fits perfectly with the nut securely fastened inside the case, right? I personally like to mount the switch with the front keyed notches in a 12 and 3 O'clock position (OFF is up, ON is turned to the right).

Wiring the Key Switch

After opening find the wire leading from the AC plug to the main ON/OFF switch, this wire should be black. (See figure 3 and figure 4.) There should be another black wire leaving the ON/OFF switch. This is the one to be removed.

All wires should be tinned prior to making a solder connection. This reduces the amount of heat that has to be applied and creates a stronger, long lasting bond. Tinning means to apply a small amount of flux (to clean the wire and allows the solder to adhere easily).

Now for the soldering iron (70 watts, 40 watt may work). If you used the locations recommended, you'll need no extra wire for the Power Supervisor as the short black wire connecting the Master & Aux2 switches is just long enough to cut at it's center, strip 1/4" of insulation and solder into the key switch contacts (see Surge Guard figure #4.) If you chose an alternate location or make a mistake cutting the wire, you'll need another piece.

Note: Wire sizes are reverse numbered (10 gauge is larger than 12 gauge) and the key switch contacts are not capable of supporting larger than 12 gauge wire.

On the System Saver, you'll need to unsolder the wire leaving the Master switch (See figure #3) and going to the circuit board (unsolder at the switch). Solder this wire to one side of the key switch and using a 6" to 8" 14 gauge piece of wire, solder it to the other contact on the key switch and the Master switch where you removed the previous wire (see figure #3 for the System Saver.)

Reassemble the unit in reverse order as disassembly. Now for the test.

Warning: Since the key switch and key are made of metal, a hazardous shock *could* occur should the switch ever become faulty and short. I've never heard of one going bad in this way, but it is possible. For this reason, the key should never be in the switch while the Master switch is on.

How do you know if the master switch is on?

Plug it in and turn on the Master switch. On the Power Supervisor, the Master switch light should *always* illuminate regardless of the key switch position. The remaining switches will or will not illuminate indicating the key switch is on/off. Ensure the Master switch is extinguished before using the key. The Master switch on the System Saver should be in the extended position when using the key (remember to remove the key before depressing the Master switch, the same holds true when shutting the system down, turn the Master switch off first.)

Zorro	FL

Softkey for...

Windwalker

Origin Systems, Inc.

Requirements:
Apple IIe w/128K, or IIgs
Super IOB v1.5
Fast disk copier (Disk Muncher, Copy II Plus, etc.)
My adaptation of Captain Dan's softkey for Ultima V (COMPUTIST #68)
4 blank disk sides
optional: COMPUTIST #61

Windwalker, sequel to Moebius, is a recent release from the folks at Origin Systems. As a disciple of Moebius, the Windwalker, you are to partake on a quest to aid the deposed Emperor Chao Ti, and his wife Cheng Sing, of the land Khantun, whose reign has been usurped by the evil warlord Zhurong, and his sidekick, the Imperial Alchemist Shen Jang. You begin the quest as a humble fisherman, and through your travels and encounters you learn what you have to do to survive in the world, and are re-

warded for your accomplishments by attaining advancement in orders of enlightenment (i.e. experience levels). Your vital statistics consist of four abacus-like devices which represent, in order, Body (hit points), Spirit (magical ability), Honor (measure of your integrity as a person among the people of Khantun), and Karma (number of lives). When you begin the game, you start out at the first order of enlightenment, and as you increase in levels, you gain greater stamina in each of the four attributes, and thus they will endure for greater periods of time whenever a statistic is burdened. Should any of the beads on the abacuses slide against your favor (i.e. loss of hit points in a fight, loss of magic ability after casting a spell), you can pray to the gods utilizing specially blessed sticks of incense, which will result in the immediate replenishment of a depleted attribute.

Aesthetically, the game is one of the best I've seen on an Apple IIe. The graphics are marvelously detailed, from the remarkably realistic title screens to the picturesque sky which changes according to the time of day. In addition, as your character moves over land and through villages, you are given a quasi-3D perspective, which is similar to that used in the arcade game Airheart by Broderbund; if you're walking down to a pier, for example, you can see the people and buildings behind you recede into the distance. The facial icon of your character as well as those of the other inhabitants of Khantun are also finely detailed, from the smiles of the Emperor's concubines to the evil sneer of thieves, and you can notice your character's facial expression change if he is either hungry, sleepy, or exhausted. What really sets Windwalker apart from most as far as graphics are concerned is the combat system and its amazing artwork. Featuring completely flicker-free black and white graphics, the combat scenes are exhilarating to behold as your character uses such moves as roundhouse kicks, thrusts, and punches to render harmless the thief, ninja, or whatever else picks a fight with you. Admittedly, your character's status as a disciple does limit his weapon selection (since defense is the top priority) to quarterstaff or simply bare hands; but nevertheless, what proves to be real-time, up-front engagement with foes leaves you with much room to experiment with different tactics against your enemies, as well as a sense of satisfaction when you deftly knock a thief unconscious with blows executed instantaneously at your command.

Now for the softkey. Since Windwalker is a product of Origin Systems, the same people who created (and copy-protected) Ultima V, I decided to try my revamped controller for Ultima V (in COMPUTIST #68, p. 11) in the hopes that the protection was the same. Fortunately, both schemes were identical, and the controller worked flawlessly. According to Captain Dan back in COMPUTIST #61, the protection on Ultima V consisted of a modified version of ProDOS (which I discovered is called DinkeyDOS), further modified so that each sector number beyond track $02, sector $0F (i.e. all sectors from tracks $03 to $22) had been increased by $11. If you had tried to use the Copy II Plus sector editor, Trax, the Inspector, or any other type of sector reader, and didn't refer to COMPUTIST #61 or #68, then

---

Parts suppliers:	Part#	Description	Cost
Roger Coats	AKN01	System Saver IIgs -	$69.00
PO Box 171466		+ Shipping	$ 5.00
San Diego, CA 92117			
(1-800-438-2883)			
JAMECO	KS1B	Key switch -	$ 4.95
1355 Shoreway Rd	JE1200	Swivel Power Base -	$39.95
Belmont, CA 94002-9864	JE1190	w/o Monitor stand -	$29.95
(415-592-8097)		+ shipping & Ins -	$ 5.50
		($50.00 minimum order)	

The above Power units are available completely assembled and tested from:

Gopher-Tech & Electronics
11015 Old Military Rd SW
Tacoma, WA 98498-1524

Part #	Description	Cost
KPC-GS	System Saver IIgs (KPC-GS)	$99.94
KPC-TS	Surge Guard Power Supervisor	$78.38
KPC-01	Surge Guard w/o swivel stand	$67.60

(7.8% tax & Shipping included in price PLUS 1 year warranty.)

Auxiliary Memory

Main Memory

System ROM

Hi-RAM (D000-FFFF) Bank-switched memory. On the IIe the main memory HiRAM is on the motherboard. On the II and the II+ it is on the RAM card plugged into slot 0. The auxiliary bank of Hi-RAM memory does not exist on the Apple II and II+.

System ROM (C100-FFFF) There is 16K of ROM space on the IIe consisting of two 8K ROM chips marked "CD" and "EF". The CD ROM can overlay the I/O space at C000-CFFF thus replacing the ROM space assigned to the slots. On the II and II+ the ROM space is only 12K (D000-FFFF) and does not share the I/O space at C000-CFFF.

BANK1,2 (D000-DFFF) Hi-RAM contains 16Kbytes of memory but only has 12K of space to access it. The extra 4K is bank switched into the D000-DFFF space. This creates two (2) 4K banks. (See "HiRAM softswitches")

Auxiliary Memory (0200-BFFF) This memory is on the card plugged into the auxiliary slot. This slot replaced slot zero on the II and II+. This memory is used heavily by DOS and by ProDOS' BASIC SYSTEM. Most of your programs will execute here with the smarter ones taking advantage of HiRAM and any additional banks of auxiliary memory.

Note: Portions of Auxiliary memory are used by the 80 column text (0400-07FF) and double hires graphics (2000-3FFF) hardware.

Main Memory (0200-BFFF) This memory is on the motherboard of all Apple II's. It is used heavily by DOS and by ProDOS' BASIC SYSTEM. Most of your programs will execute here with the smarter ones taking advantage of HiRAM as well.

Hires Page2 (4000-5FFF) This memory is used for the secondary page of Hires graphics. It does not have a similiar page in auxiliary memory.

Auxiliary Hires Page1 (2000-3FFF) This memory is used for the display of Double Hires graphics.

Hires Page1 (2000-3FFF) This memory is used for the display of Hires graphics. Combined with the same area of auxiliary memory it can display Double Hires graphics.

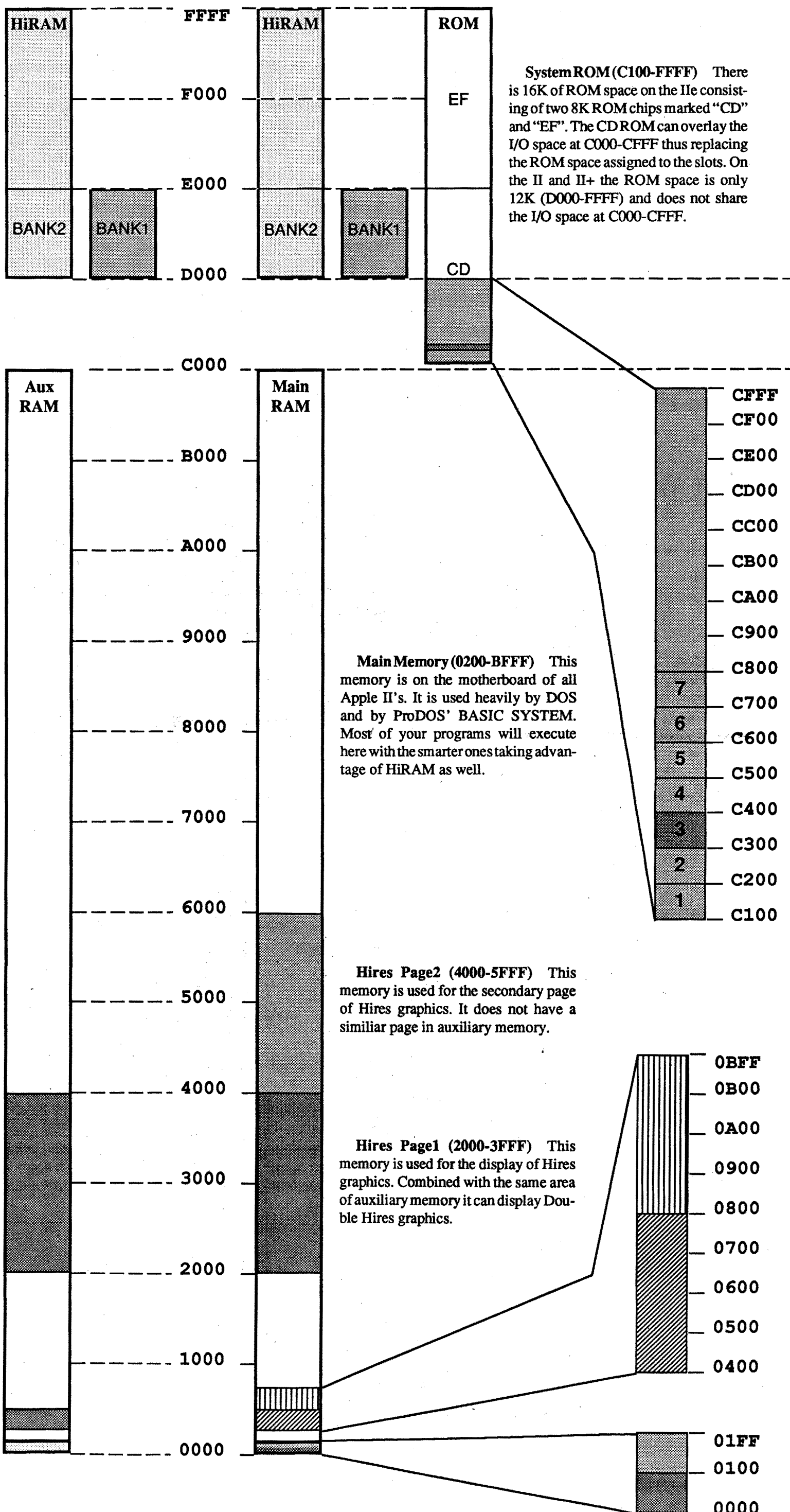**Auxiliary Text Page1 (0400-07FF)** This memory is used for the display of 80 column text and double lores graphics.

Alternate Zeropage & Stack (0000-01FF) This memory may be used by a program to maintain a separate stack and zeropage.

🍎 Apple IIe Memory Map 🍎

Input/Output

CFFF
CF00
CE00
CD00
CC00
CB00
CA00
C900
C800
C700 — 7
C600 — 6
C500 — 5
C400 — 4
C300 — 3
C200 — 2
C100 — 1
C000

CFFF
C800
C000

I/O ROM (C800-CFFF) This 2K memory space is supposed to be shared by the cards plugged into the slots on a one-at-a-time basis. Access to the 2K space is gained by first referencing address $CFFF (to tell all cards to release this space) then any memory access into the Slot ROM of the card needing access will give it exclusive control.

Slot ROM (C100-C7FF) These seven 256 byte memory spaces belong to the cards in slots 1-7, respectively. They are intented for ROMs with driver code to access the individual card functions. This code will vary depending on the type of card pluged into the slot.

CXROM (C100-CFFF) System ROM can overlay the I/O space at C000-CFFF thus replacing the shared 2K byte I/O Slot ROM space as well as the 256 byte ROM space assigned to each slot. On the II and II+ the ROM space is only 12K (D000-FFFF) and does not share the I/O space at C000-CFFF.
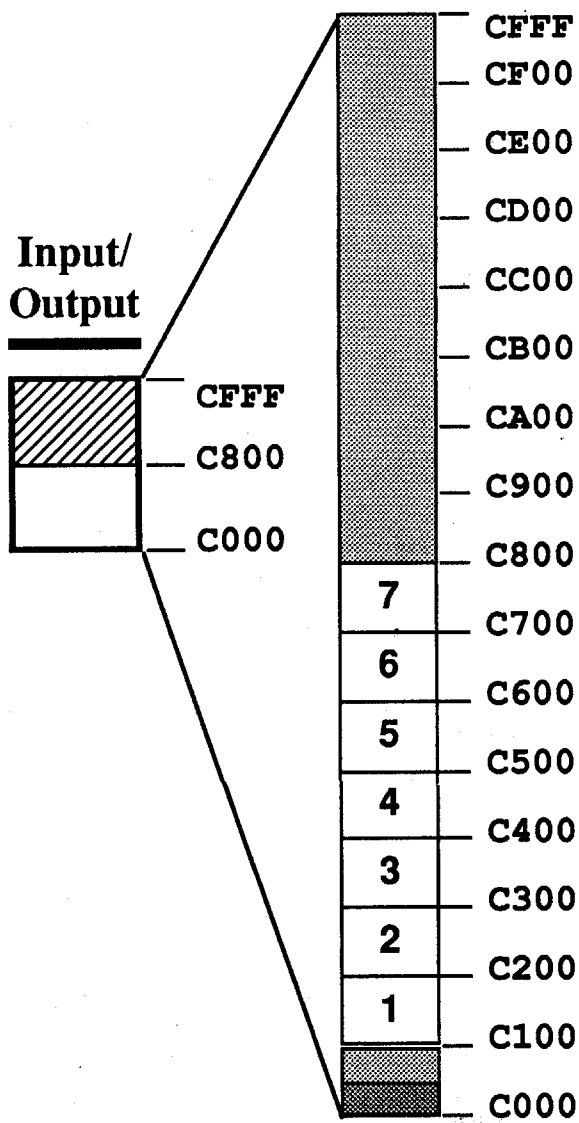
INTC3ROM (C300-C3FF) System ROM can choose to overlay only the 256 byte area assigned to slot 3. This is so that the built-in 80 column card software can co-exist with a plug-in card in slot 3..

Text Page2 (0800-0BFF) This area of memory is defined by Apple as the secondary text page, however, it is not supported in hardware. You must move the contents of this memory to text page 1 in order to see it on your screen.

Text Page1 (0400-07FF) This memory is used for the display of 40 column text and lores graphics. Combined with the same area of auxiliary memory it can display 80 column text or double lores graphics.

Stack (0100-01FF) This 256 byte area of memory is used by the microprocessor to store important data about the program being executed.
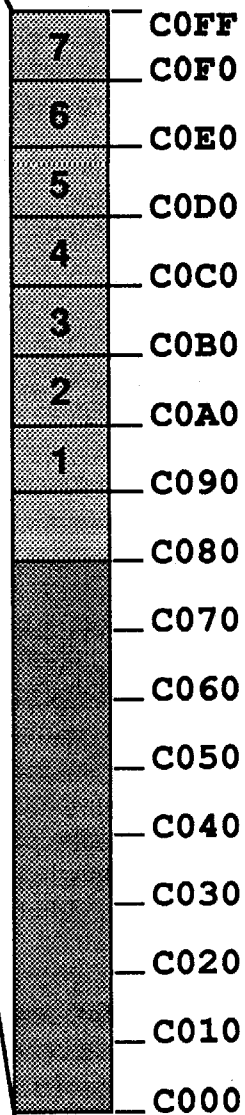
ZeroPage (0000-00FF) This 256 byte area of memory is shared by all software, howerver, much of it is claimed by the operating system (OS).

Slot I/O (C090-C0FF) These seven 16 byte memory spaces belong to the cards in slots 1-7, respectively. Their purpose is to transfer bytewide data to and from the cards. The 16 byte area that would normally belong to slot 0 is used for HiRAM bank switching.

COFF — 7
COF0
COE0 — 6
COD0 — 5
COC0 — 4
COB0 — 3
COA0 — 2
C090 — 1
C080
C070
C060
C050
C040
C030
C020
C010
C000

HiRAM Softswitches (C080-C08F)

C08B,8F (bank1) Read RAM/Write RAM*
C08A,8E (bank1) Read ROM/Write protect RAM
C089,8D (bank1) Read ROM/Write RAM*
C088,8C (bank1) Read RAM/Write protect RAM
C083,87 (bank2) Read RAM/Write RAM*
C082,86 (bank2) Read ROM/Write protect RAM
C081,85 (bank2) Read ROM/Write RAM*
C080,84 (bank2) Read RAM/Write protect RAM

* It takes two successive reads to this address to select RAM for writing.

Softswitches and built-in I/O (C000-C07F)

Address	Function
C070-F	Trigger Timers (RW)
C067,F	Read timer 3 (R)
C066,E	Read timer 2 (R)
C065,D	Read timer 1 (R)
C064,C	Read timer 0 (R)
C063,B	Read Pushbutton 2 (R)
C062,A	Read Pushbutton 1 (R)
C061,9	Read Pushbutton 0 (R)
C060,8	Read cassette input (R)
C05F	Set Annunciator 3 (RW)
C05E	Clear Annunciator 3 (RW)
C05D	Set Annunciator 2 (RW)
C05C	Clear Annunciator 2 (RW)
C05B	Set Annunciator 1 (RW)
C05A	Clear Annunciator 1 (RW)
C059	Set Annunciator 0 (RW)
C058	Clear Annunciator 0 (RW)
C057	Set Hires graphics mode (RW)
C056	Set Lores graphics mode (RW)
C055	Set Hires page2 (RW)
C054	Set Hires page1 (RW)
C053	Set mixed text and graphics mode (RW)
C052	Clear mixed text and graphics mode (RW)
C051	Set text mode (RW)
C050	Set graphics mode (RW)
C040-F	Strobe (RW)
C030-F	Toggle speaker (RW)
C020-F	Toggle cassette output (RW)
C01F	Read 80 column mode (R)
C01E	Read Alternate character set (R)
C01D	Read Hires mode (R)
C01C	Read page2 switch (R)
C01B	Read mixed mode switch (R)
C01A	Read text mode switch (R)
C019	Read verticle blanking sync signal (R)
C018	Read 80STORE switch (R)
C017	Read SLOTC3ROM switch (R)
C016	Read Alternate zero page switch (R)
C015	Read internal CX ROM switch (R)
C014	Read RAM write switch (R)
C013	Read RAM read switch (R)
C012	Read HiRAM read switch (R)
C011	Read HiRAM bank2 switch (R)
C010	Read Any-key-down bit (R)/clear keyboard strobe (RW)
C00F	Set ALTCHRSET switch (W)
C00E	Clear ALTCHRSET switch (W)
C00D	Set 80COL switch (W)
C00C	Clear 80COL switch (W)
C00B	Set SLOTC3ROM switch (W)
C00A	Clear SLOTC3ROM switch (W)
C009	Set ALTZP switch (W)
C008	Clear ALTZP switch (W)
C007	Set INTCXROM switch (W)
C006	Clear INTCXROM switch (W)
C005	Set RAMWRT switch (W)
C004	Clear RAMWRT switch (W)
C003	Set RAMRD switch (W)
C002	Clear RAMRD switch (W)
C001	Set 80STORE switch (W)
C000	Clear 80STORE switch (W)/Read keyboard & keystrobe (R)

you probably would have been completely stumped after discovering that anything past track $02, sector $0F was completely unreadable, even though a glance at track $03 with a nibble editor had revealed the apparently normal D5 AA 96 markers.

Step-by-step

1. Clear memory and boot a DOS 3.3 disk on which you will save the controller.

ctrl-open apple-reset

2. Type in the controller.

Controller

```
1000 REM WINDWALKER
1010 TK = 0:ST = 0:LT =
     35:CD = WR
1020 POKE 47507,0: POKE
     47517,0
1030 UB = 0:T1 = TK: GOSUB
     490
1040 IF UB = 1 THEN 1060
1050 IF TK = > 3 THEN CALL
     6400:UB = 1
1060 GOSUB 430: GOSUB 100:ST
     = ST + 1: IF ST < DOS·THEN
     1060
1070 IF BF THEN 1090
1080 ST = 0:TK = TK + 1: IF
     TK < LT THEN 1040
1090 UB = 0: GOSUB 490:TK =
     T1:ST = 0
1100 IF UB = 1 THEN 1120
1110 CALL 6417:UB = 1
1120 GOSUB 430: GOSUB 100
1130 ST = 0:TK = TK + 1: IF
     BF = 0 AND TK < LT THEN
     1100
1140 IF TK < LT THEN 1030
1150 POKE 47507,174: POKE
     47517,164: HOME : PRINT
     "COPY◊DONE" : END
10010 GOSUB 10055
10050 PRINT : PRINT CHR$ (4)
     "BLOAD◊IOB.OBJ0,A$300" :
     GOTO 10010
10055 FOR Z = 6400 TO 6433:
     READ I: POKE Z,I: NEXT Z:
     DATA 162,0,189,184,191,24,
     105,17,157,184,191,232,224,
     16,208,242,96,162,0,189,
     184,191,556,233,17,157,184,
     191,232,224,16,208,242,96:
     RETURN
```

Checksums

1000-$356B	1070-$0586	1140-$C86B
1010-$3266	1080-$752E	1150-$D8CC
1020-$5917	1090-$D00D	10010-$949A
1030-$51D2	1100-$68D6	10050-$5CE0
1040-$8CFB	1110-$6483	10055-$8797
1050-$DE3C	1120-$594E	
1060-$D138	1130-$EFE9	

3. EXECute capture (from the COMPUTIST Starter Kit) and when prompted enter a name for the controller and press RETURN.

EXEC CAPTURE
RUN
WINDWALKER   *name of controller*

4. Load Super IOB, install the controller, and use it to copy side 1 of disk 1.

LOAD SUPER IOB
EXEC CON.WINDWALKER
RUN

5. Using a fast copier, copy the remaining sides to your blank disks.

Playing Tip for...

Windwalker
Origin Systems, Inc.

I played the game for two days almost non-stop until I solved it. Be warned, the following hints will take some fun out of the game, even though it is not the most difficult to solve.

•Priests are useful when it comes to blessing common incense.

•From Xiang Loh village, sail north until you find a group of islands. Then search further until you've found an unoccupied house. Search the cabinet, and follow the directions on the map to the thieves' hideout. There you'll discover something that will be very important later on.

•It's VERY useful to have parchment, quill and ink on hand, especially in the Palace and in the cave of the Shaman.

•To attain quickness through prayer, either search the northern group of islands for the home of a certain retired assassin, and ask him about it, or just say "Quicken my pace" while burning blessed incense.

•To become "The armored one", you must tread "The solid path" to stalk the sea dragon as an "Unseen presence".

•Always greet the local Nubians.

•The princess has a fondness for Jasmine tea; if asked she may provide you with some flowers, but it's best not to accost her in the bath, lest your honor be tainted.

•Do not battle Zhurong until you've become "The armored one".

•The medicine men have a few things in common. When you've learned enough from the locals, you should ask one about the other, and then take what the first gives you to the one in hiding.

•At the proper time, ask the concubines to acquire a certain key from the Warlord.

•To concoct the Elixir of Everlasting Life, you need: Jasmine flower, rhinoceros horn, gold dust, peach seed of immortality, and a certain skilled medicine man.

•To banish Shen Jang from the physical plane, confront him on the night of the new moon. Just as he enters the Astral Gate, fling a fireball of righteousness at the gateway to trap him.

•To acquire the Peach Seed of Immortality, get slashed by an Oni on the Isle of the Dead, and then move to the north exit of the cave you find yourself in, cloaked under invisibility and clearheaded with the help of a health elixir or Eyes of Fire. Try to sleep until a full moon, and when you awaken you'll get both the seed and a special blessing from somebody up high.

•The Isle of the Dead is a dangerous place - don't even try going there unless you've at least attained the Order of Shark.

•During prayer, the gods reward most those who eat little.

•After defeating the Warlord, go to the cell farthest to the right in the prison, and respectfully force-feed the emperor the antidote. Don't slap him, though - that's dishonorable.

Crusader   SD

Softkey for...

Tomahawk
DataSoft

The version of Tomahawk I have is by DataSoft. I have seen it on the most wanted list saying it was by Electronic Arts. If your program is by EA, try the crack for Chuck Yeager's AFT later in this article.

Alright, I finally get to write a long explanation of a crack I just finished. I hope that this will help other people who are new to the deprotecion game. I have to give a lot of credit to Marc Batchelor in Computist issue #68 for this one. I

started out trying to do this one on my own but it didn't work. I am still not an expert in the field of cracking so I rely on any help I can get.

When I first looked at the code, nothing made much sense. I assumed that there was some kind of signature check because the disk was copyable using COPYA but once the boot started, the program would die and put "PLEASE USE ORIGINAL DISK" on the screen. I figured that I would try to do a boot code trace. I set up to boot into the monitor right after the first stage of the boot was completed by changing the boot code:

Turn on your computer with nothing in the drives and press:

ctrl reset

At the prompt, enter the monitor.

CALL -151

Move the boot code into normal memory:

9600<C600.C700M

Make the program go to the monitor once the first boot stage is complete.

96F8:4C 59 FF
9600G

Shut the drive off.

C0E8

Here is what I found that looked interesting:

087EL

```
087E:A2 79        LDX #$79
0880:BD 04 08     LDA $0804,X
0883:48           PHA
0884:4A           LSR
0885:68           PLA
0886:6A           ROR
0887:9D 04 08     STA $0804,X
088A:CA           DEX
088B:D0 F3        BNE $0880
088D:4C 14 08     JMP $0814
0890:A2 79        LDX #$79
0892:BD 04 08     LDA $0804,X
0895:18           CLC
0896:2A           ROL
0897:90 02        BCC $089B
0899:09 01        ORA #$01
089B:9D 04 08     STA $0804,X
089E:CA           DEX
089F:D0 F1        BNE $0892
08A1:60           RTS
```

I knew that this looked like decryption code or something but I was pretty stumped. I executed the code and didn't really see too much. I decided to look through my back issues and found something for DataSoft in issue #68. The code in the program was identical to the code I found and in the same place I found it. The code that used to be here was garbage until I executed the routine at 087E. Here is that code after it is decoded:

```
0861:A9 40        LDA #$40
0863:85 03        STA $03
0865:A0 00        LDY #$00
0867:84 02        STY $02
0869:A2 06        LDX #$06
086B:B1 02        LDA ($02),Y
086D:48           PHA
086E:4A           LSR
086F:68           PLA
0870:6A           ROR
0871:91 02        STA ($02),Y
0873:C8           INY
0874:D0 F5        BNE $086B
0876:E6 03        INC $03
0878:CA           DEX
0879:D0 F0        BNE $086B
087B:4C CB 43     JMP $43CB
```

I thought, great!! I don't have to do much more work. The code is the same!

Well, I was wrong. In Marc's article it showed how to set up the boot to jump to the monitor after the first stage. I did everything, then it said to look at $43E5. Well, when I looked there, there was nothing but 00's everywhere. Needless to say, I knew I might have to work a bit harder. I also know that I might have done everything the hard way but, I got the job done, 2 ways!

Next, I wanted to find out where the routine was on the disk. I figured if I looked for the word "PLEASE" I would be right where the protection was. Thanks to Marc, again, he had listed a lot of the code in his crack and it helped me located most of the stuff a lot easier.

I figured out that the words and letters were all encoded and found that if I looked up the values for the letters, multiplied each value by 2 and if the value was more than FF I subtracted FF. Example: P=$D0 L=$CC E=$C5 A=$C1 S=$D3 E=$C5. So I have D0 CC C5 C1 D3 C5. Take D0 * 2 = 1A0, which is more than FF so take FF away from 1A0 and you get A1. Do this with all of the letters or parts of the code you need to find and search the disk for the new values you have come up with. It helps if you have a scientific calculator that works with hex numbers!

I found the word "PLEASE" on track $00, sector $06, starting at byte $7D. Then, according to Marc's article, I knew that this was the end of the protection code. I then found the start of the protection code by decoding the bytes in Marc's article and then looking for those patterns on disk. I found the routine on track $00, sector $05, bytes $58-C9. Byte $C9 was the first RTS encountered so I figured that the code was all there. My next step was to EA out all of the code. EA decoded is D5, so from byte $58 to byte $C9 I put D5's. I then wrote them back to the disk using DISKEDIT (from the Starter Kit disk). The disk booted and ran fine.

It looked sloppy soooo... I know what you are saying, "If it works DON'T FIX IT.", well, I couldn't help it. I knew that all you had to change was a few bytes instead of 114 bytes. I knew where on disk the code was but I didn't know where in memory it was being loaded and therefore didn't know what address to look for a JSR to. I booted the disk and when the program had loaded I did a CONTROL-OPEN APPLE-RESET followed by a CONTROL-RESET. I got into the monitor and looked for all of my D5's. I found them all starting at $4458. I then knew that any JSR's to $4458 would be what I had to eliminate. I decoded the bytes 20 58 44 into 40 B0 88 and searched the disk. I found these occurrences at track $00, sector $05, at byte $2B and $3D.

I then re-copied the disk for a fresh start. Took out DISKEDIT and went to track $00, sector $05 and changed bytes $2B-2D and bytes $3D-3F to D5's. The disk booted and ran fine and IT DOESN'T LOOK SLOPPY. It is also a lot easier.

Step-by-step

1. Copy the disk using COPYA.

2. Edit the copy.

Trk	Sct	Byte	From	To
$00	$05	$2B-2D	40 B0 88	D5 D5 D5
		$3D-3F	40 B0 88	D5 D5 D5

3. Write the changes back to the disk.

Boy, that was easy!

Softkey for...

Chuck Yeager's AFT

Electronic Arts

Well, I thought it would never happen but we can now remove Chuck Yeager's AFT from the Most Wanted List!!! Thanks to Blain Johnson and Computist issues #62 & #76.

I have wanted to remove the protection from this disk since I bought it a couple years ago for one very good reason, my copy is autographed by Chuck Yeager! I tried to remove the protection from the disk long ago but I soon realized that I was in WAY over my head. Blain's method works perfectly, the hardest part was entering his programs! Here is what ya gotta do:

1. Enter the 5 programs from issue #76, pages 19-20.

2. With the computer in BASIC (I was in DOS 3.3, BASIC) set up to boot into auxiliary memory.

CALL -151

0:8D 03 C0 8D 05 C0 4C 00 C6

3. Insert the AFT boot disk and boot it.

0G

4. When the drive stops, quickly press:

open apple ctrl reset

ctrl reset

5. Transfer the modified RWTS to main memory.

CALL -151

0300:18 4C 11 C3

03F8:4C 00 03

2200<200.7FF ctrl Y

ctrl C

6. Boot a slave disk and save the RWTS. I used the same disk that I put the programs from issue #76 on. I saved the RWTS with the name ECA.RWTS because this is what the program ECA.BAS from issue #76 uses. If you change the name, don't forget to change line 10 of the program.

PR#6

BSAVE ECA.RWTS, A$2200, L$600

7. Put the disk with the programs from issue #76 in the drive and run ECA.BAS. Follow the prompts for proper disk placement.

RUN ECA.BAS

8. When the copy is complete, you need to reboot the disk with the program ECA.INSTALL on it. Run ECA.INSTALL and answer Yes to the default.

RUN ECA.INSTALL

Y

9. Now, all that is left is to copy the back side of the disk, it is not protected.

You now have a working copy of Chuck Yeager's AFT and you no longer have to worry about trashing your original disk.

Also, in Blain's explanation in issue #76, he states that to verify you have found a second EA RWTS look 2 sectors ahead and it should start with 10 FB C9 AA D0 F3. Well, mine didn't so don't let that throw you off.

One thing that you might want to do, I did, is to put all of the programs from issue #76 on a disk and use this disk as an Electronic Arts de-copyprotection disk.

I would also like to thumb my nose at Electronic Arts. I don't know if they are still protecting their programs but this should show them that no matter how elaborate they make their protection, there is someone smarter out there who is going to find a way to remove it. Thanks Blain!!!

I just got a MODEM and boy am I having a blast! I also have changed my alias. I used to be Mr. Memory Dump but that doesn't fit on too many BBS's so I changed it to Crusader. I think it sounds a lot better too. I know that there are some people who think that having an alias is stupid, well who cares?! I think it's kind of fun to be strange! I am also "crusading" on every BBS that I can log on to and I am putting messages about how great Computist is. I would love for people to leave any "good" BBS numbers that they know of in my mail on the Computist BBS. I am user #21.

I haven't written anything in a LONG time and forgot how much fun it is to run my mouth off! I hope everyone is sending something in to Computist for the IRS fund! I am sending what I can. I know that there are a lot of people out there who would hate to see this magazine go under. I know I am one of those people and I will do whatever I can to help keep it going!

To Mr. Haight, in reference to your editorial in issue #78. I would love to hear about new technology pertaining to the Apple II's. Also, I would love to see a Computist Cracking Card as a Hardware project. I sent my money in too late for the Snapshot card and would really like an NMI for cracking. If anyone has an old NMI that works and preferably has documentation, I would be real interested in purchasing it from you. If you can't get in touch with me through the BBS, I think Computist can forward some mail.

⑦ I have The Playroom by Broderbund, I also recently purchased an RGB monitor to make my games more interesting for myself and my kids. Oh, get this! I found an AppleColor RGB Monitor, on clearance and still in the box for $77.22!! Enough about my find, The Playroom doesn't support RGB color. I called Broderbund, there was a plan to upgrade the program but it got scrapped. Is there any way to make the program work with an RGB monitor? I have an enhanced IIe and I am using the Color-Link RGB option on my RamWorks III card. Why would the program work on a normal color monitor but not an RGB one? When I program and use graphics the colors work, why are certain programs incompatible?

⑦ How do you get the cotton balls at the South Pole in Leather Goddesses of Phobos? I have tried everything!

To all Australians: I know what it is like living overseas. I spent 4-1/2 years in England. If you need anything, write to me. Also, what is going on in Home and Away? I can be reached at:

4503 Candlewood Place Apt. 208
Rapid City, SD 57702

Rod O'Brien   NY

Comments on
Lode Runner Virus

In Computist # 75, Zorro of Florida mentions that his uncle has come across a virus named Lode Runner on a Nibble disk from August 1990. I have an original version of Nibble's August 1990 disk and can find NO indication of a virus on it. I ask Zorro if his uncle has an original or a "copy" of the Nibble disk. I would think it has to be a "copy". Also I would like Zorro to forward a copy of the disk (with virus) to me at my address:

Rod O'Brien
41 West 72nd St #16C
New York, NY 10023

I have been studying various viruses and would like to see what this one looks like. Before you get the wrong idea I want to study the virus to defeat it, I am not looking to write one of my own.

The virus "Lode Runner" has been reported around the Apple II world for some while now. The following is a reprint of some articles I have written in my local users group newsletter, BAUD (Big Apple Users Digest).

It seems that a new program coming out of France, Speedy Smith, has been responsible for a new virus in the Apple II world. The new virus, called LODE RUNNER, seems to be installed on Speedy Smith, which is an Apple IIgs copy program. The screens for the programs are all SHR and it has a thermometer to indicate copy process. The reason no one is sure if this program is the culprit is that the programmers have written it in their own new DOS which is unreadable through the standard processes. It seems that Copy II+ can catalog it and the total number of blocks indicated are 292 used but the files only add up to a total of 148 used. The virus seems to trash disks and has shown up in Canada, Oregon, California and Michigan. (And now Florida according to Zorro)

A good way to check to see if you are infected (besides having your disk erased) is to use Copy II+ to check your Block 0000. If your first three bytes are 01 A9 50 then the disk IS infected. It seems the virus is being spread through the copying of the program and then booting an unaffected disk immediately afterwards. The virus seems to attach itself to the ProDOS kernel so it goes unnoticed till it goes off. The virus will go off if the Month listing in the Control Panel is set to October and the day is divisible by 8. Next you must boot a new disk with an Open Apple-Control-Reset. The second disk must not be write-protected or the virus will not attach itself. The virus will appear on the screen with a red background and says,

"+++ SYSTEM FAILURE in : +++
08

It then counts down to zero and a multi-colored screen will appear saying,

000E Copies. Distr.Artistes Associes
===LOAD RUNNER ===
Premier virus NON-DESTRUCTEUR sur IIGS
par SUPER HACKER & SHYRKAN du MASTERS CRACK-ING SERVICE
1988 Lyons

Lode Runner does not appear to affect 5.25" inch disks but it may affect certain programs at anytime. The only programs that are known to be destroyed by just being in the presence of Lode Runner are Sierra's Space Quest I and Police Quest for the IIGS. Other Sierra products are likely to be susceptible to the virus as well. Use extreme caution.

This information came from an article in the Flint Apple Club newsletter (FAC) and I would like to thank them and Lonny Cole, Brian McCraig, the BC Apple Club, Ross Woodhouse and Pat Daley in Oregon, and the Eugene Oregon users. It seems that two Apple users, Neil Parker and Mike Sutter have analyzed Lode Runner and have written a detection/correction program for it.

Also there has been a report from the Journal for the Northern Illinois Computer Society which reviews the latest

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copy program to come out of France, called ZZCopy. What made me sit up and take notice of this particular product is the source from which it came. The review talks about it coming from France and from the same people who brought us SpeedySmith. SpeedySmith is the copy program that has been rumored to have also brought us the Apple Virus...Lode Runner. It is dangerous and deadly to the Apple World. Be Careful. If any of our members sees, owns or uses a copy of either SpeedySmith or ZZCopy please let us know about them. If they are "clean" programs and do not contain virus', I would like to let our membership know.

Recently there have been reports that some disks from PDE have contained the French virus "Lode Runner" but the PDE, to its credit, now is carrying a virus detector and eliminator for Lode Runner. Lode Runner changes the first three bytes of a disk. The virus reportedly comes from France. Call the PDE for more information at 800-331-8125.

I have yet to actually see a copy of this virus and according to some correspondence I have had with other user groups around the country there are some versions of both these programs out there that seem to be clean but I would very carefully check any copies of these programs or any other French programs in my collection.

I'd like to step up on my soapbox for just a moment.

To Mike from Canada in the IBM RDEX: I don't have an IBM but I recognize the scenario that you are describing. You have a copy of "Mean Street" that you didn't buy. You "borrowed" the manual and have removed the password protection. In a nutshell you are pirating the game for your use. The BBS's that you describe (with a cynical grin) are the kind that specialize in pirated software. Getting the manual on disk from them may help you finish the game but I don't think it helps the authors who spent many hours trying to put together a good game for consumers to enjoy (as well receiving a possible virus in the process). Computist magazine has helped me copy many of my favorite programs and enabled me to save the originals in case of emergency. The difference between you and I, is that all my software was purchased or given to me (legitimate commercial copies) by friends who had finished them or didn't want them anymore. Apple users are going through a rough time right now, many publishers are discontinuing their support of the Apple line for many reasons but one of the most commonly stated ones is piracy. Computist is a magazine that can teach and inform users about their machines, regardless of the make, but it has never advocated piracy and I don't think it ever should. I and I would think other readers would prefer if you kept your tips, techniques and ideas (grin) to yourself.

I'll step down now.

⑦ **To Stan T. Merka** (Computist #68): You submitted an article for putting Mean 18 on a Hard Drive. I followed the article to the letter and carefully checked my typing but I still get an error when loading that says "trouble loading SNC file". According to both the article and my own research there is no SNC file other than the six files that are appended with the .SNC suffix. The

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error does not clarify if one file or all the SNC files are having trouble loading.

My system is a GS with 2 meg of RAM and a 64 MEG hard drive. The program will boot and run if I rename my second partition as MEAN 18. The program will boot but then display the error when I put the game into my Games subdirectory on partition 1. The pathname for that partition is "HD1/GAMES/MEAN18/".

Also in his article on block $5B5 he lists a patch on $14A and then zeroing out from $153 for the patch to work. If you zero out from this point it changes the last byte in the previous patch. Is this a typo?

⑦ My other question to Mr. Merka is can his process be used the way I want, that is inside another subdirectory or does his modification only work as a root file. If any other readers have the answer I would appreciate hearing from them.

B.M.E. Upp ("Scotty") · CT

Of DOS and Men

How the @#$@ did that happen??!!??

That was my initial reaction upon reading B. Dudley Brett's article in COMPUTIST #78, p.22, about problems he had encountered with my enhancements to his FIND.CAT program. Mr. Brett had discovered, upon adding the enhancement code to his program, that the commands to send output to the 80 col. screen or to the printer were being ignored, and he pointed out that the GET statement in line 570 was not followed by a PRINT statement, a condition which can cause DOS to "pass over" such commands.

The mystery, to me, was how this could have happened when I always check out any code I send anywhere to be certain that it works as advertised, and I try to anticipate possible bugs. In this case, the program had worked just fine for me. All sorts of wild thoughts began to run through my head: was Canadian Applesoft somehow different from American Applesoft? Was there an Applesoft exchange rate, like there is for currency? What if I listed an American Applesoft program in Ottowa - would it have more lines in it than the same program listed in Connecticut? There are lots of really strange things that go on in this world, as anyone who's ever watched network TV can tell you!

In re-examining the code in my version of the program, however, I noticed one small detail that I had neglected to include in the copy that I sent to COMPUTIST: in line 120, Mr. Brett had defined D$ as "CHR$(4)"; I had changed that to "CHR$(13)+CHR$(4)", which had accomplished the same thing as the PRINT statement inserted by Mr. Brett after the GET. I apologize to anyone for whom my oversight caused head-scratching and bad language.

For any budding Applesoft enthusiasts out there, the "CHR$(13)+CHR$(4)" concatenation is usually denigrated, on the basis that it causes problems if you try to run it under ProDOS. However, Mr. Brett's program won't run under ProDOS anyway (line 130 guarantees that), and even in other circumstances, it's easy enough to guard against a problem. For instance, I like to use "D$ = CHR$(4): IF PEEK (48896)

<> 76 THEN D$ = CHR$(13) + CHR$(4)".

That way, if ProDOS is running, D$ remains as plain old CHR$(4), and no harm is done. Another tactic often used is to simply PRINT the GET variable to the screen after it's been got. So, after we GET PR$ in line 570 of FIND.CAT with enhancement, we would PRINT the result (i.e., "PRINT PR$"), which would also close the barn door (Drive door?) left open by the GET statement. As is often the case, there is more than one way to skin a [FIND] CAT! (sorry)

After all this, however, I do still have another question for Mr. Brett. To whit: if the Canadian spelling for "program" is "programme" (see Mr. Brett's article, cited above), then - are you ready - how come "DOS" isn't spelled "DOSSE"?

Now - let's see our northern friend 'splain his way out of that one!

Alan Chaney MD

Well here's the kid again, and would you believe that my ship finally was allowed to leave the Persian Gulf. But it's got booby traps everywhere. Oh well, life goes on.

Due to the above circumstances cracks are rare, but I still have some help in the way of APT's. Here goes!

Softkey for...

Studymate (the grade booster)
Compu-Teach

Requirements:
Two 3.5" disk
3.5" fast copier
3.5" Sector Editor

I sent in a partial softkey of this program in issue #77, and now I am back to give you the full softkey of the program.

1. Copy both disks then put away originals.

2. With your sector editor scan the disk for A9 03 85 25 and change to 4C E8 C0 25. These bytes should be at the start of the file UNPACKER which loads at 00/0C00 in the monitor. This is the start of the protection.

3. Write the sector back to the copy.

2. Alternate: Scan for D9 00 02 D0 11 88 and change to D9 00 02 EA EA 88. Now you will have to type a letter, any letter or word followed by a return to enter the game. (My kids think I am psychic.)

Characters from "Where in time is Carmen Sandiego?"

Male Characters

Lee & Bill Ding	Red	Gray	Degas	Kipling
Earl E. Bird	Red	Brown	Orozco	Kipling
Justin Case	Black	Blue	Gogh	Hugo
Gene Yuss	Black	Brown	Gogh	Dostoyevsky
Ernest Endeavor	Blond	Blue	Cassatt	Dostoyevsky
Russ T. Hinge	Blond	Hazel	Cassatt	Hugo
Nosmo King	Brown	Hazel	Degas	Porter
Rudy LePay	Brown	Gray	Orozco	Porter

Female Characters

Auntie Bellum	Blond	Hazel	Cassatt	Porter
Minnie Series	Blond	Blue	Cassatt	Kipling
Molly Coddle	Brown	Blue	Degas	Hugo
Karl Meback	Brown	Brown	Gogh	Hugo
Sybil Servant	Red	Gray	Orozco	Porter
Sharon Sharalike	Red	Hazel	Orozco	Kipling
Lynn Gweeny	Black	Gray	Gogh	Dostoyevsky
Carmen Sandiego	Black	Brown	Degas	Dostoyevsky

Advanced Playing Technique for...

Where in time is Carmen Sandiego?
Broderbund

Requirements:
One deprotected copy of game.
Sector Editor
A way into the monitor (optional)

While reading issue #77, I noticed MR. WILLS Christmas Wishes and thought I could help. (Well here goes.) This will work on either the 5.25" or 3.5" versions of the game, and also the GS version as far as I tried.

00/4440:xx - Holds high byte of hours to solve case (monitor). Increase by 1 gets 10 hours.

00/4441:xx - Holds low byte of hours to solve case (monitor). Increase by 1 gets 1 hour.

00/56F8:CE 41 44 to EA EA EA - No time deducted from the 1's column.(Low byte)

00/5702:CE 40 44 to EA EA EA - No time deducted from the 10's column.(High byte)

00/56F5:F6 to 01 - This change can be found by searching for CE CE 44 D0 F6 18 60 and changing the F6 to 01. This change will decrease your time by 1 hour no matter what you select to do in the game.

Advanced Playing Technique for...

Where in Europe is Carmen Sandiego?
Broderbund

Requirements:
One deprotected copy (5.25" or 3.5")
Sector Editor

Characters from "Where in Europe is Carmen Sandiego?"

Male Characters

Pete Moss	Black	Brown	Sci-Fi	Poetry
Matt Knife	Black	Hazel	Musicals	Mystery
Tab Stop	Blond	Blue	Comedy	Poetry
Miles Long	Blond	Blue	Westerns	History
Chuck Roast	Brown	Gray	Sci-Fi	Biography
Chips Motherboard	Brown	Hazel	Westerns	History
Oly O'Leahy	Red	Brown	Musicals	History
Luke Warmwater	Red	Gray	Comedy	Biography

Female Characters

Kim Chee	Black	Gray	Sci-Fi	Biography
Carmen Sandiego	Black	Brown	Musicals	Biography
June Bug	Blond	Gray	Comedy	History
Kitty Litter	Blond	Hazel	Comedy	History
Patty Melt	Brown	Blue	Westerns	Mystery
Luce Leaf	Brown	Brown	Musicals	Poetry
Clare D'Loon	Red	Hazel	Sci-Fi	Mystery
Lotta Style	Red	Blue	Westerns	Poetry

Scan Bytes

E0 04 90 02 A2 03 — Change 04-01 and 03-01. Clues will now cost you 1 hour always. 01 AA 20 BB 6C A9 Change 20 BB 6C to EA EA EA. You now own a pass to travel free.

C9 16 F0 02 18 60 — Change 02-00. Your Detective won't go to sleep on the job. A2 01 4C 54 62 E6 Change 54-57. Return to Scene, now free.

A2 01 4C 54 62 A5 — Change 54-57. Return to Town, now free.

60 20 C7 6C 20 4B — Change C7-C9. Use of Crime computer and Database are now free.

86 6A 20 C7 6C B0 — Change 86-60. Travel,Clues,Crime computer and Database use are free. Change B0-80. Travel and clues cost 1 hour each.

The next two changes can be tricky if altered to much.

A5 13 C9 07 F0 06 — Change 07 to time Detective awake.

C9 16 F0 02 18 60 — Change 16 to time Detective goes to sleep. (07=7AM and 16=10PM)

Advanced Playing Technique for...

Where in the USA is Carmen Sandiego?
Broderbund

Requirements:
One deprotected copy (5.25" or 3.5")
Sector Editor

Search for: E0 04 90 02 A2 03
Change the 04 to 01 and the 03 to 01. Clues cost 1 hour

Search for: 85 1A A2 03 20 55
Change the 03 to 01. Travel costs 1 hour.

Search for: 85 6A A2 02 20 55
Change the 02 to 01. Crime Computer costs 1 hour.

Search for: C9 1B F0 10 20 27
Change the F0 to 80. Clues are free.

Search for: 86 88 20 C4 6D B0
Change the B0 to 80. All 3 items cost 1 hour.

Change the 86 to 60. All 3 items are FREE.

Search for: A5 13 C9 16 F0 02
Change the 02 to 00. Detective won't need sleep.

As I said before be careful with these 4 changes.

Search for: A5 13 C9 16 F0 02
Change the 16 to the time Detective sleeps.

Search for: A5 13 C9 07 F0 06
Change the 07 to the time Detective awakes. (07=7AM and 16=10PM)

Search for: 00 A9 33 20 6A 87
Change the 33 to 30

Search for: A5 5B 69 03 85 AC
Change the 03 to 01.

These two changes makes catching the criminal as short as possible. Location for catching crooks increments by one for each promotion received.

Advanced Playing Technique for...

Where in the World is Carmen Sandiego?

Broderbund

Requirements:
One deprotected copy (3.5")
Sector Editor

Scan Bytes

E0 04 90 02 A2 03   Change 04-01, 03-01. Clues cost 1 hour.

6A A2 02 20 80 6C   Change 02-01. Interpol cost 1 hour.

01 AA 20 80 6C A9   Change 20 80 6C to EA EA EA. Travel FREE.

C9 16 F0 02 18 60   Change 02-00. Detective won't need sleep.

86 88 20 65 6D B0   Change B0-80. All items cost 1 hour. Change 86-60. All items are FREE.

A5 13 C9 16 F0 02   Time Detective goes to sleep (16=10PM).

A5 13 C9 07 F0 06   Time Detective awake (07=7AM).

⌨ I have two programs that, without help, will never run on my IIgs. The programs are:

(1) Word Handler by Silicon Valley Systems,Inc. I have boot code traced this program to the third load, at which time it will crash to a screen full of 2's. It's a jump from page 3 to page 1 that seems to be the cause of the crash, but bypassing the jump also causes a crash. Because I have a IIgs, I didn't buy all of the Computist back issues, but I do have about 50 issues and none of the issues have an article on this program. I did find a article on Lancaster by the same company but it was of no help in softkeying this program for my computer. If I am wasting my time on this effort someone PLEASE let know.

(2) Earth Orbit Station by Electronic Arts. I know the program is softkeyed because I have played the game on a II+, Now I have issue #52 which shows examples of programs changed to run on IIe and IIc. I think I tried every one of those changes to this program to try and get it to work on my computer with no luck. I ask again am I wasting time or what. These programs (originals) were given to me and I know that they are old but I'd like to get them to run on my IIgs. Can anyone help?

Gary Wills   **Canada**

Softkey for...

Stickybear Shapes (ProDOS 1.5)

Optimum Resource

Requirements:
Apple II
Original Stickybear disk
Blank 5.25" disk
Quick Copy which ignores errors
Sector Editor (Copy II+)

This Softkey is an extension of those by Gary Verbuck (Computist #61) & Jim Ross (Computist #70, Page 18).

Copy Stickybear, ignoring the error on track $07, sector $0F. Search the disk for D0 03 4C 00 00 which is a BNE (Branch Not Equal) to a hang address. Change the D0 to 80 (Branch always). On my disk it is at track $05, sector $00, byte $2C.

Trk	Sct	Byte	From	To
$05	$00	$2C	D0	80

Edward L Eastman   **NE**

Catalog patch for the Color Print Shop

Requirements:
Color Print Shop (a backup)
Sector editor

I recently found a newer version of The Print Shop and it seems to be better designed than the older version which I use. This version allows color printing as well as saving completed designs. Another new feature is the Preview option which lets you see what it will look like before printing. I must admit this is a definite improvement considering how much paper I have wasted trying to get the words positioned just right. One last feature worth noting is that you can select a graphic from a data disk much easier now using a highlight bar. No more misspelled file names. What a good update to an A+ program.

All my graphics are on special disks with four extra catalog sectors. This allows me to store 131 graphics per disk. The only drawback is that the old catalog routine is still there. (See Klaus Iden's article in #57.) Because of the new menu type catalog, PS doesn't recognize the extra catalog sectors. Therefore the graphics 'stored' there are inaccessible without Klaus's patch.

Jumping right in, I found that they moved things around only slightly. The information in #57 is still valid except the catalog routine now starts at 7F70 instead of 8032 and the IOB starts at 814F instead of 811E. The edits are also in different spots on the disk. Over all, only seven byes referencing the IOB must be changed from the modified patch in #62.

Here are the new edits:

Trk	Sct	Byte	From	To
00	05	1F	20 2F FB 20	4C 00 C6 A9
			58 FC A0 00	11 8D 53 81
			98 99 00 08	A9 00 8D 54
			C8 D0 FA EE	81 A9 81 A0
			8B 02 AD 8B	4F 20 D9 03
			02 C9 C0 90	B0 0C AD 01
			EF 8D F3 03	82 8D 53 81
			8D F4 03 6C	AD 02 82 8D
			FC FF 00	54 81 60
03	07	7F	8D 54 81	20 83 02
03	06	58	CE 54 81	20 96 02

CPR Agent   **Canada**

Softkey for...

Chemistry: The Periodic Table
Chemistry: Balancing Equations
Probability Lab
Patterns
Estimation: Quick Solve I
Estimation: Quick Solve II
Picture Chompers
Fossil Hunter
Five-Star Forecast
Grammar Toy Shop
Backyard Birds
Murphy's Minerals
Time Navigator
Instant Survey
Sun and Seasons
Equation Math
MECC

All of the above MECC programs (and I presume all other MECC ProDOS programs) are deprotected in the same way. The credit for this procedure goes to Mr. John Jackson who originally wrote up the "crack" in COMPUTIST #72. I simply want to congratulate this gentleman and add to his list. I found that this procedure worked for all our MECC ProDOS programs from 1988 to 1990.

1. First copy the program using COPY A and ignore data epilogue bytes (POKE 47426,24 from BASIC or B925:18 60 from the monitor).

2. Replace the ProDOS file on your newly created copy with a different ProDOS (the one on your Copy II Plus program works great).

3. Go to the DISK MAP function of your opening menu of Copy II Plus (or a similar facility from another program) and locate where the file MECC.SYSTEM is located on the disk.

4. Scan through the MECC.SYSTEM file for the sequence of bytes 90 03 4C ?? ?? 60. It is very important that you locate this precise sequence as you will find several other sequences that begin with 90 03 4C. I found the sequence only once on each of the disks that I worked with.

5. Edit the 90 03 4C ?? ?? 60 to read 18 EA EA EA EA 60.

That's it! Your disk is now deprotected.

To help out, here are the precise locations and byte sequences that were on my disks:

Chemistry: The Periodic Table

Trk	Sct	Byte	From	To
$06	$0B	$04	90 03 4C 9E	18 EA EA EA
			85 60	EA 60

Chemistry: Balancing Equations

Trk	Sct	Byte	From	To
$19	$0D	$7F	90 03 4C 62	18 EA EA EA
			7C 60	EA 60

Probability Lab

Trk	Sct	Byte	From	To
$05	$09	$8D	90 03 4C A2	18 EA EA EA
			84 60	EA 60

Patterns

Trk	Sct	Byte	From	To
$01	0A	$F6	90 03 4C 29	18 EA EA EA
			86 60	EA 60

Estimation I

Trk	Sct	Byte	From	To
$05	$09	$89	90 03 4C 5C	18 EA EA EA
			90 60	EA 60

Estimation II

Trk	Sct	Byte	From	To
$05	$09	$89	90 03 4C 66	18 EA EA EA
			8B 60	EA 60

Picture Chompers

Trk	Sct	Byte	From	To
$14	$0B	$62	90 03 4C 5F	18 EA EA EA
			84 60	EA 60

Fossil Hunter

Trk	Sct	Byte	From	To
$1B	$0D	$89	90 03 4C C9	18 EA EA EA
			83 60	EA 60

Five-Star Forecast

Trk	Sct	Byte	From	To
$01	$09	$8D	90 03 4C D3	18 EA EA EA
			81 60	EA 60

Grammar Toy Shop

Trk	Sct	Byte	From	To
$17	$0B	$8D	90 03 4C CB	18 EA EA EA
			8D 60	EA 60

Backyard Birds

Trk	Sct	Byte	From	To
$05	$09	$26	90 03 4C 97	18 EA EA EA
			93 60	EA 60

Murphy's Minerals

Trk	Sct	Byte	From	To
$05	$09	$A6	90 03 4C 09	18 EA EA EA
			90 60	EA 60

Time Navigator

Trk	Sct	Byte	From	To
$05	$09	$8D	90 03 4C 51	18 EA EA EA
			75 60	EA 60

Instant Survey

Trk	Sct	Byte	From	To
$05	$09	$4C	90 03 4C 85	18 EA EA EA
			19 60	EA 60

Sun and Seasons

Trk	Sct	Byte	From	To
$05	$09	$66	90 03 4C DF	18 EA EA EA
			89 60	EA 60

Equation Math

Trk	Sct	Byte	From	To
$07	$02	$D3	90 03 4C 68	18 EA EA EA
			89 60	EA 60

Please note that the file to search for in this program is EQUAT.SYSTEM rather than MECC.SYSTEM

Customizing MECC's 1990 Programs

If you enjoy dabbling in BASIC and if you are one of those "crazy" types who loves to customize programs to reflect local place names, student names, school names, etc., here is a disclosure that will help turn those MECC disks into something more than even MECC could arrange.

On the new MECC ProDOS releases (especially the new 1990 programs) you will notice when you catalogue the DE-PROTECTED disk (the alteration of one of the data epilogue bytes makes it impossible to catalogue a protected disk)

that several of the files come up as $F1 types in the catalogue. The $F1 simply means that the file is a "User Defined" file - one that the company creating the disk is permitted to define themselves. In this case MECC has chosen to list their BASIC files in the catalogue as "User Defined" files rather than the customary BAS label. The advantage to calling it an $F1 file is that it prevents probing eyes from getting a good look at the contents of the file and it prevents amateur programmers from getting free programming lessons from MECC. Pro-DOS will not load nor list an $F1 file.

To change this minor inconvenience, jot down the names of the $F1 files from the program catalogue. Then use your Copy II Plus sector editor (or similar utility from any of the several excellent programs available) to call up the Pro-DOS catalogue beginning on Track $00 Sector $0B. Scan through the catalogue until you find the names of the files you jotted down. Then search carefully through the hex values following the actual file name (there are usually several sets of 00's - depending on the length of the file name) until you find the F1 value (it is the first non-zero value following the file name). Edit the F1 value to read FC and write the change back to disk. Complete this same procedure for each of the files that had an original F1 value.

Now when you catalog the disk, you will notice that the files are listed as BAS types. Further, you may now boot your ProDOS and BASIC.SYSTEM, go into BASIC and load and list any of these files! Using a line editor or by simply re-typing the lines you may now modify the routines to print all sorts of interesting extras to the screen. Or you can get some excellent programming tips from simply studying the routines that the "experts" use!

What about the $F2, $F3, and $F4 file types that MECC uses? These are other "User Defined" file types that MECC adopts for their special binary and text files. The chart below gives the correct hex values for each of the ProDOS file types. It is by no means complete and only lists the most common ones. For a more complete list, check any good book that covers Apple ProDOS. And for an outstanding discussion and thorough examination of how ProDOS operates, order "Beneath Apple ProDOS" from Quality Software.

Name	Hex	Description
AWP	$1A	Appleworks Word Processor file
ADB	$19	Appleworks Data Base file
ASP	$1B	Appleworks Spreadsheet file
BAS	$FC	BASIC program file
BIN	$06	binary file
TXT	$04	text file
DIR	$0F	directory file
SYS	$FF	ProDOS system file
$F1-F8	$F1-$F8	User Defined files

*You can add others to this list by examining ProDOS catalogues from any number of products on the market.

David Goforth   WA

Softkey for...

Micro Typewriter v4.0 (3.5" ProDOS disk)

S.E. Warner

1. Copy disk with any whole disk copier.
2. Sector edit

Blk	Byte	From	To
6A	115	5D	4A
6A	130	DA 4C 06	06 E9 0B
1E8	115	15	02
1E8	130	92 04 4E	4E A1 43

CopyIIplus Parm for Micro Typewriter

```
SECTOR COPY
SECTOR EDIT, BLOCK 06A,
115:4A, 130:06/E9/0B
SECTOR EDIT, BLOCK 1E8,
115:02, 130:4E/A1/43
```

Using Prosel's Info.Desk, we can view the blocks by filename to see where the files are located on the disk. First we note that ProDOS is not contiguous, if we use Prosel's Mr.Fixit it will show blocks 12-23 as being marked used but not part of any program. This usually means some sort of signature check or nibble count is being done from these.

```
Directory: /MT/
```

Blk range	Pathname
7.11	PRODOS
24.50	PRODOS
51.63	RT.AUX.OBJ0
64.77	RT.AUX.OBJ1
78.88	RT.MAIN.OBJ1
89.108	MT.SYSTEM (Block $69 sets /MT EOR'd with 4A) (Block $6A contains copy protection)
109.160	M
161.180	MICRO
181.183	E
184.234	A
235.245	F2.6
246.265	IA (has /MT @ block $F8)
266.273	F2.01
274.320	IC
321.343	ID
344.353	F2.7
354.405	I
406.408	F
409.411	C
412.412	RAMDISK (NO.NO if not used)
413.421	F2.02
422.429	F2.03
430.433	F2.06
434.436	COUNTER
437.447	F2.09
448.450	F2.07
451.457	F2.04
458.460	F2.08
461.470	F2.1
471.490	INSTALL.SYSTEM (uses "PRINTER" to establish pathnames) (Block $1E8 contains copy protection)
491.501	F2.2
502.512	F2.5
513.522	F2.05
523.530	F2.3
531.537	F2.4
538.545	F2.9
546.546	PRINTER (holds variables for pathnames & printer)
547.555	F2.8
556.589	S

Blocks free:	1010
Blocks used:	590
Blocks in dir:	571
Total blocks:	1600
Number of standard files:	38
Number of subdirectories:	0

Micro Typewriter's protection on the disk is not what appears in memory, the bytes are Exclusive OR'ed (EOR) with $4A when loaded into memory. You can verify this by using a sector editor and reading block $6A or $1E8 and then entering the monitor and listing the code starting at $4100. This is the actual protection being used starting at $4130. The following is what is in memory

which appears nowhere on the disk (unless each byte is EOR'ed with $4A).

```
4100: A0 10      LDY  #10
4102: 8C F4 03   STY  03F4   alter Reset vector
4105: AD FF C5   LDA  C5FF
4108: 18         CLC
4109: 69 03      ADC  #03
410B: 8D 36 41   STA  4136   Change from 0A to
                                  0D for JMP
410E: AD 30 BF   LDA  BF30
4111: 29 80      AND  #80
4113: 0A         ASL
4114: 90 17      BCC  412D (+17)  Skip needed
                                  code if failed
4116: A9 02      LDA  #02     Store this to the
                                  following
4118: 8D F6 41   STA  41F6    locations if
                                  everything is
411B: 8D FD 41   STA  41FD    good so far...
411E: 8D 04 42   STA  4204
4121: 8D 0F 42   STA  420F
4124: 8D 17 42   STA  4217
4127: 8D 1C 42   STA  421C
412A: 8D 28 42   STA  4228
412D: 20 1F FE   JSR  FE1F    Get computer ID
4130: 90 06      BCC  4138 (+06) Failed protection
4132: 4C 50 41   JMP  4150
4135: 4C 0A C5   JMP  C50A    Changed to C50D
                                  by 410B above)
4138: 20 35 41   JSR  4135    2nd check
413B: 00 27      BRK  27      these do
413D: 42 AD      WDM  AD      nothing.
413F: 41 42      EOR  (42,X)  DO THIS!
4141: 49 01      EOR  #01     DO THIS!
4143: D0 08      BNE  414D (+08)  Failed
                                  protection
4145: 0D 42 42   ORA  4242    DO THIS!
4148: F0 06      BEQ  4150 (+06) Failed
414A: 4C A3 41   JMP  41A3    Passed continue
                                  loading
414D: 4C 4D 41   JMP  414D    Stop here forever...
4150: 20 35 41   JSR  4135    Failed, get ready to
                                  lock up
4153: 04 0E      TSB  0E      by changing code
                                  starting at $0200
4155: 42 B0      WDM  B0
. . . . .
4198: E6 07      INC  07
419A: A5 07      LDA  07
419C: C9 C0      CMP  #C0
419E: D0 F3      BNE  4193 (-0D)
41A0: 4C 00 02   JMP  0200    Lock up system
41A3: A9 44      LDA  #44     Jump here to
                                  bypass protection &
                                  continue
41A5: 8D 0C 42   STA  420C
. . . . . continues
```

How to Exclusive OR (EOR) values

First you'll need the binary values preferably broken up in two 4-bit bytes (0010 1100 -vs- 00101100) to reduce chance of human (eye boggling) errors.

What is binary? Binary is a two digit counting system using just 0's & 1's. Just as with normal (decimal) counting, when you've reached the highest digit, you carry to the left.

Example: 0101 = 5 (the rightmost position is the one's column. moving left 1 place is the 2's column, and next to that is the 4's column, and the leftmost position is the 8's column.)

Using these four bits, we can count from zero (0000) to 15 (1111). Most utilities automatically convert this to Hex to prevent the programmer from become a walking computer (vegetable).

What is Hex? Hex is a counting system capable of counting from 0-15 using a single digit before carrying to the next position. This is done by using letters A thru F in place of 10 thru 15. Using this method we can count from 0-65535 ($0000-$FFFF) using only four

digits. The dollar sign ($ sometimes referred to as string) tells us that this is a hex number.

Example: $100A = 4106 (the rightmost position is the one's column. moving left 1 place is the 16's column, and next to that is the 256's column, and the leftmost position is the 4096's column.)

Now for the Exclusive OR (EOR) function. As shown below, like (same) bits become a 0 (no carry for 1's), unlike bits become a 1.

| Hex	Binary
$4A	0100 1010
$2F	0010 1111
$65	0110 0101

Softkey for...

Balance of Power

?

This patch is for the 1990 Edition of Balance of Power for the IIgs. I got tired of looking for my papers in the game, so I made a patch to bypass it. kind of like Carte Blanche. This patch will make anything you type in acceptable. I just hit return to save time.

From ProDOS and BASIC

1. Set the Prefix.
BLOAD BOPII.SYS16, T$B3, A768, B$297C4, L1

2. First check to make sure this patch will work. The following should print "240", if not DO NOT CONTINUE, something is wrong!
PRINT PEEK(768)

3. Change "BOPII.SYS16" to your filename.
POKE 768,128
BSAVE BOPII.SYS16, T$B3, A768, B$297C4, L1

You're finished.

From ProDOS using a Block Editor

1. Set your block editor to follow the main program then search for the hex pattern A5 E1 C5 F9 F0 06 1A 85 E1. It should be found in relative Block 332 at byte $297C4

2. Change the F0 to 80 and write the block back to the disk.

You're finished. Hope you enjoy this and it saves you some time hunting for your papers.
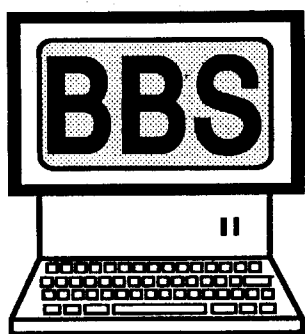
RDEX Submissions

User #12

Softkey for...

Professor Al's Sequencing Lab
Micrograms Publishing

Professor Al's Sequencing Lab is a two disk set. Disk A uses pictures for sequencing and Disk B uses stories for sequencing. Professor Al's Sequencing is a ProDOS type disk, but there is no file ProDOS on it. The SYS file BAD3.4 cannot be run from a program selector. It must be booted to run properly.

The protection was found in the file BAD3.4. For DISK A the protection was found on block $A (10) byte $36. For DISK B the protection was found on block $A (10) byte $6E. This is the code I found:

```
AD EC C0    LDA $C0EC
10 FB       BPL $1036
C9 BE       CMP #$BE
D0 E5       BNE $1024
18          CLC
60          RTS
```

There are several ways to eliminate the copy protection.

```
AD EC C0    LDA $C0EC  <-change to 18 60 EA
10 FB       BPL $1036  Either of these patches
C9 BE       CMP #$BE
D0 E5       BNE $1024  <-change to EA EA
18          CLC
60          RTS
```

Step-by-step

1. Use any whole disk copier to copy the disk. There should be no errors when copying.

2. Search for the byte sequence AD EC C0 10 FB C9 BE D0 E5 18 60.

3. Change the AD EC C0 to 18 60 EA or change the D0 E5 to EA EA. Both patches accomplish the same thing.

4. Write the changes back to the disk.

User #6

⑦ I was just wondering if anyone has ever figured out how to deprotect AIRHEART yet. Several months ago I finally was able to make a working bit-copy of it, but can't get any further than that. For the "heck'ov'it" I tried making the bit-copy again in order to have it on a different disk, and couldn't even manage to do that. Sun spots I guess.

⑦ A few posts back, there was reference to Test Drive. While there have been cracks in previous issues, they have been for the IIgs version. I've yet to find one for the IIe/c. I too would be grateful for any help out there....

User #19

⑦ The last several files I've downloaded from BBS's come out with a "Corrupted data err. $81" when unshrunk. I'm still waiting for my RAM chips to arrive so I'm not able to use GSHK. The possible culprit?

User #21

⑦ Help, I am new to the modem world. Every time I download (DL) a program on our local board the program ends up being a TXT file. I am using DataTerm and an AE DataLink 2400 internal modem. I have been using XMODEM, YMODEM & XMODEM CRC. The only time I didn't get a TXT file was with a direct DL from another Apple using ProDOS Protocol. Is there a program that will transform these programs into normal files that can be run or am I doing something wrong? Any help would be greatly appreciated.

User #7

To User #21: The local boards you're attempting to download from, are they Apple boards? If so, and if you're running a IIgs, a quick temp-fix would be to get File Manager NDA, which allows you not only to change the file types, but darn near everything about a file, as well as being able to copy, etc, from an NDA.

If they're not Apple boards, try downloading a graphic (preferably an unzipped GIF file, and see if you get a GIF file on your end.

User #27

To User #21: Well, Jim, seems I had the same problems when I started not more than a month ago. Luckily a Sysop decided to connect and chat, he walked me through what I needed to know. So far everything I have ever downloaded has come across as a text file. That's OK, usually the stuff is packed with one of the many packing programs. These programs take multiple files or a whole disk and crunches them down into one easy manageable file to be up/down loaded. A common packer/unpacker for Apple][‘s is ShrinkIt. What you probably need to do is unpack whatever you've down loaded. If it's an Apple board most likely it's with ShrinkIt. If it's IBM (gasp!), it's something else and Apples can't use it (except in certain cases, i.e. PC Transporter).

You can however, use GIF files, these files are pictures and there are GIF converters out there. I have one that I can upload if there is a demand for it. (I call long dist. so if need is great I'll do it). If you have a GS there is a program that will convert not only GIF files, but do Macs, Atari ST, and Amiga graphics. It's called SHR Convert and is Shareware.

However, if you've downloaded a file that is not packed, but a runable file that needs to be sys filetype you'll need a program that will change it. COMPUTIST has one called FIX.FILETYPES on the GS files section, otherwise I can upload an Apple][version written by a local programmer.

Well, hope I was not confusing (sure was long winded tho, whew!) and some of this will help you. Anyone else can correct me if I'm wrong, I'm new to this just like you are. So, don't feel alone, we all learn together, that's what's so fun about it using modems.

User #45

⑦ I need some help on the version Serpent's Star by Ultrasoft that is not notched at all and the old crack in COMPUTIST doesn't work.

Note: I think the disk is in Apple Pascal from what I can see.

⑦ I also need help with Test Drive by Accolade and I know that COMPUTIST has published the crack for Dinosaur Days by Pelican Software Inc but I still cannot crack the turkey at all. I must be doing something wrong. If anyone can come up with an easier way to crack the ****er please let me know. Well that's it for now.

Static Vengeance

Softkey for...

The Duel: Test Drive II

?

Ok, first to remove the copy protection:

Blk	Byte	From	To	Rel Blk
$169	$19B-19E	22 E3 C4 03	AF E3 C4 03	135
	$1F3-1F6	22 E3 C4 03	AF E3 C4 03	
$191	$1D8-1DB	22 E3 C4 03	AF E3 C4 03	175
$199	$125-128	F0 16 F4 01	80 16 F4 01	183

"Rel blk" is the relative block number within the file TD2.SYS16 for those of you who have a "File Follow" com-

mand on your block editor. You only need to change the first byte in each sequence. The edit on block $199 disables the routine that makes sure the master ID bytes match the gameplay disk's ID bytes.

User #24

⑦ Hey Vince! I typed in your ONLINE and CWD this weekend and all work well but your code changes between the two in the start sequence after LDA #>end SBC #>CMDCODE. I'm not sure which is right but I changed both to like CWD is done and everything seems to work ok. Could you clarify?

User #2

To User #24: Guess what, yes the code is slightly different but it still does the same thing.

```
START ...
    SEC
    LDA #>END
    SBC #>CMDCODE
    INC
    STA PAGES
    LDA PAGES    <- This is not required since
                    Accumulator = PAGES
    JSR GETBUFR
```

The above code does the same thing as the following:

```
START ...
    SEC
    LDA #>END
    SBC #>CMDCODE
    STA PAGES
    INC PAGES
    LDA PAGES    <- This is a must to capture the
                    new values of PAGES
    JSR GETBUFR
```

The above code has more routines (steps to perform) so it is a little slower but it should show no difference when running because machine code is executed so fast, you would never notice it.

I would prefer using the first routine (minus the LDA PAGES) because it is smaller and less to type.

I am glad you pointed this out because it does need some cleaning up. Have fun with the programs and perhaps you can combine the two into one program.

IBM RDEX

CPR Agent   Canada

Reader Review for...

CopyWrite
Quaid Software

Here is a program well worth the $55-75 ($55 from most mail order outlets and $75 from Quaid) investment. It is very similar to the Apple version of Copy II Plus except this one has routines built into the program that actually remove the copy protection as it copies. Personally, I was very skeptical of this claim the first time I came across it. However, after purchasing and using it for several weeks, I'm frankly astonished at its power and versatility.

With the disk comes a long list of programs that it deprotects, or otherwise disables the protection scheme(s). Virtually every program that uses Prolok, Everlock, and SoftGuard are dead meat!

Hundreds of others that use manual checks are modified so quickly and easily, it is difficult to believe that it has actually happened.

The disk contains several routines - one called UnGuard that handles most of the programs that have physical disk protection schemes (Softguard and Prolok), one called Rescue that works on the manual check (i.e. programs that have "look-it-up-in-the-manual") protection schemes, one called NoKey that takes care of programs that require the "key disk" to be in the drive for the program to proceed, one called Zero-Disk that handles programs that load entirely into memory from boot, and finally one called CopyWrite that creates a very impressive "bit copy" of the original. So, in essence, if the first routines fail to remove the protection scheme from the disk, Copywrite can always bit copy the disk and provide you with a very good back-up.

Quaid Software has an excellent product and has fought successful legal battles to continue to provide this product. The very idea of this program is ambitious to say the least; the actual programming, ingenious. It is no wonder that software marketing companies do their best to prevent the circulation of this package.

Copywrite itself is not copy protected, however, it does leave a "brand" on the disks that it processes. Many bulletin boards have schemes and explanations for removing this ID.

The manual that accompanies this software is just the opposite of the program in quality. I was very disappointed with the 52 odd pages. The explanation of how to operate the program is adequate - even good. But I was looking for something like the manual that accompanied my Apple version of Copy II Plus - thorough explanations and in-depth tutorials that delve into the intimate details of each of the program routines. I would have settled for a thorough explanation of how the program worked - how it went about its business of searching for specific routines and what it did with them once it found them. Alas, there is virtually nothing beyond the simple procedure of executing the actual program itself. Nevertheless, to the REALLY curious, this is just the carrot that is needed to poke and prod and explore - and learn in true discovery fashion.

For those of you who need those expensive originals backed up and don't care to poke, prod, or search, don't leave this one out of your library. It's definitely the speedy solution to most backup woes.

IBM Softkey for...

Crime Wave
Access

The protection for this program is exactly like many others that have been explained in this IBM section. It's simply a matter of searching for the key words and then zeroing them out.

Search the CW.EXE file for "crime", "scenes", "bonus", or any of the other key words. When you find the list (mine was in Sector 660 Cluster 629), begin with the first letter of the first word and replace the entire list with zeros. Be very careful to start with the first LETTER and end with the last LETTER of the last word. Write the changes back to disk and you're done. When the program

asks for one of the key words, just press ENTER and away you go into one of the best arcade-style games with some of the best digitized graphics on the market.

Marc Batchelor   FL

IBM Softkey for...

Stunt Driver
Spectrum HoloByte

The protection

Stunt Driver (Stunt) is a rather thrilling program to play. The player assumes the perspective of a driver behind the wheel of a race car, racing at blinding speeds around one of 5 standard courses. Additionally, the capability to design your own race courses is built in (for the sadists among us). The manual protection (commonly called Pirate Protection) employed is a unique (and difficult) lookup process that has the user determine which of 50 different race track components are located on Course n, at x,y.

Locating it

The main program (STUNT.EXE) is approximately 140Kbytes large, and was therefore too large for Turbo Debugger to bring in and trace (and I have 4 meg of Ram!). Anyway, I was forced to revert to my old DEBUG tricks to crack this one. Consequently, the crack took much longer than anticipated. To trace the program to the protection, (assuming the 9-25-90 @ 4:03pm version) you would use the following DEBUG steps:
DEBUG STUNT.EXE
G CS:2A
T
G CS:155
T

Following the above steps, you would notice that the next command will be a CALL XXXX:0F44. This is NOT the call to the protection, but rather, the XXXX is the segment within which the protection resides. Tracing the code further reveals a CALL XXXX:9786. This IS the call to the protection. Attempting to NOP out this call resulted in a crash (of course). Tracing XXXX:9786 revealed several CALLS all over the place, and finally revealed the following excerpt (at 6547:9978):

```
9978 F6E1        MUL  CL
997A 03065F65    ADD  AX,[655F]
997E A3A87B      MOV  [7BA8],AX  Move AX to
                                 flag
9981 3B064865    CMP  AX,[6548]  Comp AX to
                                 expected
9985 7406        JZ   998D  If Equal, jump
9987 9AE3994765  CALL 6547:99E3  If not, well...
998C CB          RETF
998D C606F464FF  MOV  BYTE PTR [64F4],FF
```

Executing the code with break-points at 9987 and 998D revealed the 998D is branched to when a correct answer is given and 9987 is executed when the answer is incorrect. With this knowledge, I re-wrote the routine (at 6547:9978) as follows:

```
9978 F6E1        MUL  CL
997A 03065F65    ADD  AX,[655F]
997E A14865      MOV  AX,[6548]  Move
                                 Expected to AX
9981 A3A87B      MOV  [7BA8],AX  Move AX to
                                 flag
9984 EB07        JMP  998D  Always jump
9986 90          NOP  No Operation Here
9987 9AE3994765  CALL 6547:99E3
998C CB          RETF
```

998D C606F464FF MOV BYTE PTR [64F4],FF

What the re-write does is move the expected answer to AX, and then moves AX to the "pass flag" memory location. It then jumps to the "check passed" routine at 998D.

Finding the Protection on disk

If I thought that locating the above routine was difficult enough using DEBUG, boy was I in for a surprise when it came to finding it in the file. My normal mode of operations is to search the file for a couple of bytes preceding the bytes to change as well as the actual bytes themselves. I would normally rename the ".EXE" file to a ".TMP" file and perform the following search:
S CS:0 FFFF 03 96 5F 65 A3 A8 7B 3B 06 48 65 74 09 C6

This usually ensures that I locate the ONLY occurrence of the bytes I'm looking for. Noting the size of the file, I also knew that I would have to search the two segments succeeding the code segment (CS). But the bytes failed to materialize after searching ALL THREE SEGMENTS. Now I really began to sweat! My only alternative (so I thought) was to "get down and dirty" in the code and find out the decryption mechanism. Retracing the code revealed a "handy" routine that extends from CS:0049 to CS:00F4. This routine executes a total of 9 times and unscrambles the segment (byte for byte) within which the protection (and other routines) reside. I must admit however that the encryption/decryption is the strangest I've ever encountered in protection. I essentially grabs a couple of bytes from here and a few bytes from there and places them in their appropriate resting place. Luckily, the little piece of code that I was trying to change was located in one chunk. If I had only searched for the code I needed to change, I would have been fine.

The wrap-up

After making the above mentioned patches to the code, I was still bothered by the fact that the "Course Quiz" screen still appears, and that the user must press enter to proceed. I than decided to attempt a "complete" crack by preventing the "Course Quiz" screen from appearing at all and/or just blowing by the screen all together without waiting for a key-press from the user. In attempting to reach this goal, I found the code (in the XXXX segment again) that checks the mouse (INT 33) and also checks the keyboard (INT 16). I was able to patch the code by loading the AX register with the scan code and hex value for a return (1C0D). The code would then proceed along its way without pausing for a keypress. However, locating this code in the mess described above proved fruitless. However, for the benefit of those with a little more time, the following is the excerpt from the code at 6547:9876.

```
9876 B80300      MOV  AX,0003  Function 3 -
                               INT 33
9879 CD33        INT  33  Read Mouse
                         Position
987B F7C30300    TEST BX,0003  Check Button
                               Status
987F 751D        JNZ  989E
9881 9A5E020073  CALL 7300:025E  Read
                                 Keyboard
9886 80FCFF      CMP  AX,FF  AX=FF if no key
9889 74E4        JZ   986F  Loop 'til any key
```

By changing the 80 FC FF to a B8 0D 1C (as if the user press ENTER), and then executing the code resulted in the

blowing right passed the protection without pausing for a key. Unfortunately, I was unable to find the above mentioned code anywhere within the file.

Step-by-step

1. Rename the main executable file to a temporary file.
REN STUNT.EXE STUNT.TMP

2. Start up DEBUG.
DEBUG STUNT.TMP

3. Find out what segment you are in.
R

4. The code segment (CS) is the number you are looking for. Add 1000 (hex) to the value in CS to obtain 'XXXX' for step 5.

ie. Assume that the following is a screen that you received when you typed 'R':
```
AX=1501  BX=0000  CX=0004
DX=7601  SP=07D0  BP=0000
SI=17EC  DI=07D0
DS=17BB  ES=17BB  SS=17BB
CS=17BB  IP=0100    NV UP EI
PL ZR NA PE NC
```

We see that CS=17BB. Adding 1000 (hex) to CS, we obtain 27BB which will be used as 'XXXX' in step 5.

5. Using 'XXXX' obtained in step 4, perform the following search:
S XXXX:0 FFFF A3 A8 7B 3B 06 48 65 74 06

6. DEBUG will respond with:
XXXX:YYYY

Use XXXX:YYYY in step 7.

7. Edit the location provided by DEBUG as follows:
E XXXX:YYYY A1 48 65 A3 A8 7B EB 07 90

8. Write the changes back out
W

9. Quit DEBUG
Q

10. Rename the file.
REN STUNT.TMP STUNT.EXE

This concludes the softkey for Stunt Driver. When the protection screen comes up, just press ENTER (or the left mouse button). The screen will clear, and you will be in the game.

IBM Softkey for...

Gauntlet II
Mindscape

Introduction

Gauntlet II (G2) is pretty loyal to the original video game version, allowing you to play Warrior, Valkyrie, Wizard or Elf in any combination desired (I.E. 2 Warriors, a Valkyrie and a Wizard, Etc). Since it uses Real-Sound, it also sounds much like the arcade version. The protection however was so primitive that I spent a whole 13 minutes locating and cracking and 45 minutes testing and verifying the crack.

The Protection

G2's protection is a typical manual look-up routine (Pirate Protection) a-la go to page thus-and-such, paragraph x, word y and type in the word. The programmers who slapped this one together however were either lazy or in a hurry as there was no attempt to hide, cover-up or obfuscate the code. It was almost screaming "Here I am... Unlock me!". The following is excerpts from GAUNTLET.EXE.

```
38B8:0042  XOR  AH,AH   Zero out AH Register
38B8:0044  INT  10      Set Video Mode to
                        Text
38B8:0046  CALL A87C:0000  Call Protection
```

```
38B8:004B    POP    ES
38B8:004C    OR     AX,AX
38B8:004E    JS     0053    Branch to 53 if ok
38B8:0050    JMP    082B    Jump to Fail
38B8:0053    MOV    AX,49B8 Continue loading
                            program
....
38B8:082B    MOV    AX,4C00 Set AH=4C for
                            Prog. Terminate
38B8:082E    INT    21      INT 21, Function 4C
                            = Exit
```

After checking the code at A87C:0000, it simply throws messages onto the screen, waits for input and then checks what was typed against what was expected. If it finds a complete match, AX is decremented from 0000 (to FFFF) and then returns. Upon return, the JS checks for the condition of the sign flag. If the sign flag is set (it is when FFFF is OR'd with FFFF) then the program continues to load. If not (it won't be when 0000 is OR'd with 0000) then the program jumps the DOS terminate routine (INT 21, function 4C).

The Fix

The fix for this one is simple. Simply change the CALL to a JUMP to 4C (since the ES register must be POP'ed) and change the JS to a JMP. This resolves the check

Note: About this time, you should hear a voice that says: "The Protection is about to die".

```
38B8:0042    XOR    AH,AH   Zero out AH Register
38B8:0044    INT    10      Set Video Mode to
                            Text
38B8:0046    JMP    004B    Avoid Protection
38B8:0048    NOP
38B8:0049    NOP
38B8:004A    NOP
38B8:004B    POP    ES
38B8:004C    OR     AX,AX
38B8:004E    JMP    0053    Always Branch to ok
38B8:0050    NOP
38B8:0051    NOP
38B8:0052    NOP
38B8:0053    MOV    AX,49B8 Continue loading
                            program
```

Step By Step:

1. Rename the two program files so that DEBUG can edit them:
REN GAUNTLET.EXE GAUNTLET.TMP
REN GFAST.EXE GFAST.TMP

2. Execute DEBUG
DEBUG GAUNTLET.EXE

3. Search for the bytes to change:
S0 FFFF 9A 00 00

Debug will respond with XXXX:YYYY for use in step 4

4. Patch this section of code as follows:
E XXXX:YYYY EB 03 90 90 90 07 0B C0 C0 EB 03 90 90 90

5. Write the changes out to disk.
W

6. Bring in the next program using the 'N' and 'L' commands of DEBUG
N GFAST.TMP
L

7. Search for the bytes to change:
S0 FFFF 9A 00 00

Debug will respond with XXXX:YYYY for use in step 4

8. Patch this section of code as follows:
E XXXX:YYYY EB 03 90 90 90 07 0B C0 C0 EB 03 90 90 90

9. Write the changes out to disk.
W

10. Quit DEBUG
Q

---

11. Rename the files to their proper condition.
REN GAUNTLET.TMP GAUNTLET.EXE
REN GFAST.TMP GFAST.EXE

That all folks!

IBM Softkey for...

Wing Commander
Origin Systems

The Program

Wing Commander (WC) was purchased from a local software store for my birthday. It uses just about everything your machine can give it...Sound Board, VGA, Expanded Memory, etc. If you have a sound board, 6 meg of disk space, VGA and about 2 meg of ram, I highly recommend this game. Although the above are not NECESSARY to play the game, I assure you that you will be much happier with the above configuration. The program places you in the cockpit of various spacecrafts depending upon the mission. The effect of the game upon the senses is awe-some. That is, you truly feel that you are flying this space craft, shooting at the bad guys, avoiding asteroids and mines, escorting other spacecrafts, etc. For the $60.00 I paid for this game, I have gotten about $200.00 worth of enjoyment. Written in Turbo-C++, this game is rather monstrous to have around, but the graphics and animation are definitely worth-it.

The Protection

The protection for WC goes beyond the typical "look on page 7, paragraph 4, word 8" manual protections. This protection requires you to:

A) Scan for what it is asking on an entire page of the manual or

B) Scan for what it is asking on one of the 4 supplied a blueprints

It is about the most unfriendly "pi-rate-protections" I have ever encountered. Unfortunately, locating and disabling the protection was as difficult as it is unfriendly.

The Hunt

My normal routine as of late is to use Turbo-Debugger to execute the program along its path until I find the protection. However, WC requires 640k of RAM to play, and with Turbo-Debugger loaded, I had only 316k (conventional RAM) left. This left me to perform the trace using Debug (ugh!). The reason I deplore using DEBUG is because it cannot handle the transition to graphics. Anyway, this trace has to have been the most grueling imaginable. It was constantly looping back into itself, and finding the actual routine that loaded the values from disk and displayed them was more than the average challenge.

Disabling It

I was never able to actually locate the area that loads the information from disk. I was however able to locate the region that translates what the user typed as an answer into an encoded mess to compare to the expected values. This routine basically ADDs, SUBtracts, MULtiplies, and DIVides the values entered by the user using different values from several locations. Instead of worrying about what it was doing exactly, I decided that the most prudent thing to do was have the routine grab the expected values and replace whatever I typed with them. The only thing I needed to find were the expected values. As

---

it turns out, while tracing the aforementioned routine, I dumped memory in the region where it was translating what I typed in, and 14 bytes before my data was the same data (after the translation). Part of the original routine is listed below:

```
57BB:97DA    JMP    97FD
57BB:97DC    INC    DI
57BB:97DD    MOV    AX,[BP+08]
57BB:97E0    MOV    DX,0026
57BB:97E3    IMUL   DX
57BB:97E5    MOV    DL,[SI]   SI = What we entered
57BB:97E7    SUB    DL,AL
57BB:97E9    MOV    AX,DI
57BB:97EB    MOV    BX,001E
57BB:97EE    PUSH   DX
57BB:97EF    CWD
57BB:97F0    IDIV   BX
57BB:97F2    MOV    AX,DX
```

I only changed the first part of this routine. What the changes do are documented as comments.

```
57BB:97DA    NOP    Remove Jump
57BB:97DB    NOP
57BB:97DC    MOV    DL,[SI-14] Load first expected
                              byte
57BB:97DF    MOV    [SI],DL   Replace Our Data
57BB:97E1    INC    SI        Position for next Byte
57BB:97E2    CMP    [SI-14],00 Are we at end of
                              data?
57BB:97E6    JNZ    97DC      Nope, Get next byte
57BB:97E8    JMP    9802      Yep, Jump around
                              the rest.
```

Final Comments

This crack as is is really not that acceptable to me. WC still presents a screen to type into, and you still have to at least type in one number (I usually use 1). However, this approach lets the users guide and the blueprints remain in the box. If anyone wants to try to re-crack this program to not bring up the box, contact me through COMPUTIST, and I'll do my best to help you.

Step-by-step

1. Copy the original program file (WC.EXE).
COPY WC.EXE WC.OLD

2. Rename the program so that we can edit it using DEBUG.
REN WC.EXE WC

3. Start up DEBUG.
DEBUG WC

4. Find out what bank you are in.
R

5. Write down the value of CS (code segment). I found the code to change in the 4th bank of the program. To add one to the current bank, add 1000 (hex) to the value of the segment address. ie. If you recorded 17BB as the CS register, to examine code in the second bank of the program, look at 27BB:address. I found the code to change in the 57BB bank, but if you are cannot, follow the following steps:
S XXXX:0 FFFF EB 21 47 8B 46 08 BA 26 00 F7 EA 8A (XXXX=CS)
S XXXX:0 FFFF EB 21 47 8B 46 08 BA 26 00 F7 EA 8A (XXXX=CS+1000)
S XXXX:0 FFFF EB 21 47 8B 46 08 BA 26 00 F7 EA 8A (XXXX=CS+2000)
S XXXX:0 FFFF EB 21 47 8B 46 08 BA 26 00 F7 EA 8A (XXXX=CS+3000)
S XXXX:0 FFFF EB 21 47 8B 46 08 BA 26 00 F7 EA 8A (XXXX=CS+4000)
S XXXX:0 FFFF EB 21 47 8B 46 08 BA 26 00 F7 EA 8A (XXXX=CS+5000)

At least one of these should result in an address (XXXX:YYYY). Write this value down to use in step 6.

---

6. Once you have the correct segment (XXXX) and address (YYYY), make the following modification:
E XXXX:YYYY 90 90 8A 54 EC 88 14 46 80 7C EC 00 75 F4 EB 18

7. Write out your changes.
W

8. Exit DEBUG
Q

9. Re-Name the file back.
REN WC WC.EXE

That's all.

IBM Softkey for...

Thexder II
Sierra On-Line

The Protection

The protection for this addictive game is another "Page x, Paragraph y, Word z" Pirate Protection. Tracing the code was easier than I first expected since I could use Turbo Debugger. The protection actually lies in GAME.EXE, but GAME.EXE is executed from within SIERRA.EXE. Here is a short excerpt from the call to the protection:

```
17BB:03B5    CALL   FAR [0508]
17BB:03B9    CMP BYTE PTR [059B],FF First
                            time through?
17BB:03BE    JZ     3C3     Nope, Continue
17BB:03C0    CALL   8FE7    Protection
17BB:03C3    MOV    AL,0F   Continue
```

If this section is being executed for the first time, $059B is set to 00. Upon successful completion of the manual check, $059B is decremented and execution falls through to $03C3. The next time the opening screen is encountered, the protection is bypassed since $059B is now $FF.

The fix

The fix for this one was to simply change the CoMPare to a MOVe, and absolutely jumping to $03C3. This satisfies the code that later checks $059B to ensure the protection was successful. Here is the new excerpt from the code:

```
17BB:03B5    FF1E0805   CALL FAR [0508]
17BB:03B9    C6069B05FF MOV  BYTE PTE
                            [059B],FF  Set "ok"
                            flag.
17BB:03BE    EB03       JMP  3C3   Always
                            Jump.
17BB:03C0    E8248C     CALL 8FE7
17BB:03C3    B00F       MOV  AL,0F Continue
```

Step-by-step

1. Rename file so DEBUG can edit it.
REN GAME.EXE GAME.TMP

2. Start DEBUG for modifications to program.
DEBUG GAME.TMP

3. Search for the bytes to change.
S0 FFFF 80 3E 9B 05 FF 74

DEBUG will respond with XXXX:YYYY which will be used in step 4.

4. Modify the memory location provided by DEBUG.
E XXXX:YYYY C9 06 9B 05 FF EB

5. Write the changes out to disk.
W

6. Quit DEBUG.
Q

7. Rename the file so that SIERRA.EXE can find it.
REN GAME.TMP GAME.EXE

That's all for this one!

unClassifieds

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