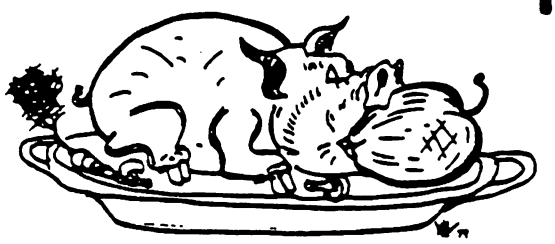

H.A.A.U.G.

HOUSTON AREA APPLE USERS GROUP

THE APPLE BARREL

Price $2.00

VOLUME 6, NO. 6, 1983
AUGUST 1983

PRESIDENT, Steve Knouse VICE PRES., Clark Johnson
EDITOR, Mike Kramer

Circulation 1150

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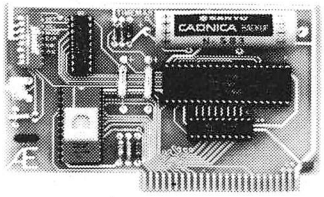
Apple Peripherals Are All We Make

That's Why We're So Good At It!

The TIMEMASTER
Finally, a clock that does it ALL!

NEW



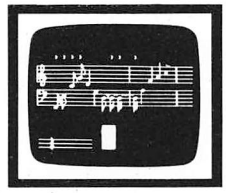
- Designed in 1983 using I.C. technologies that simply did not exist when most other Apple clocks were designed.
- Just plug it in and your programs can read the year, month, date, day, and time — down to 1 millisecond!
- Powerful 2K ROM driver — No clock could be easier to use.
- Full emulation of most other clocks, including Mountain Hardware's Appleclock (but you'll like the TIMEMASTER mode better).
- Compatible with all of Apple's languages, CP/M and PASCAL software on disk.
- Eight software controlled interrupts so you can execute two programs at the same time. (Many examples are included)
- On board timer lets you time any interval up to 48 days long down to the nearest millisecond.

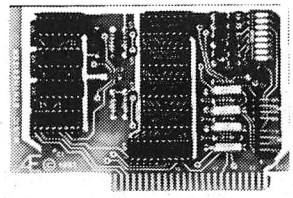
The TIMEMASTER includes a disk with some really fantastic time oriented programs (over 25) plus a DOS dater so it will automatically add the date when disk files are created or modified. This disk is over a $200.00 value alone — we give the software others sell. All software packages for business, data base management and communications are made to read the TIMEMASTER.

If you want the most powerful and the easiest to use clock for your Apple, you want a TIMEMASTER.

PRICE $129.00

Super Music Synthesizer



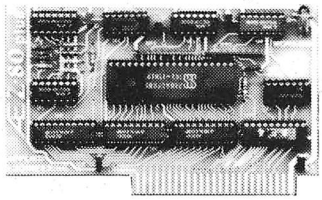


- Complete 16 voice music synthesizer on one card. Just plug it into your Apple, connect the audio cable (supplied) to your stereo, boot the disk supplied and you are ready to input and play songs.
- It's easy to program music with our compose software. You will start right away at inputting your favorite songs. The Hi-Res screen shows what you have entered in standard sheet music format.
- Now with new improved software for the easiest and fastest music input system available anywhere.
- We give you lots of software. In addition to Compose and Play programs, the disk is filled with over 30 songs ready to play.
- Easy to program in Basic to generate complex sound effects. Now your games can have explosions, phaser zaps, train whistles, death cries. You name it, this card can do it.
- Four white noise generators which are great for sound effects.
- Plays music in true stereo as well as true discrete quadraphonic.
- Full control of attack, volume, decay, sustain and release.
- Will play songs written for ALF synthesizer (ALF software will not take advantage of all the features of this board. Their software sounds the same in our synthesizer.)
- Automatic shutoff on power-up or if reset is pushed.
- Many many more features.

PRICE $159.00

Z-80 PLUS!

NEW



- An on-card PROM eliminates many I.C.'s for a cooler, less power consuming board. (We use the Z-80A at a fast 3.58 MHZ)
- Does EVERYTHING the other Z-80 boards do, plus Z-80 interrupts.
- All new 1983 design incorporates the latest in I.C. technologies.
- Complete documentation included. (User must furnish software)

- TOTALLY compatible with ALL CP/M software.
- Executes the full Z-80 and 8080 instruction set.
- Fully compatible with microsoft disks (no pre-boot required).

The Z-80 PLUS turns your Apple into a CP/M based computer. This means you can access the largest body of software in existence. Two computers in one and the advantages of both, all at an unbelievably low price.

COMING SOON: The Z-80 Plus for the Apple III

PRICE $139.00

Analog to Digital Converter

- 8 Channels
- 8 Bit Resolution
- On Board Memory
- Fast Conversion (.078 ms per channel)
- Eliminates the Need to Wait for A/D Conversion (just PEEK at data)
- A/D Process Totally Transparent to Apple (looks like memory)

The analog to digital conversion takes place on a continuous, channel sequencing basis. Data is automatically transferred to on board memory at the end of each conversion. No A/D converter could be easier to use.

Our A/D board comes standard with 0, 10V full scale inputs. These inputs can be changed by the user to 0, -10V, or -5V, +5V or other ranges as needed.

Information on temperature sensors is given in manual.

The user connector has +12 and -12 volts on it so you can power your sensors.

Accuracy	0.3%	Input Resistance	20K Ohms Typ

A few applications may include monitoring and control of ● flow ● temperature ● humidity ● wind speed ● wind direction ● light intensity ● pressure ● RPM ● storage oscilloscope ● soil moisture and many more.

We also manufacture a 16 channel digital input/output board for control applications.

PRICE $129.00

IIe Only: 80 Column, 64K RAM Card

NEW

- Expand your Apple IIe to 128K memory.
- Provides an 80 column text display.
- TOTALLY compatible with ALL Apple software and languages, there are NO exceptions.
- Automatically expands VisiCalc to 95K storage. In 80 columns!
- COMPLETE documentation included. (We don't make you refer to the Apple manual as others do.)
- Uses the same commands as the Apple 80 column board.
- Incorporates the latest high speed, low power I.C. technologies.
- Plugs into the Apple IIe expansion slot.
- Simply the best expansion card for your Apple IIe at any price, offering you phenomenal performance at a very nominal price.

PRICE $149.00

Our boards are far superior to most of the consumer electronics made today. All I.C.'s are in high quality sockets with mil-spec. components used throughout. P.C. boards are glass-epoxy with gold contacts. Made in America to be the best in the world. All products work in APPLE IIe, II and II+. (Except 80 column card.)

Applied Engineering's products are fully tested with complete documentation and available for immediate delivery. All products are guaranteed with a no hassle two year warranty.

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Texas Residents Add 5% Sales Tax
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Dallas, TX 75247

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CLUB NOTES

MEETING SCHEDULE

The HOUSTON AREA APPLE USERS GROUP holds a general business meeting the second Thursday of each month in the rear chapel of Memorial Lutheran Church, 5800 Westheimer beginning at 6:30 P.M. A meeting featuring tutorials, access to the HAAUG software library, and special interest group sessions is held beginning at noon the third Saturday of each month at the UT School of Public Health in the Med Center at 6905 Bertner at Holcomb.

OFFICERS / EXECUTIVE BOARD

President	Steve Knouse
Vice Pres	Clark Johnson
Treasurer	Ruth Hughes
Secretary	Ruth Dill
Software Lib.	Phil Lauter
Hardcopy Lib.	Robin Cox
Membership	Lee Gilbreath
Local IAC Rep	Robin Cox
Region IAC Rep	Mike Kramer
Editor	Mike Kramer

MEMBERSHIP INFORMATION

New memberships are $30 and include the HAAUG starter kit. Renewals are $20 per year. Make checks payable to Houston Area Apple Users Group and mail to the HAAUG Post Office box, attention Membership Chairman.

APPLE HOTLINE
713-668-3102

The APPLE HOTLINE provides an easy means for the general public to learn of meeting topics, news, etc., and can also be used by members to obtain answers to Apple - related questions. Leave your name, member number (see Apple Barrel label), date, and time. You should get a return call within 48 hours.

CALL FOR ARTICLES

Articles and program listings should be submitted in draft hardcopy form and on disk in Applewriter][or ///, Apple DOS or SOS text, Wordstar, Palantir, or Pascal files, or via modem (358-6687). Files should not contain imbedded escape sequences or control characters and should be printed to disk fill justified if possible. Articles must be free of typing or spelling errors and should be grammatically correct as they cannot be retyped. Diskettes will be returned to the author provided his name and address are on them. Text should be printed 40 columns wide, listings 40 columns wide. Authors of published articles will receive two blank diskettes per printed page as compensation. The Apple Barrel reserves the sole right to choose which articles to use.

APPLE BARREL REPRINT POLICY

Unless otherwise noted within the program or article, any original material published herein may be reprinted without permission by any non-profit Apple club, newsletter, or group, provided proper credit is given to the Apple Barrel and the author.

ADVERTISING RATES

AD COST = $0.06 * MULT. * CIRCULATION

Current Circulation = 1150

MULTIPLIERS

Full Page	Half Page	Qrtr Page
1.00	0.60	0.35

Ads should be submitted in camera ready form to H.A.A.U.G. by the 1ST of the month. Charges will be billed and a copy of the Apple Barrel containing the

EDITOR'S CORNER

By now most of you have noticed yet another change in the appearance of the Apple Barrel. Although I've had the NEC Spinwriter for 3 months, I'd had a problem with wavy lines and found it hard to get it to the local NEC rep for adjustment. Since we had been given a good price on the printer and a buffer by a long time HAAUG member (and more recently a mail order dealer) Richard Harvey, I found it hard to take it to a local store for help. Well, two weekends ago, who drops in from Cortez, Colorado, but Richard himself. After tightening all the screws with no results, he found that I had failed to wedge the retainer on the thimble properly... Knouse claims I never read directions.

This month's Dealing with DOS includes a discussion of the basics of copy protection. Clark Johnson was very careful not to tell everything so as to stay on the good side of the software publishers. Bill Muhlhausen returns with more game reviews, and Dick Fairman discusses the doings of the new Home Use SIG. Your Editor has contributed a discussion of how to get the most out of graphics dump cards. Keith McSorley joins the ranks of Apple Barrel contributors for the first time with a friendly guide for operating Apple Writer][. John Rivas, also a first time contributor, discuss es the Apple /// soft switches. Ruth Dill shares with us her experience with her new letter quality printer. Rounding out the lot is Apple /// Peelings, which wanders around discussing everything from how to quickly copy or format normal Apple /// disks to patching the keyboard layout in the SOS.DRIVER file.

It has been noted that the Apple][column has been somewhat irregular since its author was elected President of HAAUG. I think it's appropriate that others step forward to help Steve out by coordinating that effort. The Apple Barrel could also use assembly language, Pascal, and other columns. How about it. Let's make the Apple Barrel even better. While we're talking about volunteers, the much discussed "BEST OF THE APPLE BARREL" effort is dead in the water due to one of the two previous volunteers moving away. Drop me a note if you're interested in participating, coordinating, or whatever.

THOUGHTS FROM THE PRESIDENT

Its done! It only took six months but we finally came up with a proposed set of bylaws. The fruit our labor is published elsewhere in this issue. "We" and "our" refer to an ad-hoc Board of Directors composed of the four elected officers, Clark Johnson, Ruth Dill, Ruth Hughes and myself, as well as Rudge Allen, Robin Cox, Lee Gilbreath, Mike Kramer, Phil Lauter and Ed Seeger.

Our goal was to create a simple document that would give us a framework in which to operate, ensure member access to all meetings, financial reports and minutes, provide for accountability of the club officers and directors, and establish fiscal controls. We did not want a State of Texas style constitution; policies for specific situations will be drafted as needed. These will, as all club records, be available for inspection.

The bylaws are important as they legitimate the administration of the club. The club has grown tremendously in the last few years; it is no longer a small group of hackers and hobbyists. It has becoming a small business and must be run as such.

At the next Saturday meeting we will vote on the bylaws. Please take time to read them before then.

When the bylaws are approved, Clark Johnson, Ruth Dill, Ruth Hughes and I (as Officers) and Mike Kramer (as Immediate Past President) will have to appoint six Directors-at-Large to serve the remainer of the year until the next election (Article 7, Section 5). We would appreciate your suggestions. If you would like someone to be considered (including yourself) for Director-at-Large drop a note in the club business box at the Apple Answers desk.

The club is in desperate need of a Managing Editor for the Apple Barrel. Mike Kramer has asked for some help in publishing the Apple Barrel. Mike has done a wonderful job of bringing the Apple Barrel to its present condition; he needs help maintaining what he has achieved so far as well taking it further.

The job would initially be one of coordination with Mike Kramer, Editor; Advertising Chairman Bryan Whaley; Ed Seeger, Keeper of the (membership) List; the printer; and the bulk mailer. It would also entail filling out a monthly financial summary for the Treasurer and myself and handling circulation problems.

As you know, one of the club's goals is to make the Apple Barrel a professional style magazine (i.e. type set, slick cover, etc.). It would be desirable but not necessary for the Managing Editor to have some publishing experience so that he/she could help us work toward this goal.

If you'd like to help your club in this way let Mike or myself know. We need your help.

ADVERTISERS

Abacus	13
Applied Engineering	Front
Compufix	16
Computer Room	19
CTI	23
Data Desks	27
East Side Software	Back
First G&E Inc.	9
Kramer's Apple Stuff	16
Micro-Vision	2
Orbital Systems	21
Supertec	28
Wildcat Computing	27

SIGS

SPECIAL INTEREST GROUPS

Members who share interests are encouraged to join or form Special Interest Groups (SIGs). Although some of these groups meet separately from the regular meetings, most meet at the regular Saturday session at the times listed below. If you would like to become involved in a SIG, show up at the appropriate meeting room at the Saturday session or call the HOTLINE for meeting time and location if the SIG is not listed on the schedule.

HAAUG SATURDAY SESSION SIG ROOM ASSIGNMENTS

TIME	AUDIT	MAIN	RM204	RM208	RM228
NOON	_____	BASIC__	CP/M___	_____	EDUC___
1230	_____	BASIC__	CP/M___	_____	EDUC___
1:00	_____	BASIC__	CP/M___	STOCK__	EDUC___
1:30	NEW MEM	BASIC__	CP/M___	STOCK__	EDUC___
2:00	GEN MTG	_____	_____	_____	_____
2:30	SPECIAL	SOFTWAR	_____	PASCAL_	BUSNESS
3:00	SPECIAL	SOFTWAR	ADVNCED	PASCAL_	BUSNESS
3:30	SPECIAL	SOFTWAR	ADVNCED	PASCAL_	BUSNESS
4:00	_____	SOFTWAR	ADVNCED	GAMES__	APPL///
4:30	_____	SOFTWAR	ASSMBLR	GAMES__	APPL///
5:00	_____	SOFTWAR	ASSMBLR	GAMES__	FORTH__
5:30	_____	SOFTWAR	ASSMBLR	_____	FORTH__

SIG CHAIRMEN: CALL GUS AT 481-5329 THE WEEK BEFORE MEETING TO CONFIRM NEED FOR ROOM OR FOR TEMPORARY ROOM ASSIGNMENT.

For Sale: Master Diagnostic + Plus with documentation $39. Call Bob Britton at 376-7525.

For Sale: A//e with 80 col.card, monitor, drive, controiler $1300. Call Larry Brandt at 981-5056.

Wanted: Someone to share a box of 3 1/2" x 15/16 labels. Call Steve Whatley at 931-4217.

SIG CHAIRMEN

Business	Rudge Allen
Pascal	Jon Stevens
Statistics	Lindsay Reed
Education	Brian Whaley
Assembler	Robin Cox
Adv.Topics	Tom Murdock
CP/M	Jim Huck
Sci/Engg	Mike Conway
Stocks	George Marsden
FORTH	Steve Knouse
BASIC	Glenna Payne
Games	Bill Muhlhausen
Apple ///	Cy Helm

$$$

HOUSTON AREA APPLE USERS GROUP, INC.
BYLAWS

ARTICLE 1 - NAME

The name of the organization is the HOUSTON AREA APPLE USERS GROUP, INC., hereinafter referred to as HAAUG. Its official publication is the Apple Barrel.

ARTICLE 2 - PURPOSES

The objectives of HAAUG are:

A. To provide a forum for the dissemination of information concerning the Apple Computer and related products.

B. To share the knowledge of members at large concerning their talents and information pertaining to computers and the Apple Computer specifically.

ARTICLE 3 - BASIC POLICIES

The name of the organization or the name of any elected or appointed officers or directors of the organization in their official capacities shall not be used in connection with a commercial activity or with any partisan interest or for any purpose not appropriately related to promotion of the purposes of the organization.

As an affiliate of the International Apple Core, it is a policy of HAAUG to not tolerate the copying of any copyrighted software at any of its functions.

No part of the net income of the organization shall inure to the benefit of or be distributable to its members, directors, officers, or any private persons, except that the organization shall be authorized and empowered to pay reasonable compensation for services rendered and to make payments and distributions in furtherance of the purposes set forth in ARTICLE 2. No member of the organization shall be financially interested, directly or indirectly, in any agreement related to the operations conducted by the organization for compensation, unless the fact of such interest be known to the Board of Directors.

ARTICLE 4 - MEMBERSHIP

Section 1 Classes of Membership. There shall be two classes of membership: Household and Institutional. Members of each class shall have equal voting powers. Any member of the immediate family holding household membership shall be entitled to all privileges of membership, except that the household membership is entitled to a single Apple Barrel and a single vote. Institutional members shall exercise the privileges of membership through a designated individual, who shall receive the Apple Barrel and cast a single vote.

Section 2 Eligibility. Membership in the organization shall be available without regard to race, age, color, creed, gender or national origin. Any individual who subscribes to the purposes and basic policies of the organization may become a member of the organization.

Section 3 Dues. The annual dues for membership shall be established by the Board of Directors.

Section 4 Limitation of Authority. No member shall act in the name of the organization or take any action which would bind the organization except as otherwise specified in these Bylaws.

Section 5 Expulsion. A member may be expelled from membership in the organization for (a) failure to pay the annual dues for more than 30 days after the due date, or (b) engaging in activities prohibited by the Bylaws or any rule or practice adopted by the Board of Directors. Before any member may be expelled for engaging in prohibited activities, charges specifying the alleged cause shall be served by the President on the member charged, and he shall be given the opportunity to correct such conduct. If such member continues to engage in prohibited activities, he may be expelled at any meeting of the Board of Directors by a majority of two-thirds of the Directors attending such meeting.

ARTICLE 5 - CAPITAL STOCK

No capital stock will be issued.

ARTICLE 6 - MEMBERSHIP MEETINGS

Section 1 Regular Meetings. Regular Membership meetings shall be held monthly as determined by the Board of Directors. Notice of these meetings, stating the date, time, and place shall be published in the Apple Barrel.

Section 2 Special Meetings. Special Membership meetings may be called by: the President, the Board of Directors, or any signed petition of fifty members. Notice of the Special meeting shall be published in the Apple Barrel or by a mailing to all members and shall state the purpose of the meeting. No business other than that stated in the notice shall be transacted at a Special meeting.

Section 3 Quorum. Eighty members in good standing must be present at a Membership meeting in order to conduct business. Members in good standing shall be those members who abide by the organization's Bylaws and whose dues are current as defined in ARTICLE 4, Section 5.

ARTICLE 7 - BOARD OF DIRECTORS

Section 1 Powers. The business and affairs of HAAUG shall be managed by its Board of Directors, which may exercise all powers of the organization and perform all lawful acts which are not in violation of these Bylaws.

Section 2 Composition. The Board of Directors shall consist of 11 members: The President, Vice-President, Secretary, Treasurer, the Immediate Past-President and six Directors-at-Large. The Directors-at-Large shall be elected annually pursuant to ARTICLE 8. If the Immediate Past-President is not eligible for office or is holding another elected office, then the position shall remain vacant.

Section 3 Term. Directors and Officers shall serve for a one-year term beginning on the first Regular meeting in January, or until their successors have been duly elected.

Section 4 Removal. A Director or Officer may be removed at any time, without cause, either at a Regular Membership meeting or at a Special Membership meeting by a two-thirds vote of the members present.

Section 5 Vacancies. Upon the resignation or removal of a Director or Officer, the Board of Directors shall, by a majority vote, appoint a member to serve for the remainder of the term. Upon the adoption of these Bylaws the existing Board of Directors, consisting of the four elected Officers and the Immediate Past-President, shall appoint six Directors-at-Large to serve the remainder of the year.

Section 6 Regular Meetings. Regular meetings of the Board of Directors shall be held monthly, unless otherwise determined by the Board of Directors. Regular meetings shall be held at such time and place as may be determined by the Board of Directors without further notice.

Section 7 Special Meetings. Special meetings of the Board of Directors may be called by the President, the Vice-President or three of the Directors. Seven days' notice shall be given to each member of the Board stating the purpose of the Special meeting, and no business may be conducted other than that stated in such notice.

Section 8 Conduct of Meetings. The President shall preside at meetings of the Board of Directors. A majority of the Directors currently in office shall constitute a quorum. Meetings of the Board of Directors shall be open to all members, except that upon majority vote, the Board of Directors may enter executive session to transact business which the Board determines to be confidential.

ARTICLE 8 - ELECTION OF OFFICERS AND DIRECTORS

Section 1 Nominations. Nominations for President, Vice-President, Secretary, Treasurer and Directors-at-Large shall be submitted during the month of November. Nominations may be submitted by mail to the organization's address prior to the last meeting in November or made from the floor during the last meeting in November. A Nominating Committee shall be appointed by the Board of Directors for the purpose of nominating candidates to the general membership. All candidates will be announced at the last meeting in November.

Section 2 Eligibility. Only members in good standing may be candidates for elective office. An individual may be a candidate for officer and/or Director-at-Large. Any dispute regarding the eligibility of a candidate shall be resolved by the Board of Directors.

Section 3 Balloting. An election shall be completed during the month of December. Only members in good standing may vote in the election. A ballot shall be mailed or hand delivered to each member in good standing. Each member may cast one vote for each office, except that up to six votes may be cast for Director-at-Large. Prior to each annual election, the Board of Directors shall establish a deadline for the receipt of ballots.

Section 4 Results. In the event that any candidate for Director-at-Large is elected as an officer, such candidate shall not be eligible for election as a Director-at-Large. The six eligible candidates for Director-at-Large with the greatest number of votes shall be elected. The election tellers, as appointed by the Board of Directors, shall certify the results of the election to the general membership at the first Regular meeting in January and in the Apple Barrel. In the event of a tie, the winner shall be determined by lot.

ARTICLE 9 - OFFICERS

Section 1 Designation. The officers of the organization shall be the President, Vice-President, Secretary, and Treasurer. They shall hold office for one year or until their successors have been elected pursuant to ARTICLE 8.

Section 2 President. The President shall be the Executive Officer of the organization, and shall have general responsibility for the business affairs and property of the organization and shall have general supervision over the other officers. The President shall preside at all Membership and Board of Directors meetings and shall see that all resolutions of the Board of Directors are carried into effect. The President shall have the general powers and duties of supervision and management usually vested in the office of president of an organization. The President shall submit an annual report to the membership describing the past year's activities upon completion of a term of office.

Section 3 Vice-President. The Vice-President shall, in the absence of the President, perform the duties and exercise the powers of the President. The Vice-President shall also serve as the administrative assistant, oversee and coordinate the efforts of all committees and special interest groups, and perform such other duties as may be designated by the President or the Board of Directors.

Section 4 Secretary. The Secretary shall give, or cause to be given, notice of Special Membership meetings and of Special Board of Director meetings. The Secretary shall keep the minutes of all meetings and make them available to the general membership and shall perform such other duties as may be designated by the President or the Board of Directors.

Section 5 Treasurer. The Treasurer shall have custody of the organization's funds, maintain an inventory control procedure and shall keep full and accurate accounts of receipts and disbursements in books belonging to the organization and shall deposit all monies and other valuable effects in the name of and to the credit of the organization in such depositories as may be designated by the Board of Directors. The Treasurer shall have the authority to disburse checks as provided in ARTICLE 10. The Treasurer shall maintain a system of internal fiscal controls and shall report regularly to the Board of Directors on the expenses and financial condition of the oganization. The Treasurer shall also perform such other duties as may be designated by the President or the Board of Directors.

ARTICLE 10 - FISCAL CONTROL

Section 1 Disbursements. Treasury disbursements shall be made by check. Any disbursement over $10.00 shall be supported by voucher or receipt. All checks, drafts, notes and evidence of indebtedness of the organization shall be signed by the Treasurer and by either the President or Vice-President; however the Treasurer shall have the authority to sign checks in an amount not to exceed $500.00 without a co-signature.

Section 2 Annual Budget. Prior to the commencement of each fiscal year, the Board of Directors shall prepare a proposed budget for the following fiscal year. This budget shall be presented at a Regular Membership meeting for the approval by a majority of those members present.

Section 3 Fiscal Year. The fiscal year shall be from January 1st to December 31st.

Section 4 Capital Expenditures. Capital expenditures in excess of $1,000.00 must be approved by a majority of the members present at a Regular Membership meeting. Approval of a line item in the annual budget shall constitute membership approval of a capital expenditure.

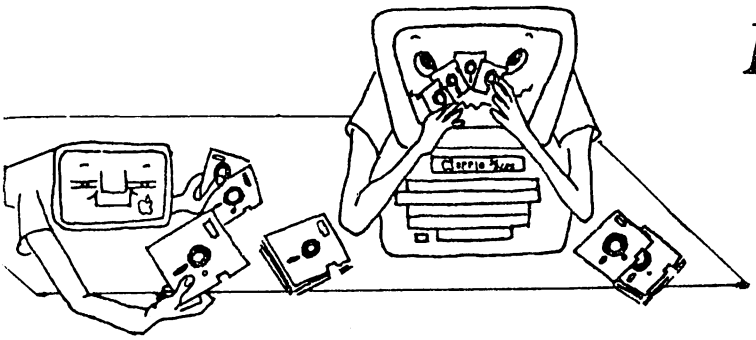
ARTICLE 11 - AMENDMENTS

These Bylaws may be amended by a two-thirds majority of the Directors of the organization currently holding office and by a two-thirds majority of the members present at a Regular Membership meeting or at a Special Membership meeting called for this purpose.

ARTICLE 12 - DISSOLUTION

Section 1 Dissolution. This organization may be dissolved by a three-fourths majority of the Directors holding office and by a three-fourths majority of the members present at a Regular Membership meeting or a Special Membership meeting called for this purpose, provided that thirty days' notice shall precede such membership meeting by a mailing to all members or by publication in the Apple Barrel. Upon affirmative vote to dissolve, proper action shall be taken by the Board of Directors to wind up the affairs of the organization including surrendering the organization's Corporate Charter to the Secretary of State of the State of Texas or other appropriate authority.

Section 2 Assets. Upon dissolution, all of the organization's net assets shall be distributed to bona fide educational institutions as directed by the Board of Directors.



Dealing With DOS

By

Clark Johnson

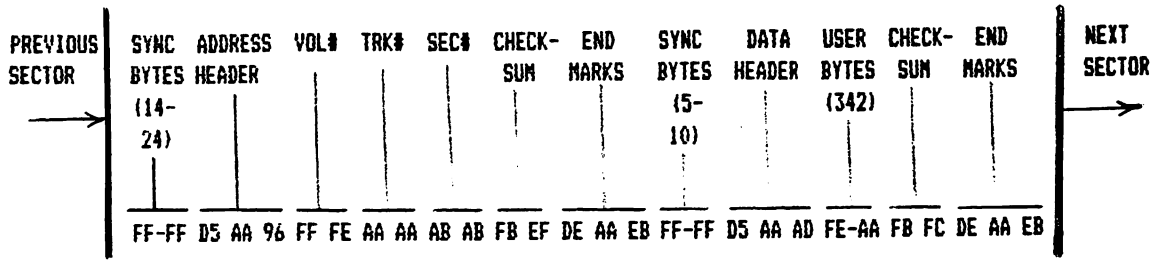
Since I write an article on DOS and could be very loosely defined as an "expert" on the subject, I am frequently asked questions on the mechanisms of disk copy protection. This subject could fill an entire book, and I barely know enough to write one chapter. But it might be informative to discuss how the simpler types of copy-protection are accomplished. To do this, it is necessary to have a basic understanding of the structure of data organization on a disk, but this is a fairly simple subject provided we cover only the essential information necessary to understand copy-protection. By the time you have finished reading this article, you should have a good knowledge of the basics of copy-protection, plus be able to copy-protect one of your disks with a simple system.

Therefore, we will first lay the groundwork for understanding the fundamentals of data organization on the disk. It is essential to know that the disk operating system (DOS) and the disk's format must be compatible. The disk's format is laid down on the disk during the INIT process. When you INIT a new Apple type disk, you take a medium that previously had no identifying characteristics. Every portion of the disk was completely filled with random orientations of electromagnetic particles. The INIT process aligns these particles in such a manner that a device (the disk drive system), which can read and translate the orientations, is able to distinguish between 560 sectors on a disk.

Why 560? Well, an Apple disk, when formatted, will have 35 (invisible) tracks in a series of concentric circles around the disk. Each track is then further subdivided into 16 (invisible) sectors. Each sector will hold 256 bytes of data. This structure explains the capacity of the disk. Multiplying 35 times 16 times 256 gives 143,360 bytes or 143K bytes of capacity that each disk has.

What may come to mind is the question of how DOS can locate one particular sector out of 560 on a disk. This is accomplished by reading the "address marks" on the disk. Each sector on the disk has a few bytes of information that are used by the DOS to determine what sector is being read. Also, there are other bytes that are used by DOS to check for data validity, to make sure that the disk bytes are being read in the proper sequence, and some other functions to be discussed shortly. Below is a diagram of the way that data is recorded on the disk for each sector on a track.

DISKETTE FORMATTING & ORGANIZATION



A discussion of each of the above identified areas follows:

1) Sync bytes
The normal value for sync bytes is a hexadecimal FF. Without going into a much detail of the use of sync bytes, we can just say that they are necessary to make sure that the disk data is being read into the computer in the right synchronization. Without sync bytes, the operating system would not know where one disk byte ends and the next one begins.

2) Address header
The normal values for the address header are D5 AA 96 for DOS 3.3 and D5 AA B5 for DOS 3.2. The address header is used to signify that the actual disk sector address information is about to follow.

3) Volume#, track#, and sector#
These are self-explanatory. The operating system reads these values to determine what sector is about to be read.

4) Checksum
This is a little more difficult to explain. In layman's terms it is a value that validates the accuracy of the data preceding it. The checksum is the result of a mathematical relationship between all the preceding data. If the checksum stored (during a write or an INIT) does not match the checksum that is calculated when the data is being read back, then a data error has occurred.

5) End marks
The normal values for the end marks are DE AA EB. The end marks are basically used to prove that the end of a particular sequence of data has been reached.

5) Data header
The normal values for data marks are D5 AA AD. The data header is used to signify that the actual user data is about to follow.

6) User data
Well, after all that trouble, we have finally reached the data that we want to read into the computer. This data may be part of a BASIC or machine language program or it may be part of a Text file. If you remember an earlier statement that 256 bytes of user data are stored in each sector, you may expect that exactly 256 bytes are stored in this area. However, because of the hardware limitations of the Apple (and other micros), this is not really true. In order to fit in 256 bytes of true computer data on a sector, it takes 342 bytes of "encoded data" to represent the 256 bytes. This is nothing to be concerned about. Just relax and be confident that the 342 bytes of disk data will be translated into 256 bytes of

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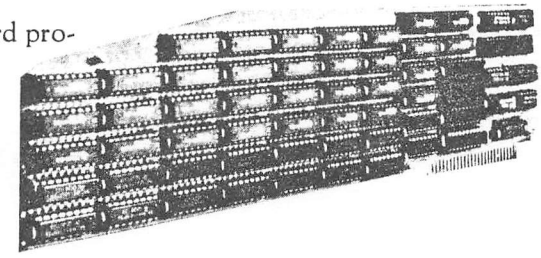

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user data by the operating system.

It would be beneficial to further distinguish between how bytes are stored on the disk and how they are finally read into the computer by examining the number of "disk bytes" that are necessary to read in 256 bytes of user data. Below is a tabulation of the types of disk bytes, together with the number of bytes taken up by each type:

TYPE	# BYTES
a) 1st sync bytes	14-24
b) Address header	3
c) Vol, trk, and sector	6
d) 1st checksum	2
e) 1st end marks	3
f) 2nd sync bytes	5-10
g) Data header	3
h) User data	342
i) 2nd checksum	2
j) 2nd end marks	3
TOTAL	383-398

As you can see, it takes considerably more disk bytes (also called "raw data" or "pre-nibbilized data") to represent the 256 bytes of data finally transferred into the computer. But remember that typically the disk storage capacity for a particular computer and operating system is quoted in terms of computer usage, not as the raw disk data.

While reading this article, it would be helpful to use a "nibble-editor" program to read the raw data from a standard unprotected disk. You should get a better appreciation of disk formatting and organization by actually seeing the data from a disk. Examples of commercial programs that can do this are LOCKSMITH, NIBBLES AWAY, COPY][+, the INSPECTOR, and BAG OF TRICKS' TRAX.

The disk or sector editor programs like DISKFIXER, DISKEDIT, and ZAP cannot display the raw data; they display the 256 bytes of computer data after it has been translated from the raw disk data by DOS.

Now that a basic understanding of disk formatting has been established, it is time to go back and identify those items which can be made non-standard in order to copy-protect a disk. If you can change one or more or the values that normal DOS recognizes, then a copy program that uses normal DOS (like COPYA) will not be able to recognize the formatting of the disk and will give an input/output error (I/O ERROR). Likewise, if you boot up normal DOS 3.3 and then attempt to catalog a protected disk, you will get the same type of error. (Exception - some protected disks allow you to read their catalog with normal DOS 3.3, but will not allow the programs to be run under normal DOS. In this type of protection, the catalog track ($11) has standard formatting, but the rest of the disk does not.)

Below is a listing of the raw data fields that can be changed to make the disk non-standard:

a) Sync bytes
The normal value of FF can be

changed to one of several other values or a combination of two values.

b) Address header
This is an item often changed from the normal value of D5 AA 96. For example, the address header could be changed to D5 AA A7. There is one complication to changing this value (and also the data header) that will be discussed in the latter part of this article.

c) Volume#, track#, and sector#
This is not changed as often as other items in the disk data. However, it is possible to change one or more. For example, one particular software company changes how the sectors are counted on the track. Instead of numbering the sectors from $0 to $0F (0 to 15 in decimal) in increments of one, the sectors are numbered in increments of 2. Obviously, normal DOS 3.3 could not handle this change, because it cannot find any odd-numbered tracks.

d) Checksum
The checksum calculation is very frequently changed. The altered DOS may calculate the checksum in the normal fashion and then make an adjustment to it. The result would be a checksum that would indicate that the data has one or more errors if you attempt to use the disk under normal DOS 3.3. Also, - another very important point - the checksum validation is really not necessary under any form of DOS; it really is just an insurance check on the data being read. Therefore, another checksum protection method that may be used is to write completely erroneous checksums on the protected disk, but then modify the DOS slightly to not give an error if the checksum is not correct. Again, normal DOS 3.3 would calculate the true checksum, check it against the value written on the disk for that sector, and give an error if the two did not agree.

e) End marks
There are some interesting facts regarding the use of non-standard end marks in copy protection. First, it is obvious that the normal values of DE AA EB can be changed to other values. However, end marks, like checksums, are another part of the disk structure that are really not absolutely necessary to enable reading and writing to and from the disk. If you look back and analyze the diagram that shows the layout of the different elements of diskette formatting, you may detect that DOS should be able to determine what part of the disk it is reading without using the end marks. In both cases where end marks are used, they are followed by other identifying data bytes that signify what type of data is about to be read. Therefore, the disk can be modified to have any three bytes of data in place of the standard bytes of DE AA EB; the altered DOS will then read the non-standard bytes, but will be modified to not give an error no matter what the bytes are. It is also interesting to note that even normal DOS 3.3 does not check the third byte of the end mark (the EB) even though it writes it to the disk during initialization.

f) Data header
This also is frequently altered from the normal values of D5 AA AD. An example of an

altered data header would be D5 AA BC. Another approach is to have a completely random third byte in the data header, as in D5 AA ??, where ?? can be any random byte that changes from sector to sector. You may wonder how the modified DOS can handle a random byte in the data header. The truth is that the third byte is not really absolutely necessary and the DOS can therefore be instructed to ignore the third byte altogether. As an example, let's say that the address header was the normal D5 AA 96 and the data header was D5 AA ??, with the ?? as defined above. The operating system would locate the sector by reading the address header and the track and sector numbers, validate the checksum, read the end marks, and then read over the second series of sync bytes. As it then approached the data header, the DOS would be expecting a data header to pass by because of the location in the reading process. Therefore, two checks of data header bytes would be ample to verify that it was indeed a data header. (Possibly only one check would be necessary.) The third byte could be ignored.

The previous comments showed that there are six areas that can be modified to give a copy-protected disk. These were the standard means used in the first generation of copy protection. But, because the commercial nibble copiers today can fairly easily copy any disks protected with the techniques outlined, many of the disks being marketed today have even more exotic means of copy-protection.

It has been emphasized that the disk operating system must be compatible with the formatting of the disk that it is trying to read. To further illustrate this point, we will look at parts of DOS 3.3 to see where it is looking for the different elements of the disk structure outlined before. To do this, first boot up on any standard DOS 3.3. Then enter the monitor by typing CALL -151. We can now look at portions of DOS by using the built-in disassembly functions of the Apple.

The first area we will look at is the section that reads the address header. Type B954L to get a disassembled listing of DOS beginning at $B954. You should get a listing identical to that below:

```
*B954L

B954-   C9 D5      CMP   #$D5
B956-   D0 F0      BNE   $B948
B958-   EA         NOP
B959-   BD 8C C0   LDA   $C08C,X
B95C-   10 FB      BPL   $B959
B95E-   C9 AA      CMP   #$AA
B960-   D0 F2      BNE   $B954
B962-   A0 03      LDY   #$03
B964-   BD 8C C0   LDA   $C08C,X
B967-   10 FB      BPL   $B964
B969-   C9 96      CMP   #$96
B96B-   D0 E7      BNE   $B954
```

You will notice in the first, sixth, and eleventh lines that some operation is being performed on the bytes D5, AA, and 96. The CMP instruction in those lines is comparing the bytes actually being read from the disk against the normal address header bytes. If each byte passes the compare test, DOS continues down to check for the next address byte. If one fails the check, then DOS goes to another location to start some other set of instructions. What actually takes place is that if DOS cannot find the proper sequence in three tries, you will get an I/O ERROR. The chattering sound made by the disk drive just prior to the I/O ERROR comes from the drive read/write head as DOS tells it to recalibrate back to Track zero to start again trying to find the proper data.

Now type B8E6L and you will see the portion of DOS (shown in the listing below) that is checking for the correct data header sequence (D5 AA AD). You will again see this in the first, sixth, and eleventh lines.

```
*B954L

B954-   C9 D5      CMP   #$D5
B956-   D0 F0      BNE   $B948
B958-   EA         NOP
B959-   BD 8C C0   LDA   $C08C,X
B95C-   10 FB      BPL   $B959
B95E-   C9 AA      CMP   #$AA
B960-   D0 F2      BNE   $B954
B962-   A0 03      LDY   #$03
B964-   BD 8C C0   LDA   $C08C,X
B967-   10 FB      BPL   $B964
B969-   C9 96      CMP   #$96
B96B-   D0 E7      BNE   $B954
```

One final area to examine is the part of DOS that looks for the end marks following the 342 bytes of user data. Type B934L to get the listing below.

```
B8E6L

B8E6-   49 D5      EOR   #$D5
B8E8-   D0 F4      BNE   $B8DE
B8EA-   EA         NOP
B8EB-   BD 8C C0   LDA   $C08C,X
B8EE-   10 FB      BPL   $B8EB
B8F0-   C9 AA      CMP   #$AA
B8F2-   D0 F2      BNE   $B8E6
B8F4-   A0 56      LDY   #$56
B8F6-   BD 8C C0   LDA   $C08C,X
B8F9-   10 FB      BPL   $B8F6
B8FB-   C9 AD      CMP   #$AD
B8FD-   D0 E7      BNE   $B8E6
```


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It's easy to see where the bytes DE and AA are being analyzed. However, you will not find a check for the EB byte. This verifies an earlier comment that even normal DOS 3.3 does not check for the third byte in the end mark sequence.

Now that you have an appreciation of the mechanics of disk protection, it is time to make a copy protected disk of your own. We could change the address header or the data header, but as mentioned in passing earlier, those changes bring up a slight complication that is more difficult to handle. This complication stems from the fact that the proms on the disk controller card itself check for these particular bytes on the first sector read from the disk when it is booted. A protected disk that alters either the address or data headers cannot change these on Track zero, sector zero - the first sector read in during a bootup. A routine must be placed inside of DOS that will allow the DOS to switch over from the standard address or data headers to the non-standard headers during the bootup sequence. That is slightly too complex for the purposes of this article.

So the method that we will use for copy protection is to change one of the end marks. The end marks are not checked by the disk controller card during bootup. But before doing anything else, first load any convenient Applesoft program into memory to use as a hello program when we initialize a new disk.

Referring back to the last listing, one can see where the end marks are being tested during a read of the disk. Let's change the second byte of the end mark sequence from AA to AB. Do this by typing B93F:AB. This action writes the byte AB into memory, replacing the AA. If you wish, look at the disassembled listing again by typing B934L to verify that the second byte has changed. We have changed the byte for the "read" process. But DOS also needs to be modified to enable a "write". Therefore, type B8A3:AB to modify DOS for the write process. You now have modified DOS enough to copy protect a new disk when initialized. You can prove that DOS has been modified by trying to catalog a standard disk. You will get an I/O ERROR if you do.

To now place this modified DOS on a disk, put a new or scratch disk into the drive and type INIT HELLO. The modified DOS will be placed onto the new disk, as well as the program that was in memory at the time of the initialization. After the INIT is completed, boot up the new disk. The HELLO program should run after the bootup. This disk cannot be copied by a normal copy program without making a modification to DOS. Place a standard disk into the drive and try to catalog it; you will get an I/O ERROR again, because you have a modified DOS in memory and are trying to catalog a standard disk. Another test is to boot up on a standard disk and then try to catalog or run a program on the newly protected disk. You will get the same error.

Obviously, this disk is not well protected because someone who knows DOS well can determine what changes have been made and then make a modification to DOS that will allow him to copy the disk. This can be proven by typing in the following lines:

```
POKE 47497,24
POKE 47498,96
```

These two lines modify DOS to make it ignore all end marks, whether standard or non-standard. As stated earlier, end marks are not really necessary to make DOS work. The disk can now be cataloged after a normal DOS bootup and also copied using COPYA.

APPLE ///
SOFT SWITCHES

By
John Rivas

I was looking at the values of the I/O locations, in the "monitor program" of the APPLE ///, when I stumbled across the soft-switches for the disk drives. This coupled with the fact that the recording head is always loaded whenever the drive door is closed, a fact learned during May's Thursday meeting, made me realize the drives could be turned on for 30 seconds to clean the recording head as recommended by manufacturers of head cleaning kits. Therefore there would be less trouble cleaning the drive heads.

The table below gives the location and the function of the soft-switches. To use them you need to be in the Apple /// "monitor" or be using the Jeppson Disassembler. To enter the monitor hold down the open apple key while doing a control reset. Once in the monitor just type C0E9 <return> to enable the soft-switches and then C0D4 <return> to turn drive one on. For the Jeppson Disassembler select option 2 (memory disassembler). Next the xbyte must be set to FF. Then just follow the same procedure as when in the Apple/// "monitor".

C0E8 --- Disable drive soft switches
C0E9 --- Enable drive soft switches
C0D0 --- Select drive 3
C0D1 --- Select drive 2
C0D2 --- Drive 2 on or 3 off
C0D3 --- Drive 2 off or 3 on
C0D4 --- Drive 1 on
C0D5 --- Drive 1 off
C0EA --- Turn drive 1 light on
Turn drive 2 light off
or drive 3 light off
C0EB --- Turn drive 1 light off
Turn drive 2 light on
or drive 3 light on

HOME SIG NEWS BRIEF

By
Dick Fairman

Two months ago the "HOME SIG" was formed. It joins the many other successful special interest groups in the HAAUG organization. I am pleased with the interest shown so far by all of you who have attended these first two sessions.

The "HOME SIG" has as its format topics covering applications of the APPLE II computer and its software used in the home enviornment. Some of the subjects covered in the group are applications in word processing, budgeting, record keeping, home monitoring (heating / air conditioning), and controlling (lighting and security systems).

Our first meeting was a get aquainted experience, where we expressed our interests for the group. We had 14 members sign up.
After our second session our membership has increased to 24, although there were almost 35 in attendance. I encourge all of you that attend our sessions to sign the roster information sheet which is circulated at the begining of each meeting. In this way we will know who you are and the subjects you would like to have discussed within the group.

We had a most interesting second session on June 18. Mr. Bob Deal of Data Marketing Inc of Houston demonstrated the ISAAC an instrumentation controller which would turn a tape recorder on and off, keep the time, monitor intruder sensors and several other applications.

In the next few months we will be learning how to file and retrieve records with some of the more popular data base software on the market. In August (if all goes well) we will demonstrate a hardware-software device which responds to voice and turns lights and appliances on and off.

We have just scratched the surface of home applications. We need your ideas and your help in making this group successful. I encourage you and your friends to join us each month. We meet in the main room from 1:00 p.m. to 2:00 p.m. unless otherwise noted on the bulletin board in the main lobby. If you have any questions about the group please see me after the General meeting which ends at 2:30 p.m. in the auditorium.

See you next month..... Dick Fairman

APPLE WRITER][REFERENCE CARD

By
Keith McSorley

Somewhere included herrein are four "pages" which represent an improved version of the official Apple Writer][reference card. The main improvement, beyond providing much more detail, is that the commands have been sorted and grouped according to function. The official card has the commands in alphabetical order, making it nearly worthless as a reference.

The four "pages" have been reduced and published with two "pages" each side-by-side on one Apple Barrel page. The two resulting pages can then be photocopied on stiffer paper stock or laminated to stiff paper with rubber cement. If the two are aligned properly, the result will be a sheet which, when folded in the center, gives a 6.5" x 5.0" reference card.

I hope you enjoy using it as much as I enjoyed writing it. It was my way of learning to use Apple Writer][. By the way, if you want to customize any or all of these "pages", the four text files have been added to the HAAUG Software Library. The files are AWII 1, AWII 2, AWII 3, and AWII 4.

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Printing (page 57)

[P]NP	Prints the text currently in memory (page 68)	
[P]CP	Continues printing (use to print more than one file as a single document - see page 68)	
[P]?	Display printing format options for changing	
----	To permanently change the defaults (page 72): 1) make whatever changes you desire 2) insure the Apple Writer][disk is in drive #1 3) press [Q]4 then in response to the "Enter file name:" prompt enter : sys,dl 4) NOTE: Shift key option ("E","S", or "U") is also saved with the new defaults	
		Default value:
LM{number}	Sets the left margin to {number}	9
PM{number}	Indents/outdents paragraph margin to {number}; relative to "LM"	0
RM{number}	Sets the right margin to {number}	79
TM{number}	Sets top margin to {number}	1
BM{number}	Sets bottom margin to {number}	1
PN{number}	Sets {number} of first page printed	1
PL{number}	Sets {number} of printed lines per page	58
PI{number}	Sets page interval (form length) to {number}	66
LI{number}	Sets {number} of spaces between lines	0
SP{0 or 1}	Selects continuous sheet feed {0} or single page {1} printing	0
PD{number}	Selects print device destination slot	1
CR{0 or 1}	Selects {1}/deselects {0} line feed signal to printer	0
LJ	Left justify (left margin is blocked)	
FJ	Fill Justify (spaces are added so that the left and right margins are blocked)	
CJ	Center justify (each line is centered)	
RJ	Right justify (right margin is blocked)	
TL	Specify top line headings	blank
BL	Specify bottom line headings	blank

The [P]rint/Program commands and the commands which follow can be embedded in your text by preceding them with a carriage return and a period. Each text-embedded command must be entered on a separate line.

.FF	Form Feed
.FF{number}	Conditional form feed [if less than {number} of lines left on page being printed]
.IN{text}	Stops printing and displays {text} on monitor
.EP{0 or1}	Suppresses {0} or enables {1} printing

Getting Started (For Apple][+) ** see footnote this page **

Users with pristine Apple][+'s just boot the Apple Writer][disk and skip all four (4) of the following steps:

Step 1	====>	Boot the Applewriter][preboot disk
Step 2	====>	Insert Applewriter][disk when requested and press "return" as asked
Step 3	====>	Answer "y" to "Do you have inverse video display"
Step 4	====>	Press "shift-reset" to obtain lower case and correct shift key operation (To use CAPS only - skip Step 4 or Press "reset")

Cursor Movement (page 7)

ESC ESC	Change to cursor move mode.
I	Up one line
J K	Left or Right one character
M	Down one line
E	Up 12 lines
S D	Left or Right one word (up to 24 characters)
X	Down 12 lines
[B]	Move cursor to beginning of file
[E]	Move cursor to end of file

Delete/Retrieve,Characters (page 10), Words & Paragraphs (page 34)

<---	Delete characters
--->	Retrieves characters
[D]	Changes direction of data line arrow
<	Will delete when arrow is in this direction
>	Will retrieve when arrow is in this direction
[W]	Causes the deletion/retrieval of the word and space preceding it to the left of the cursor
[X]	Causes the deletion/retrieval of paragraph (up to 1024 characters)to the left of the cursor
[R]	Replaces characters (ie: type over old stuff)

>>>NOTE<<< Step or command description which is preceded by a " ====> " applies only to those users who have Videx's 80 column card or their Enhancer][keyboard or both. Others will need to alter this text somewhat.

Tabs (page 30)

[T]S	Sets TAB at cursor position
[T]C	Clears TAB at cursor position
[T]P	Purges all TABS
[Q]2	Saves current TAB settings
[Q]1	Loads selected TAB file
[Q]1?	Displays file catalog, add ",D1" or ",D2" to specify drive
[I]	Moves cursor to next TAB

Loading Files (page 21)

[L]:name	Load "name" into memory & place at cursor
[L]:name,D#	Same as above but specify drive number to read
[L]:name/X/Y/	Load the first segment found in "name" beginning at word "x" and ending at word "Y", place at cursor
[L]:name/X/Y/a	Load all segments found in "name" as above
[L]:name/X/Y/n	Load the first segment found in "name" as above BUT don't include words "X" & "Y"
[L]:name//mark/	Load a segment from "name" which starts at the beginning of "name" and ends at the "mark", place at cursor
[L]:name/mark/	Load a segment from "name" which begins at the "mark" and goes to the end of "name"
[L]:?	Display catalog of disk in last drive used
[L]:?,D#	Display catalog of disk in specified drive

Saving Files (page 16)

*** A FILENAME :
1 ... Cannot exceed 30 characters
2 ... Must begin with a letter
3 ... Cannot contain a comma

[S]:name	Saves "name" on disk in last drive used
[S]:name,D#	Saves "name" on disk in specified drive
[S]:=	Saves file to disk in drive last used under the filename shown on the data line
[S]:=,D#	As above, but on disk in specified drive
[S]:name/mark/	Saves a segment as "name", the segment begins at cursor and ends at the "mark"
[S]:name/mark/+	Appends the segment beginning at the cursor and ending at the "mark to the end of a file called "name"
[S]:name,d#+	Adds the text file in memory to the end of "name" on drive "#"
[S]:?	Display catalog of drive last used
[S]:?,D#	As above but specify drive

Glossary Commands (page 43)

*** A glossary phrase can be defined at any time. However to build a glossary file to save to disk type [N] to clear memory (NOTE: this will not clear glossary phrases in memory, use [G]* as described later to do this)

[G]?	Define a glossary phrase
----	Respond to prompt with the character which will represent the glossary phrase followed by the phrase itself terminated by a return (ie: &This is the phrase)
[G]*	Purges all glossary phrases in memory
[G]"character"	Will insert the glossary phrase represented by the "character" at the cursor
[S]:name,d#	Will save the glossary file on specified drive
[Q]5	will prompt you for a glossary filename then load the glossary file you name

Text Search &/or Replacement (page 36)

[F]	Search text from cursor - in the direction of the data line arrow
[F]:/xx/	Will find the first occurance of "xx" Successive "returns" will find more "xx"
[F]:/xx/yy/	Will find "xx" as above and then will replace it with "yy" after confirmation
[F]:/xx/yy/A	Will find and replace "xx" with "yy" automatically
[F]:=	Will repeat last instruction used with [F]ind option

Miscellaneous Commands

[C]		Automatically change the case of an entire word or line (page 49)
[K]	====>	Alpha lock, use with "reset" & shift reset to obtain upper & lower case (page 11)
[N]		Erases text file from memory, but not glossary phrases (page 21)
[O]		Displays DOS commands menu (page 27)
[Q]		Additional functions menu (page 14)
[Y]		Split screen display into two parts (page 50)
[V]		Allows control characters to be entered as text ie: not as Applewriter][commands (page 51)
[Z]		Turns word wrap-around on and off
Underlining		Set off phrase with backslashes (page 33)

>>>NOTE:>>> The ",D#" found above can be either upper or lower case and can be added to any of the above saving or loading commands. HOWEVER it must precede any slashes (/) ie: [S]:name,d2/mark/

TRANSTAR 130 - A REVIEW

By
Ruth Dill

For some time I had been contemplating buying a letter quality printer. The question was, which brand? Talking to the sales people at the various computer stores and reading all the magazine ads did nothing to dispel the confusion. I wanted a good printer, but I didn't want to spend a fortune for it.

Finally, in desperation, I called fellow club member and former HAAUG president, Bruce Barber, who operates a business called Computer Alternatives, and put my problem to him. He suggested the Transtar 130, a daisywheel printer which does everything more expensive printers do but sacrifices speed. It prints only about 16 cps.

I decided to take Bruce's advice. For my needs, the additional speed provided by more expensive printers was not worth the extra thousand dollars. I would still have my Epson MX-80 for some of my monthly financial reports and graphs.

In addition to the Transtar 130, I also invested in the Palantir Word Processing software, which teams up beautifully with the Transtar. If you're considering it, be aware that it requires CP/M which only recognizes Slot #1 for the printer. I had intended to keep both printers connected and configure the slot for the printer I wanted to use. So I bought an interface card and cable for the Transtar. This, I have discovered, was a waste of money since, as I said, CP/M only recognizes Slot # 1, and PFS File, PFS Report, and PFS Graph also require the printer to be in Slot #1. Anyway, it is a simple matter to unplug the cable from one printer and plug it into the other (ONLY WHEN THE PRINTERS ARE TURNED OFF, of course).

The Transtar was very easy to learn to use. It turns out a beautiful job. Using Palantir, I have turned out some exceptionally attractive bid presentations, which hasn't damaged my prestige at the office at all.

So, if you are looking for an excellent letter quality printer and don't mind sacrificing some speed to save a thousand bucks, I recommend you give Bruce a call.

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PRINTING APPLE][GRAPHICS

By
Mike Kramer

One of the best things about graphics on the Apple][is the availability of graphics interface cards which permit dumping a graphics screen to the printer with a few keystrokes. Cards which permit you to do this are the Grappler+, the Apple Dumpling, the PKASO, and several others. The instructions that come with these cards are usually pretty complete in explaining how to dump Page 1 or Page 2, rotate the picture, print it double size, invert it, etc. What they are weak in is explaining how to save a picture on disk so you can print it and how to load a picture from disk. The following will attempt to provide a little more insight so you will get a little more out of your graphics interface and printer.

PAGE 1 VS. PAGE 2

Applesoft BASIC on Apple][and //e provides two high resolution graphics screens, Page 1 and Page 2. When you want to use graphics, you have the option of issuing an HGR command to draw on Page 1 or HGR2 to draw on Page 2. Page 1 occupies memory locations 8192 through 16383 (2000 through 3FFF HEX) while Page 2 occupies locations 16384 through 24575 (4000 through 5FFF HEX).

FINDING A PICTURE ALREADY IN MEMORY

If you are running a program that has some nice graphics that you want to print, you can frequently stop execution (assuming it isn't locked and doesn't reboot the system on reset) by pressing Control-C or Control-RESET. This will usually leave the picture intact in memory, although if you have used RESET, the picture will disappear. All you have to do is save the picture to disk and/or print it on the printer. Your problem is to know which page to save. Unfortunately, the HGR and HGR2 commands erase the graphics screens in addition to activating them. To look at the graphics screens without erasing them, typing the following commands from BASIC:

```
POKE -16304,0  Sets graphics mode

POKE -16297,0  Sets hi-res mode

POKE -16300,0  Select Page 1

POKE -16299,0  Select Page 2
```

You should have seen where the program is with one of the last two POKEs. If you know where it is you can dump it to the printer.

SAVING THE PICTURE ONCE YOU FIND IT

Saving a graphics screen amounts to saving the block of memory containing it to disk as a binary file. The commands to save a block of memory for Page 1 and Page 2 respectively have the form:

```
BSAVE name,A8192,L8192

BSAVE name,A16384,L8192
```

where "name" is the name you give the picture, the first number is the starting location, and the second is the number of memory locations to save. Note that the numbers are in decimal format. If you wish to use hexadecimal numbers, precede each number with a dollar sign.

LOADING A PICTURE FROM DISK

When you catalog a disk and see a "B" file with 33 or 34 sectors, it is probably a graphics picture. To get it into memory, all you have to do is type the following command:

```
BLOAD name
```

where "name" is the file name in the catalog. The picture will load into the same memory area from which it was saved, and you will have to determine where it went to print it. You can force loading of a picture into the Page of your choice with one of the following commands:

BLOAD name,A8192 for Page 1

BLOAD name,A16384 for Page 2

PRINTING THE PICTURE (AT LAST)

Now that you understand how to determine where a graphics picture is, how to save it to disk, and how to load it from disk, you would probably like to print it. Let's assume the picture is in memory and it's in Page 1.
The keyboard commands needed to print the picture dot-for-dot using the Grappler+ are:

PR#1	Activate printer
^I G	Print Page 1 graphics
PR#0	Deactivate printer

where "^I" is Control-I and each command is followed by a RETURN.

Several commands can be issued in a single keyboard command. For example, the following will print Page 2, double size, inverted, rotated 90 degrees:

```
PR#1

^I G 2 D I R

PR#0
```

So there you have it. Send your best graphics dumps to the Apple Barrel. Maybe they will be printed!

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GAME REVIEWS

By
Bill Muhlhausen

ULTIMA II
Product of Sierra On-Line Inc.

This product was play tested for you by people that have almost 50 years experience in the fantasy role playing game Dungeons & Dragons. These same people have thousands of hours of time playing Eamon, Wizardry, Odessy, Zork, and Ultima I. The 6 people involved in testing for this reveiw spent almost 200 hours playing Ultima II.

It was the opinion of those involved in the play test that the color graphics were excellent and the idea behind the scenario was very interesting. It is really unfortunate that the idea was so poorly executed in the final product.

We found the following things to be in a range from a needless frustration to being unacceptable in a $60 software package.

1. The effect that gaining levels has on a players chance to do things is not explained in the documentation. We advanced one player from 0 level to level 99 and then rolled over to level 0 and could discern no significant difference in ease of accomplishing things.

2. Players may not cast spells unless they are in dungeons or towers but their opponents can cast them anytime, anywhere through walls and mountains.

3. The computer thief could steal from a ship 1 move before it docked but the players could not steal at a distance successfully.

4. The documentation does not give the minimum stats necessary to use armor and weapons that have special requirements. Instead it lets you buy it and then tells you, you can not use it.

5. Though the documentation states that you may improve your stats we were unable to find any way to do this. We did find that on occasion the computer lowered your stats for no apparent reason.

6. Players could not sell or barter excess items.

7. The silly ability to stop ships at sea from moving when a paralyzation spell cast from land succeeds.

8. The inability to map the dungeons and towers due to the graphics programmers choice of allowing you to see only a side view of the ladder instead of a side and front view.

9. From time to time things appear on the screen that the players would like to get to. In a significant number of cases no matter what you try you can not get to them. It is our opinion that the documentation should state that the player will not be allowed in certain areas just as it does state that mountains and forests are impassable.

10. The game starts you off with money and no equipment in the wilderness with no town shown on the screen. If you guess wrong as to which way to turn you may as well reboot the disk because the program mobs you with enemies which either kill you or prevent you from buying any equipment due to the fact that you can not fight them and survive or you spent all your money on hits and have nothing to spend for equipment.

11. One of our strongest objections to this package was the total uselessness of going into any dungeon or tower unless you needed fuel for your spaceship or a occasional weapon. There are no rooms such as you encounter in Eamon and other similar programs. Instead the dungeons consist of endless passages to nowhere in which you have encounters with wandering monsters. If you want something to put

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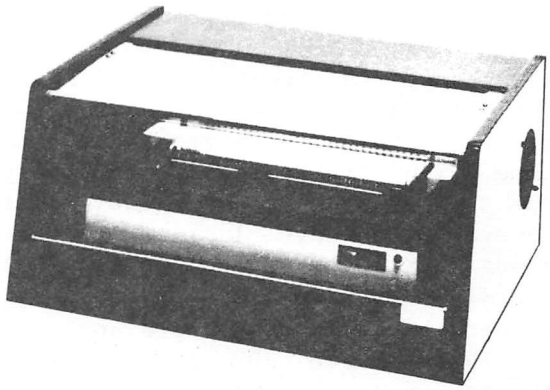

you to sleep go on a Ultima II dungeon "adventure?".

12. Traps occur in dungeons and towers which can not be avoided even if you know they are there.

During all the time we play tested this package we were not able to accomplish the stated objective of destroying Minax. In fact we never had any clue as to how to start finding her.

I wrote Sierra on January 13, 1983 requesting that they give us some insight into this package and stating some of our objections to the program. As of February 22, 1983 they have not even acknowledged my letter. In addition one of the play testers had met the creator of Ultima II and knew how to contact him. He asked this person to help us with our problems and objections to his work. He declined stating that he did not care what happened to this package since he had already received payment for it.

In conclusion it is our collective opinion that this game is fun only as long as you have not accomplished the acquiring of any of the things you need to survive. This takes around 8 to 10 hours of play. After that point you do the same things over and over again while you make no further advances toward your final objective.

This $59.95 package was loaned for testing by the SOFTWARE CENTER OF HOUSTON, 2200 Southwest Freeway.

MINOTAUR

Product of Sirus Software

A attempt to create the atmosphere of the adventurous times of ancient Greece is the object of this shoot them up game. You are Theseus the destroyer of the minotaur of ancient legends. However, you are luckier in that you start out with of all things a laser sword. On second thought you might rather have a normal sword and not have to exterminate 32 levels of mazes before completing your task. Unfortunately for you there are no normal swords available so your task might not ever be completed.

This game may be played with either a joystick or the keyboard. The mazes are populated with about 16 different creatures some of which are friendly. You may set the speed at which the controlls work. Five is the fastest response time and 1 the slowest. The escape key allows a pause option which interupts play at that point and restarts it from that point. Although the graphics are in color they are crude stick figures. Considering the present state of the art this to me constitutes a merchant insisting on selling muzzle loading guns while all his competitors sell machine guns.

You begin the game with 99 lives. You may gain more lives by finding skulls and virgins. You may never have more than 99 lives. You forfeit lives by being killed by monsters. The number of lives lost depends on the monster that kills you. If you find wings you may fly for a limited time above the maze and map it. If you find elixir you may travel in ghost form and not be hurt. You can not attack or pick up things in this form. You can break through walls if you find clubs. This package does seem to offer enough variety to keep a players interest high.

In my opinion the game is better suited for those gamers that have a low frustration level or younger people who must frequently win to keep up interest in a game. We tested it only to level 3 or 4 and found that it was to easy to never die and kill the minotaur. The overly simplistic graphics did not help us to want to keep playing this game for a long period of time. Most of the time we had 90 or so lives at all times. If the package allowed an option to select the level you wanted to start gaming on and improved the graphics markedly it would very likely be a game that many of you would enjoy having. Since that has yet to happen I would think that this is basicly a childrens game that has only limited interest to the older gamers in our club.

This package is available at the SOFTWARE CENTER OF HOUSTON, 2200 SOUTHWEST FREEWAY for about $30.

APPLE /// PEELINGS

By
Mike Kramer

FOUND - A CP/M TO SOS FILE CONVERTER

After months of searching, I've finally found a conversion program that will convert CP/M files (either Apple /// or Apple][...they're the same) to Apple /// SOS format in one step. I'd been managing the conversion by running the Apple][program CPMXFER to convert the CP/M text file to DOS 3.3 text file format, and then using the Apple /// CP/M program SOSXFER to convert the DOS file to SOS. Needless to say, it was a bit much to expect my wife and those I advise at work to go through those steps when trying to get their CP/M word processor files in a form that could be transmitted with Microterminal or Access ///, or merged into a document including a Visicalc spreadsheet, a report captured from the telephone line, etc. using Apple Writer /// or Word Juggler.

It seems that I was asking everyone if they had seen such a program. The last one I asked was Peter Weiglin, Editor of the Apple Orchard, and he had not seen one either. When I saw Peter at the IAC meeting in Boston, the first thing he said to me was that Arthur Anderson III had called him the day after had called to see if Peter was interested in his TRANSFER /// program. Not only does it convert files, but it also optionally filters out control characters and will convert binary files. The program will be featured in an Apple Orchard article and will be made available at reasonable cost from the IAC.

REDEFINITION OF THE KEYBOARD LAYOUT

Those who regularly (or irregularly) use the PFS products on the Apple /// and Apple //e have probably experienced the frustration of pressing the ESC key (which means "forget what I just entered") instead of the TAB key to jump to the next data field. Unfortunately nothing can be done for the Apple //e version (but this isn't an Apple //e column, is it?). The Apple ///, on the other hand, has a redefineable keyboard layout which can be patched on the disk using a "disk zap" program. Since there aren't many of those available for the Apple ///, you'll probably need to boot up in the emulation mode and run an Apple][utility, such as Disk Fixer, Nibbles Away][, etc.

The SHOLES keyboard layout as read from the driver file on Block 18 of the PFS:File Boot Disk is reproduced as a HEX-ASCII dump at the end of this column. Note how nice Apple was to put "SHOLES" in the file to help identify the keyboard layout. All that is required to be able to use the backslash key to jump from one PFS item to another is to replace the backslash character code (5C HEX or 92 decimal) in the location indicated by the box with the character code for the tab key (09 HEX or 9 decimal). You can use the Jeppson Disassembler in the HAAUG library to look at the keyboard layout, but it cannot be used to modify the disk. It's still worth the trouble for educational reasons. When using the Jeppson, just indicate that you want to look at the SOS.DRIVER file. It takes care of finding what block it's in.

Just for fun, try finding the "Copyright Apple Computer" statement and change it to say "Copyright Tandy Radio Shack". When you boot it, watch the reaction of your friends!

QUICK COPYING OF APPLE /// DISKS

The official, approved way to format or copy Apple /// disks (the unlocked kind) is to use the Apple /// Utility Diskette. Going through the steps to first format and then copy is very time consuming, however. A much better way to copy an Apple /// disk (SOS or CP/M) is to boot up using the Apple][Emulator disk supplied with the Apple /// and run any Apple][copy program.

Old reliable COPYA, ULTRA FAST COPY, and SUPER COPY 3.3, will work, as will the various flavors of LOCKSMITH, NIBBLES AWAY, COPY][+, and all the others. If all you want to do is create blank formatted Apple /// disks, just duplicate a blank formatted Apple /// disk. If you require particular volume names, you will have to use the Apple /// Utility Diskette to rename the volumes.

USING ALTERNATE PRINTERS IN PALANTIR WP

One of the many useful features of the PALANTIR Word Processor is the ability to specify alternate printer handlers and printer fonts from within the word processor. When you first install the program for your unique hardware configuration, you indicate first whether you will be running on an Apple][with a Videx card, an Apple][with a Videx card with an inverse chip, an Apple //e, or an Apple /// (yes, it runs on all three Apples!). Next you specify which of 18 printers you normally use. The word processor is then patched accordingly. If you are likely to use other printers, you can install other printer handlers which can be specified at print time. These alternate handlers, which have a CP/M file type of WPP, can be transferred from the installation disk to the PALANTIR program disk using the PIP function:

A>PIP B:NEC3530.WPP=A:NEC3530.WPP

Then when you want to print to the NEC3530 or other printer, recable to the alternate printer and tell PALANTIR to use that handler on the printer options menu just before printing.

PALANTIR also has provision for proportional fonts for the various letter quality printers, as well as for the C.Itoh Pro-Writer/NEC8023/Apple DMP. These fonts have a CP/M file type of WPF and must be PIPped from the installation disk. When you want any part of your document printed in proportional print, you first specify the font in the Main Menu DEFINE selection. If you've forgotten the font names or the printer handler names, just do a directory listing of the program disk, specifying "A:*.*" when you are asked to indicate which files to list. Then, whenever you want to do proportional printing, do a SET FORMAT OTHER from the edit mode and specify "0" characters per inch. Be sure to press RETURN rather than ESCAPE to get back to editing, or the change won't take. All this sounds pretty complex, but it really isn't. What's nice is the ability to mix proportional and non-proportional printing in the same document.

By the way, all this applies whether you use Palantir with an Apple][or //e or IBM-PC or VICTOR or HP125 or whatever.

SUPER EMULATOR UPPER/LOWER CASE

Many of you may have and use the SUPER EMULATOR in the HAAUG library. It's main claim to fame, of course, is the ability to accept lower case input. I was surprised to learn that Applesoft running under the SUPER EMULATOR will accept programs typed in lower case and flip the reserved words to upper case just like Apple /// Business BASIC. In fact it will accept lower case BASIC commands entered through the keyboard, but burps on lower case DOS commands! Be sure to read the multipart series that just started in Softalk on how you can customize the EMULATOR yourself.

CLOCK CHIP REVISITED

It appears that Apple will not be blessing us Apple /// owners with a free clock upgrade. I will (by the time this gets out) have the necessary components for installing the clocks and will make them available at reasonable cost to anyone interested.

---===*===---

Please send me your suggestions for topics for the column. If I can't handle it, surely Steve Knouse, Jon Stevens, Cy Helm, or Rudge Allen can.

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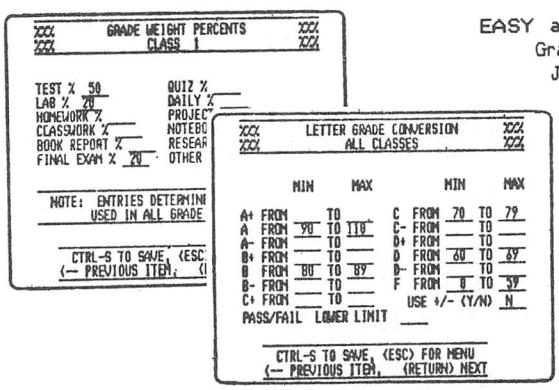

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```
Block # 0018 Edit Device = .D1

08 08 08 08 0E 18 18 30 18 18 0E 00 2C 1A 00 00        ........0....,...
00 00 00 00 10 08 3E 11 11 21 1E 00 53 48 4F 4C        ......>..!..SHOL
45 53 20 20 20 20 20 20 20 20 20 20 31 21 31 21        ES          1!1!
32 40 32 00 33 23 33 23 34 24 34 24 35 25 35 25        2@2.3#3#4$4$5%5%
36 5E 36 1E 37 26 37 26 38 2A 38 2A 39 28 39 28        6^6.7&7&8*8*9(9(
30 29 30 29 2D 5F 2D 1F 3D 2B 3D 2B 5C 7C 1C 7F        0)0)-_-.=+=+\|.
F1 51 11 11 F7 57 17 17 E5 45 05 05 F2 52 12 12        .Q...W...E...R..
F4 54 14 14 F9 59 19 19 F5 55 15 15 E9 49 09 09        .T...Y...U...I..
EF 4F 0F 0F F0 50 10 10 5B 7B 1B 1B 5D 7D 1D 1D        .O...P..[{..]}..
60 7E 60 7E E1 41 01 01 F3 53 13 13 F4 44 04 04        `~`~.A...S...D..
E6 46 06 06 E7 47 07 07 E8 48 08 08 EA 4A 0A 0A        .F...G...H...J..
EB 4B 0B 0B EC 4C 0C 0C 3B 3A 3B 3A 27 22 27 22        .K...L..;:;:'"'"
FA 5A 1A 1A F8 58 18 18 E3 43 03 03 F6 56 16 16        .Z...X...C...V..
E2 42 02 02 EE 4E 0E 0E ED 4D 0D 0D 2C 3C 2C 3C        .B...N...M..,<,<
2E 3E 2E 3E 2F 3F 2F 3F 00 00 64 30 04 68 A4 9C        .>.>/?/?..d0.h..
70 3C 74 78 7C 50 80 84 88 AC A8 54 58 34 40 6C        p<tx|P.....TX4@l
```

WANT/DON'T ADS

For Sale:Microsoft 16K RAM Card with documentation. $60. Call Leon Cesarini at 467-3650.

For Sale:Visicalc /// for Apple /// $100. Call George Bacon at 251-8527 or see him @ A/// SIG.

For Sale:Apple hi-speed serial card $100, Computer Data Products parallel card $65. Call Mario Solis at 660-6864.

For Sale:A][+, 48 K, 2 drives, monitor, Micromodem][, Grappler for NEC8023. Call Ed Grotjen at 721-6236.

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1. Children's classes ages 8 - 17
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3. Visicalc
4. Word Processing
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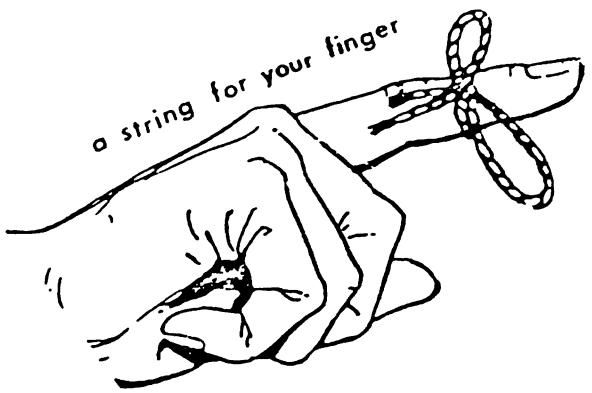

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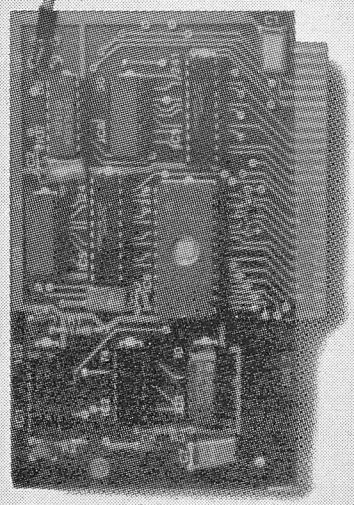

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- Copies are DOS 3.3 compatible.
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* Wildcard does not operate with CP/M® or other microprocessor based software.

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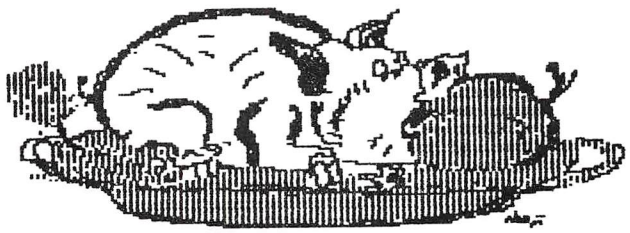

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