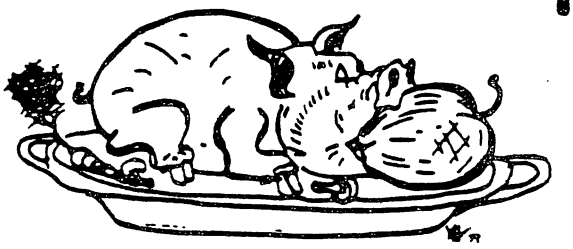

H.A.A.U.G.

HOUSTON AREA APPLE USERS GROUP

THE APPLE BARREL

Price $2.00

VOLUME 6 NO. 2 FEBRUARY/MARCH 1983

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

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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 Medical Center at 6905 Bertner at Holcomb.

OFFICERS / EXECUTIVE BOARD

President	Steve Knouse
Vice Pres	Clark Johnson
Treasurer	Ruth Hughes
Secretary	Ruth Dill
Software Lib.	Jim Good
Hardcopy Lib.	Larry Baumann
Membership	Lee Gilbreath
IAC Rep.	Robin Cox
Editor	Mike Kramer

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.

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 Lee Gilbreath, 3609 Glen-meadow, Rosenberg,TX 77471. RENEWALS SHOULD NOT BE SENT TO THE APPLE BARREL.

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 ///, 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 45 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 determine which articles are used. Submit articles to:

Houston Area Apple Users Group
Apple Barrel
P.O.Box 610150
Houston, TX, 77208

APPLE BARREL SCHEDULE

The following schedule will be followed for preparation and mailing of the Apple Barrel.

Ads and articles due by 1st of month
Paste ups to printer by the 5th
Pick up from printer by the 15th
Mail by 20th
Received in Houston by 25th
Received in outlying areas by 1st

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, if proper credit is given to the Apple Barrel and the author.

ADVERTISING RATES

AD COST = $0.06 * MULTIPLIER * CIRCULATION

MULTIPLIERS

FULL PAGE	HALF PAGE	QTR PAGE	6TH PAGE	8th PAGE
1.00	0.60	0.35	0.20	0.10

Advertisements should be submitted in camera ready form to H.A.A.U.G., 2218 Running Springs, Kingwood, TX, 77339, by the 1ST of the month. Charges will be billed and accompanied by a copy of the Apple Barrel containing the ad.

THOUGHTS FROM THE PRES

First things first. Thank-you Mike Kramer, Bryan Whaley, Walley Edmiston, and Ruth Dill; officers last year. Thank-you Larry Baumann, Robin Cox, Lee Gilbreth, Jim Good, and DeWayne Van Hoozer; committee chairmen last year. Thank-you to all of you who helped with the software library copy desk. Thank-you to those who taught Basic and Forth and Pascal classes. Thank-you who put on programs at the Saturday and Thursday meetings. Thank-you to all those who wrote articles for the Apple Barrel. Thank-you Special Interest Group chairmen. Thank-you to all of you who gave your time and your talents.

As we start into 1983 we are challenged as we never have been before. During the last year we have grown from 450 members to 1000. We could easily have 2000 members at this time next year. We are no longer a group of hackers, hobbiests and students. Our membership includes doctors, lawyers, secretaries, business executives, homemakers, students and teachers. A great number of our members couldn't care less about bits or bytes or interfaces or programming; they only want to use their machine to do useful things. This growth and change in our membership strain our existing services beyond their limits while calling for even more services.

To meet these challenges more people must become involved in the club. People are needed to coordinate Special Interest Groups, to give presentations at the meetings, to help at the Saturday copy sessions, to help mail the newsletter, to work at the Apple Answers desk, to teach classes, to make up new-member starter kits. You are needed no matter how much or little your know about your Apple. If you are willing to give something of yourself, let a officer or committee chairman know who you are. You can do this by calling the Club Hotline, by filling out a membership survey form, by dropping a note in the Club Business box at the Thursday or Saturday meeting, or by sending a note to the club's post office box (which we don't have at this writing).

Those of you who have tried to volunteer before and have never been contacted know how frustrating that can be. Please be patient and persistent. Sometimes we are so busy cutting wood we don't have time to stop to sharpen our saws.

In the same vein please be patient when you call the Club Hotline for information. Robin Cox, who mans the Hotline, checks it every other day. It could be a couple of days before you are called back, longer if he has to forward your question to someone else. Also give him you HOME phone number. Robin is not there during the day so he can not call you at your office.

I would also ask your understanding of an unwritten rule that member's phone number are not given out. If you need to contact an officer or other member call him via the Hotline. If he wants you to have his number he will give it to you himself. We used to publish the home phone numbers of all officers and SIG chairmen in the Apple Barrel. Some of them received a lot of calls at all hours of the day and night. The rule was made in the interest of sleep and marital bliss.

Also please DO NOT call people at their office. Supervisors take a very dim view of conducting club business during work hours.

This is the beginning of an exciting year. There are many challenges ahead of us and the officers ask for your help, patience and ideas.

Steve Knouse

MINUTES

Minutes of the Executive Committee Meeting
January 5, 1982

Attendees:

Rudge Allen	Host
Larry Baumann	Hardcopy Library Chairman
Robin Cox	IAC Representative
Wally Edmiston	Treasurer - 1982
Lee Gilbreth	Membership Chairman
Jim Good	Software Library Chairman
Ruth Hughes	Treasurer - 1983
Clark Johnson	Vice President - 1983
Steve Knouse	President - 1983
Mike Kramer	President - 1982
Ed Seeger	Membership Committe
Bryan Whaley	Vice President - 1982

The meeting was called to order by Mike Kramer at 7:10 pm.

The results of the of the annual election of officers, certified by Jon Stevens the election committee chairman, were as follows:

President	
Steve Knouse	149
Bryan Whaley	53
Vice President	
Clark Johnson	190
Bill Zahrt	11
Treasurer	
Ruth Hughes	189
Secretary	
Ruth Dill	183

The meeting was turned over to Steve Knouse.

Wally Edmiston gave out copies of the annual financial report. We have cash on hand of $14,543.14 and had net income of $10,068.22 for 1982. The books have been closed for the year and are ready to be turned over to the new treasurer. Rudge said we have a federal tax liability for 1982 and 1981 and a state corporate franchise tax liability for 1982. (We filed for an extension on our 1981 federal taxes while we filed for tax exempt status. That status was denied and we are now liable for 1981 taxes.)

A finance committe was formed, to be chaired by Rudge Allen. Other members are David Luther, an attorney, Glen Carson, a bank vice president, and Ruth Hughes, HAAUG Treasurer. Mike Kramer will give Rudge a membership list sorted by occupation so Rudge can find others for the committee. The committee was charged with the following:

- o Establish a subcommitee to examine the club's books.
- o Review the club's accounting procedures.
- o Set up cash management procedures to include rules for investing excess cash in interest bearing accounts.
- o Investigate gaining tax exempt status.

A fidelity bond was given to Ruth Hughes. It is good for 30 days in the amount of $2500. Ruth will have it changed to her name and the amount increased. No figure was set.

A bylaws committee, chaired by Robin Cox, was formed to draw a set of bylaws. Other members are Clark Johnson, Steve Knouse, Ed Seeger, and Bryan Whaley. Robin will get bylaws from other Apple clubs as examples. The committee will meet at 10 am on January 15. The committee will also recommend procedures for submitting the bylaws to the general membership for approval.

The Thursday meeting was discussed. The following was agreed to:

- o The meeting will continue as it has been for the time being. That schedule is:
  - 6:30 New Members
  - 7:00 Announcement Session
  - 7:30 Program
  - 8:00 Mixer
  - 8:30 End of meeting
- o If another room can be obtained the new member orientaion will be held there.
- o A question and answer period may replace the formal program.

The present state of the software library copy session was discussed. It was agreed that it cannot continue as it has due to the tremendous time requirements.

- o For the January Saturday meeting Jim will take orders for disks to be delivered later in the meeting. Members will be limited to 2 disk sides; the charge will be $1.00. [Note: In a phone conversation with Jim Good on January 10 the number of sides was changed to four.] Jim will begin taking orders at about 1 pm. Disks will be supplied and labeled by the member. Ed Seeger will print banners for the copy desk. Bryan Whaley will type and make copies of an explanation of the change in procedures.
- o Jim Good and Mike Kramer will make recommendations for the future of the software library.

Clark Johnson will chair a Saturday Meeting Committe. It will have responsibity for coordinating all aspects of the monthly Saturday meetings. This will include Special Programs, Apple Answers desk, Special Interest Group coordination, and physical facilities. It will not include the Software Library copy session.

Steve Knouse will coordinate the Apple Answers desk at the January Saturday meeting. Apple Answers will initially be open from 1 to 3:30 except during the general meeting. In addition to answering members questions the Apple Answers desk will serve as a focal point for all club related business. It may be necessary to purchase one or more bulletin boards.

Lee Gilbreth will make a "club business" box. This box will be at the Apple Answers desk. It will be for suggestions, membership renewals, unresolved questions, newsletter articles, want/don't want ads, survey forms, etc. Forms and envelopes for the above will be kept at the desk. Bryan Whaley will make a form for suggestions.

It was agreed to start a reference library for the Apple Answers desk. It will be stocked by soliciting donatations and buying those books not obtained from donations. Steve Knouse will compile a list of recommended manuals. Robin Cox will bring the club's copy of the Apple Tech notes to the Saturday meetings for use at the Apple Answers desk.

Flyers for commercial businesses can only be put out at the Apple Answers desk; they should not be placed on walls, UT School bulletin boards, other desks, etc.

A statement regarding the club's position on the copying of copyrighted software will be signed by the club officers and published in the Apple Barrel. Lee Gilbreth will tell new members, during their orientation, about the policy. He will stress they should not join the club if their reason is to get free commercial software.

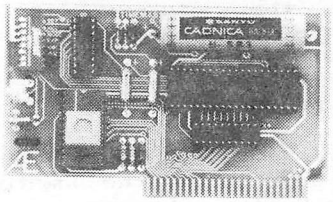
The Apple Barrel was discussed.

- o Discussion reconfirmed the club should continue moving toward a magazine format. Investment in such a venture would pay out in better articles, increased membership and increased advertising revenues.

Apple Peripherals Are Our Only Business

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

The TIMEMASTER
Finally, a clock that does it ALL!



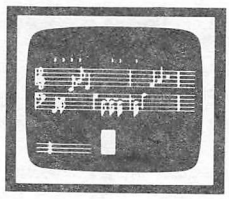
- Designed in 1983 using I.C. technologies that simply did not exist when most other Apple clocks were designed.
- Just plug it in and your programs can read the year, month, date, day, and time — down to 1 millisecond!
- Powerful 2K ROM driver — No clock could be easier to use.
- Full emulation of most 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.
- On board timer lets you time any interval up to 48 days long down to the nearest millisecond.

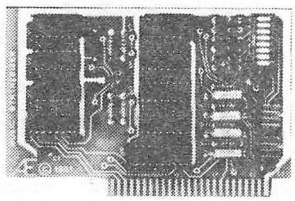
The TIMEMASTER includes a disk with some really fantastic time oriented programs (over 25) plus a DOS dater so it will automatically add the date when disk files are created or modified. This disk is over a $200.00 value alone — we give the software others sell. All software packages for business, data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

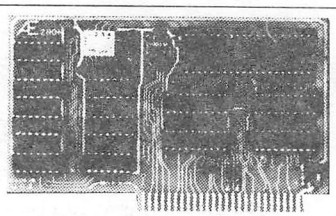
Super Music Synthesizer





- 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.
- We give you lots of software. In addition to Compose and Play programs, the disk is filled with songs ready to play.
- Easy to program in Basic to generate complex sound effects.
- Four white noise generators which are great for sound effects.
- Plays music in true stereo as well as true discrete quadraphonic.
- Full envelope control.
- 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

- 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).
- An on-card PROM eliminates many I.C.'s for a cooler, less power consuming board.
- Does EVERYTHING the other Z-80 boards do, plus supports Z-80 interrupts.
- Complete documentation included. (User must furnish software)

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.

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 the monitoring of ● flow ● temperature ● humidity ● wind speed ● wind direction ● light intensity ● pressure ● RPM ● soil moisture and many more.

PRICE $129.00

Digital Input/Output Board

- Provides 8 buffered outputs to a standard 16 pin socket for standard dip ribbon cable connection.
- Power-up reset assures that all outputs are off when your Apple is turned on.
- Features 8 inputs that can be driven from TTL logic or any 5 volt source.
- Your inputs can be anything from high speed logic to simple switches.
- Very simple to program, just PEEK at the data.
- Now, on one card, you can have 8 digital outputs and 8 digital inputs each with its own connector. The super input/output board is your best choice for any control application.

PRICE $62.00

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.

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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P.O. Box 470301
Dallas, TX 75247

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7am to 11pm 7 days a week
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- A motion was made by Jim Good and seconded by Clark Johnson to authorize up to $2200 for a letter quality printer and print buffer for the Apple Barrel. The motion passed.
- Clark Johnson will try to locate someone to do the cover design.
- Mike is adopting a more rigid timetable for printing the Apple Barrel. His goal is to have it in the mail on the first of the month.
- Mike said the this issue Apple Barrel will have 30% fewer pages this issue with no reduction in content. This was done by using a two columns per page and reducing the copy. This reduces printing costs and time.
- Mike said he will continue as advertising chairman. He said he has found the best way to solicit ads is by mail followed by a telephone call. He anticipated a $25 per month long-distance phone bill.
- Mike suggested we once again critically review our complimentary subscription list.
- Mike suggested we seek someone to edit a Best of '82 Apple Barrel Anthology.
- Mike showed John M. White's logo for the Apple Barrel. Mike will be using it in the Apple Barrell.

There was some discussion about changing club logo's. This was tried before, complete with a "new logo" contest, and it died. The "Hog" is camp enough to resist change. However it was agreed to redraw the Hog.

Mike Kramer said we have applied for a post office box in the Federal Building. We are waiting for one with a combination lock to become free.

Mike Kramer said Ruth Dill will be maintaining the Membership Survey Form data base.

Robin Cox suggested we consider getting call forwarding for the club Hotline. This would allow anyone to take over the Hotline. It would require the base number be in a stable location. The issue was defered to a future meeting.

There was a discussion on the distribution of the club's membership list. Stores which offer club discounts need a list of member names and expiration dates to verify membership. Selling the list would produce revenue. A proposed policy for distribution or sale of the list will be drawn up by Mike Kramer and Steve Knouse. Members will be give a chance to have their names removed from any such list by returning a form to be printed in the Apple Barrel.

The need for membership cards was discussed and it was agreed that they are necessary. No agreement was reached on the best way to implement them and the discussion was tabled.

Because of the near impossiblity of maintaining a library large enough to service a club our size, it was decided to discontinue the Hardcopy library. Manuals will be used for the Apple Answers desk reference library.

The club receives newsletters from other Apple clubs. These are reviewed by the Apple Barrel editor for articles to reprint. They are then donated to the Downtown Branch of the Houston Public Library.

The executive committee will meet again at Rudge Allen's house at 7 pm on January 27 to hear reports from the Finance and Bylaws committees.

The meeting was adjourned at 10:35 pm.

Submitted by Steve Knouse for Ruth Dill.

Minutes of the January Thursday and Saturday Meetings
January 13 and 15, 1983

Mike Kramer announced the new officers: Steve Knouse, President; Clark Johnson, Vice President; Ruth Hughes, Treasurer; Ruth Dill, Secretary.

The meeting was handed over to Steve Knouse who made the following announcements:

Committees have been formed to draft bylaws, review our accounting and cash management procedures, and to seek tax exempt status for the club. A planning committee will formed soon to set long range goals for the club.

At this time every present standing committee is taxed to its limit due to the growth we have experienced in the past year. We expect tremendous growth again in 1983. We will need more member involvement to handle our current services and to expand services.

Because of the time requirements the Software Library copy session at the Saturday meeting will probably change forms. Jim Good, the Software Library Chairman, and Mike Kramer are studying various alternatives. Mail order, order for next month pick-up, and buy from stock at the meetings are all considered.

Rules for the Saturday copy session were announced and a call was made for volunteers to bring themselves to work or to bring their machine.

The Apple Answers desk, begun by Bryan Whaley, is being revived and revamped. It will be a central location for technical questions and for club business during the Saturday meetings from 1 to 3:30. It will be closed during the general meeting from 2 to 2:30. There will be a bulletin board for

want/don't want ads, help wanted, SIG meeting announcements etc. There will also be "club business" box for suggestions, offers to help, Apple Barrel articles and ads, membership renewals, member survey forms, etc.

We hope to have a Post Office Box in the Federal Building soon.

We need donations for a reference library for the Apple Answers desk and for the Hotline. Apple manuals, both hardware and software, and peripheral hardware manuals are especially needed.

As our membership has grown it has become nearly impossible to maintain a Hardcopy library. If you have any suggestions on how to run a viable transient library for a thousand members please contact Larry Baumann via the Club Hotline.

The newsletters we get from other Apple Clubs will be donated to the Houston Public Library, Downtown Branch.

The membership committee needs help - to make starter kits and to distribute club flyers to stores. Contact Lee Gilbreth via the Hotline or drop him a note at his home address.

There was a call made for anyone interested in a Home Use or a Medical Special Interest Group (SIG). Anyone interested in chairing one of these groups should contact the SIG coordinator Clark Johnson via the Hotline.

Clark Johnson will also be coordinating the presentation for the Saturday meetings. His goal is to have programs planned several months in advance so they can be published in the Apple Barrel. He will be setting up special programs which will highlight use of Apples in the home, in business, the stock market, for financial planning, etc. These seminars will be put on by the appropriate SIG. If you have any suggestions or requests for programs contact Clark.

A call was also made for an educator interested in putting together some classes for new Apple owners such as a "Getting to Know Your Apple" and "Beginners Basic". The courses should have outlines and texts. These classes could then be taught regularly at various locations and times about the city. Any educator comfortable with her Apple who would like to coordinate this effort please contact Steve Knouse via the Club Hotline.

Mike Kramer made the following announcements about the Apple Barrel:

- o The Apple Barrel will be mailed on Monday, January 17. It is 30% smaller with the same content because articles were reduced and printed two columns per page.
- o Articles will now be due the first of the month. This will allow the Apple Barrel to arrive in members' hands during the first two weeks of the following month.
- o We continue on our course toward a magazine format. The executive committee feels this is a good long term investment that will pay out in better articles, increased memberships, and increased advertising. As such $2200 was approved for a letter quality printer and buffer.
- o A Best of '82 Apple Barrel Anthology is planned.

There will be a swap meet at the February Saturday meeting. Bring and sell that hardware and software you no longer need.

The program for Thursday evening was a presentation by Bill Radding of Designer Software about their Palantir Word Processor.

On Saturday, Dan Pote of Applied Engineering showed his line of Apple][peripheral cards.

Submitted by Steve Knouse for Ruth Dill.

Minutes of the Executive Committee Meeting
January 13, 1983

The meeting was called to order by Steve Knouse at 9:00 p.m.

The minutes of the meeting of January 5, 1983 were read and approved as amended. [The minutes as amended are printed elsewhere in this issue.]

It was agreed that an inventory of the club's physical assets should be taken. This task will be taken on by the finance committee.

Fifty dollars was approved to purchase a cork bulletin board and an easel for the Saturday meetings.

Mike Kramer was nominated for IAC South Region representative. Robin Cox will ask the Lubbock Computer Club to second the nomination.

The meeting was adjourned at 9:25 p.m.

Submitted by Steve Knouse for Ruth Dill.

ANNOUNCEMENTS

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.

SUPPORTING STORES

The following stores support H.A.A.U.G. by offering discounts to members. Be sure to show your appreciation by patronizing them.

Computer City, 12704 North Freeway, 821-2702

Computer Galleries,
11538 NW Freeway, 956-0900.
2493 S. Braeswood, 661-0055

Computer Wares, 12839 Gulf Freeway, 481-5600

CTI, 2802 Louisiana, 526-9666.

Micro Solutions, 9949 Harwin #E, 789-5443.

Moore Business Center, 1120 Smith, 237-9063

Softec, Inc., 10875 Katy Freeway, 468-2407

Software, and.., FM1960 West #211-B, 893-4040

If you want your store included, contact the Apple Barrel or call the Hotline.

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 ///	Mike Kramer

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$$                                                                        $$
$$    ===HAAUG'S STOCK SPECIAL INTEREST===                                $$
$$                                                                        $$
$$FEB 19: HAAUG SAT MEETING. CONTINUATION                                 $$
$$         OF LIBRARY MARKET PROGRAMS.                                    $$
$$         ONE P.M. IN ROOM 208                                           $$
$$                                                                        $$
$$FEB 24: T.A.G. "COMPUTRAC" PROGRAM                                      $$
$$         REVIEW. JUNGMAN LIBRARY EVENING                                $$
$$         MEETING, 6:30 P.M.                                             $$
$$                                                                        $$
$$MAR 19: HAAUG SATURDAY SESSION - TBA                                    $$
$$                                                                        $$
$$MAR 24: PROGRAM REVIEW OF THE "DOW JONES                                $$
$$         MARKET ANALYZER" PROGRAM.                                      $$
$$         EVENING MEETING AT PAINE-WEBBER                                $$
$$         DOWNTOWN OFFICES, 6:30 P.M.                                    $$
$$         (THANKS P-W)                                                   $$
$$                                                                        $$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
```

SOURCE MAIL

by Mike Kramer

The Source provides a number of interesting and useful services to those who have systems equipped with modems. Among those services is MAIL, an electronic mail capability. In this issue the Apple Barrel will begin listing the Source account numbers of those interested in using this means of sending messages (or programs for that matter). It can also be used to submit articles, wantads, etc. to the Apple Barrel by sending it to my account number. If you do submit material in this way, call the HOTLINE and leave word that I have MAIL waiting as I do not access the Source on a predictable schedule.

Steve Knouse	ST8337
Mike Kramer	ST3030

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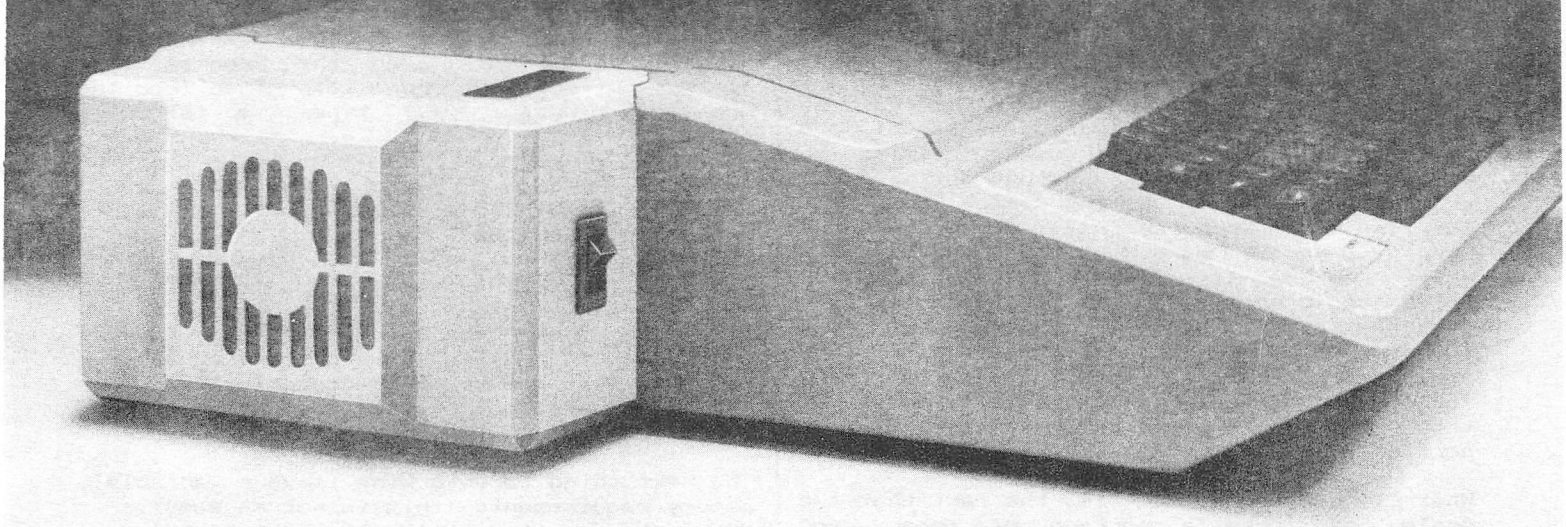

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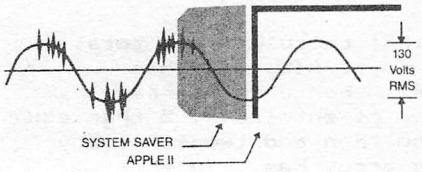
The SYSTEM SAVER provides essential protection to hardware and data from dangerous power surges and spikes.



By connecting the Apple II power input through the SYSTEM SAVER, power is controlled in two ways: 1) Dangerous voltage spikes are clipped off at a safe 130 Volts RMS/175 Volts dc level. 2) High frequency noise is smoothed out before reaching the Apple II. A PI type filter attenuates common mode noise signals by a minimum of 30 dB from 600 khz to 20 mhz, with a maximum attenuation of 50 dB.

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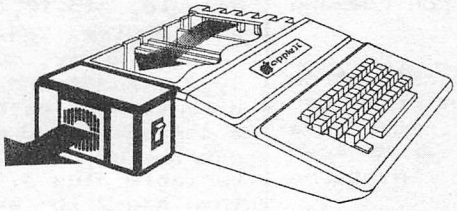
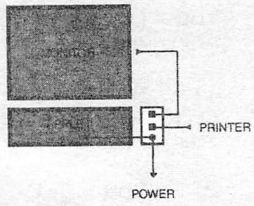
Today's advanced peripheral cards generate more heat. In addition, the cards block any natural air flow through the Apple II creating high temperature conditions that substantially reduce the life of the cards and the computer itself.

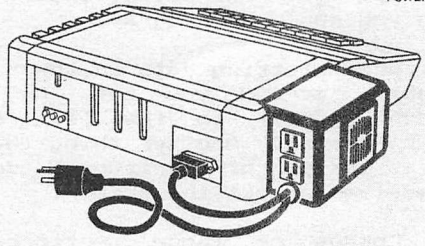


SYSTEM SAVER provides correct cooling. An efficient, quiet fan draws fresh air across the mother board, over the power supply and out the side ventilation slots.

For Operating Efficiency

SYSTEM SAVER contains two switched power outlets. As shown in the diagram, the SYSTEM SAVER efficiently organizes your system so that one convenient, front mounted power switch controls SYSTEM SAVER, Apple II, monitor and printer.





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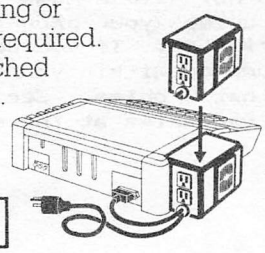

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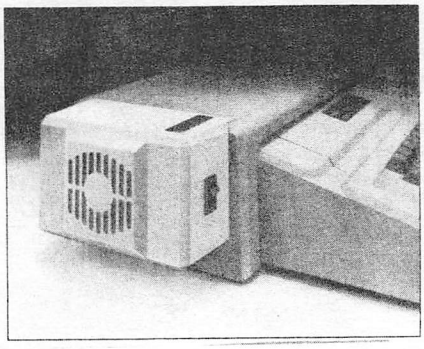

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WHAT IF YOUR PROGRAM DOESN'T FIT?

BY MIKE CONWAY

For me, two of the reasons why I bought an Apple was for the ability to write my own programs and to be able to plot them on the Apple's high resolution graphics screen. So after reading the Applesoft manual and tutorial from cover to cover, I started to write some small programs that utilized the graphics capability of the Apple. With each success in programming, my subsequent programs became more ambitious and longer. Until one day I wrote a program that when I tried to graph some results, the program abruptly quit. Upon listing the program, i found that the last 40 program lines had disapeared for no good reason. Since I forgot to back up this particular version, it took me some time to rewrite the lost portion.

What I had run into is the fact that the Apple can use a portion of memory for graphics or program code but not both. In addition, there is program memory also reserved for the monitor and for DOS. The purpose of this article is to help you fit your programs into the Apple and to help you make your programs require less memory.

SYMPTOMS OF MEMORY PROBLEMS

You probably have memory problems, if one or more of the following occur:

1) After you access the HGR command, your program unexpectedly stops and when you list the program part of it has been deleted.

2) You get an out of memory error command when you run your program.

3) When plotting data on the high resolution graphics screen you see the entire screen suddenly shift to the left or right by a large amount. Another thing that can be seen is a series of horizontal dots plotting themselves across the screen.

4) Losses of large sections of array or variable data.

In most cases it will be possible to make a modification or two in order to fit the program into the available memory of the Apple. The cures developed here are for a 48K Apple II+ using Applesoft, but similar lines of thought can be used for other combinations of memory and languages as well.

HOW TO CURE THESE PROBLEMS

The first step in fixing this problem is to determine how much memory your program requires. This memory is split up into two sections; program memory and variable memory. Depending on the type of program written, you may have a large amount of program memory and a small amount of variable memory or visa-versa.

To determine how much program memory your program requires, load the program into memory but do not run it. Then from the Applesoft prompt (]) type the following command:

```
PRINT PEEK(105)-PEEK(103)+256*
(PEEK(106)-PEEK(104))
```

The number that appears is the length of your program code in bytes (give or take about 4 bytes). This can be done automatically using the APA program out of the DOS TOOLKIT DISKETTE.

The next thing to determine is your variable memory requirements (this is not as easy). What you need to do is to list all of the variables that you use in the program (i.e integer,real and string variables). Again the DOS TOOLKIT can do this easily for you with the &Xref command. Now, for every variable that is not an array, each real variable uses 7 bytes, each integer variable uses 7 bytes and each string variable uses the number of characters in the string plus 7 in bytes.

For array data, first calculate the total number of entries (e.g. A(5,10,3) has 6*11*4=264 entries). For a real array, multiply the number of entries by 5 then add 5 to that value and then add two for every dimension that the array has. In the example, A(5,10,3) is a 3 dimensional array and requires 264*5+5+2*3= 1331 bytes. For an integer array, multiply the number of entries by 2 , add 5 and then add 2 for every dimension to obtain its length in bytes. For a string array, multiply the number of entries by the average length of a string variable plus 3, then add 5 to the result and then add 2 for every dimension.

WHEW!!!!! Now, total up all the bytes used by your varaibles to come up with your varaible memory usage. Finally, add your program and variable memory together to get your total memory usage. Now read the headings of the next several paragraphs to determine which ones pertain to you because depending on your memory configuration, the solution to your problem may differ.

****

YOUR TOTAL MEMORY USAGE IS LESS THAN 6144 BYTES - You should not have a memory problem with a 48K apple, unless your program has alot of string variables. If you do, the use of the X=FRE(0) command within your program should eliminate that problem. See the section on string variables at the end of this article.

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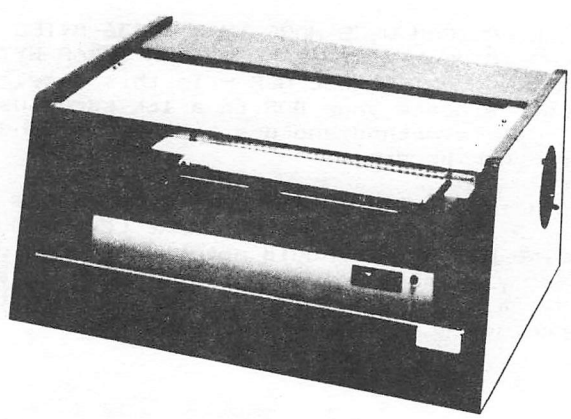

YOUR TOTAL MEMORY USAGE IS GREATER THAN 6144 BYTES BUT LESS THAN 14436 BYTES AND YOU ARE USING HGR - This can be rectified in a number of ways. By using a HGR2 command in place of the HGR command, your problems will be solved. If your program is less than 6144 bytes long, using the LOMEM:16384 command as your first program line will eliminate the problem and you can then use the HGR command.

YOUR PROGRAM USES LESS THAN 14436 BYTES AND YOUR VARIABLE USAGE IS LESS THAN 13824 BYTES AND YOU ARE USING HGR OR HGR2 - Here you have to use the LOMEM:24576 and the HGR2 command or you can run your program using the following EXEC file:

```
NEW
POKE 104,64:POKE 106,64
RUN PROGRAM NAME
```

You now have loaded and run the program in the memory area above the HGR page. Using this technique, you can use the HGR command to display your graphics. This technique can be used only if your total memory does not exceed 22016 bytes.

YOUR PROGRAM USES MORE THAN 14436 BYTES AND YOUR TOTAL MEMORY USAGE IS LESS THAN 22016 BYTES AND YOU ARE USING HGR - In order to run your program, you must use the EXEC file method described in the previous section and the HGR command for your graphics.

YOUR PROGRAM USES LESS THAN 6144 BYTES AND YOUR VARIABLE MEMORY USES BETWEEN 22016 AND 32768 AND YOU WANT TO USE HGR - In order to do this you must have a 16K card and a program to relocate DOS to it.If you don't have a 16K card then you will have to use a cassette to load this program into memory to use it. Once this is accomplished a LOMEM:16384 will do the job.

YOUR PROGRAM USES BETWEEN 6144 AND 14436 BYTES AND YOUR VARIABLE MEMORY USES BETWEEN 13824 AND 24576 BYTES AND YOU WANT TO USE HGR - In this case you must use the LOMEM:24576 command, relocate your dos to a 16K card and use the HGR2 commandto run your program. If your total memory is less than 32768 bytes, you can use the EXEC file method with relocated DOS and the HGR command.

YOUR PROGRAM USES MORE THAN 14436 BYTES AND YOUR TOTAL MEMORY IS LESS THAN 32768 BYTES AND YOU WANT TO USE HGR - In this case, you must relocate your DOS to a 16K card, use the EXEC file method and use the HGR command to run your program.

YOUR TOTAL MEMORY REQUIREMENTS ARE LESS THAN 36352 BYTES AND YOU COULD CARE LESS ABOUT USING HGR - You should not have an out of memory problem unless you have inadvertantly used a HIMEM or LOMEM command to prevent you from using a portion of memory.

YOUR TOTAL MEMORY REQUIREMENTS ARE BETWEEN 36352 BYTES AND 47104 BYTES AND YOU ARE NOT USING HGR - Using a 16K card and relocating DOS to it will eliminate your problem.

YOUR MEMORY REQUIREMENTS EXCEED ALL THE POSSIBILITIES PRESENTED ABOVE OR YOU CAN'T USE THE SOLUTIONS PRESCRIBED - You have some hard decisions ahead of you. Either you can split up your program into a number of smaller programs or, you can delete sections of your program or, you can chain your program segments together or you can try to minimize your program length by using a few of the techniques shown below.

****

PROGRAM MINIMIZATION TECHNIQUES

The techniques shown below will allow you to have the same program fit in a smaller memory space. For most programs,memory reductions of 10% or more is relatively easy to do.

1) PUT AS MANY BASIC COMMMANDS ON THE SAME LINE AS POSSIBLE. For example look at the following simple program:

```
10 A=1
20 B=2
30 C=3
40 D=A*B+C
50 END
```

Each program line requires 4 bytes to store the line number and the memory location of the start of the next program line. A byte is required for each character that is printed EXCEPT for basic commands; like END in our example. Let's write the identical program in one line:

```
10 A=1:B=2:C=3:D=A*B+C:END
```

In our example, the first program requires 37 bytes while the second requires 27 bytes; a savings of 27 percent. It doesn't seem like much but for a 10K program that's a savings of 2700 bytes! Of course, there are limitations as to how far you can carry this. The program line cannot exceed 239 characters in length. In addition, after IF statements you should only have those steps to be performed when the IF expression is satisfied; otherwise parts of your program will be skipped.

2) VARIABLE NAMES SHOULD NEVER BE MORE THAN 1 OR 2 BYTES IN LENGTH AND SHOULD BE REUSED WHENEVER POSSIBLE. The Applesoft language only recognizes one or two character variable names; anything longer is a waste. The varaibles MO and MOOSE both are interpreted as MO, however, it takes 3 more bytes of program space to store MOOSE. In fact, by

using the the single letter M as a variable name only takes up one byte of memory space. All of the variable examples take up the same amount of variable memory.

3) REMOVE ALL REM STATEMENTS! The REM statement, though good for explaining the program, eats up large quantities of program memory. It is recommended that you have a copy/listing of your inefficient, well documented, easily understandable program along with your efficient, impossible to understand program so people can understand it and it can fit in a small memory space.

4) USE ARRAYS WHEN EVER PRACTICAL AND USE INTEGER ARRAYS IF YOU HAVE A CHOICE. Arrays store variable data more efficiently than an equal number of single variables. For example, the ten variables A0%,A1%,...A9% take up 70 bytes of variable memory while the array A%(9) takes up 27 bytes. In most cases, the use of arrays allows you to make more efficient use of program memory space by using DO loops. It is important to realize that it takes more program space to represent an array entry in a program line than a single variable. Depending on your application it may be more efficient to use single variables. The real array A(9) takes up 57 bytes, so choose to store data as integer arrays if you have a choice.

5) IF YOU FIND THAT YOU REPEAT A SECTION OF THE PROGRAM, A GOSUB COMMAND WILL SAVE YOU PROGRAM MEMORY. If the section that repeats is 20-30 bytes in length or longer it will save you memory to use a GOSUB command. The larger the memory that repeats the more you have to gain.

6) IF YOU USE STRING VARIABLES, USE THE COMMAND X=FRE(0) WITHIN A HEAVILY USED PART OF YOUR PROGRAM. To see what can happen to you if you do not use this command, try running the following program on your APPLE:

```
10 HGR2
15 HPLOT 20,20 TO 20,120 TO 120,120
TO 120,20 TO 20,20

20 FOR I=1 TO 50:A$=A$+"X":NEXT I
25 A$=B$:B$=A$:GO TO 25
```

Even in a very short program you can cover your graphics screen in a matter of seconds. Insert the X=FRE(X) command in line 25 and rerun it to see the difference.

CONCLUSIONS

Though it sometimes difficult to do, it is possible to use large basic programs, high resolution graphics and DOS at the same time. All it takes is to know your programs a little better and some ways to trim a few bytes off them.

APPLE /// PEELINGS

by Mike Kramer

INSTALLING THE CLOCK CHIP IN YOUR APPLE ///

You may have noted that the schematic for installing the clock chip in your Apple /// was missing in the last issue. It is included at the end of this column. As noted in the last issue, I would put together a kit of parts if there is sufficient interest in installing a clock chip. It will not be done, however, as a group hardware project. If you are interested, call the HOTLINE, see me at the March meeting(s), or write me in care of the Apple Barrel. Advance payment will be required. If there is insufficient interest your money will be refunded.

MICROTERMINAL STATE FILE RECOVERY)

After having used the Apple ACCESS /// intelligent terminal program for several months, I changed over to Microcom's MICROTERMINAL program and have been pleased with its capabilities.

The first time you use MICROTERMINAL, it is necessary to configure it to your system. The information is stored in a SOS file called STATE.MT. Somehow STATE.MT became damaged on my disk and the program would generate an obscure Pascal error message and refuse to go on. Although MICROTERMINAL is copy protected, it is possible to catalog the disk from Pascal or Business BASIC. A message is displayed, however, warning that the directory is damaged. I called Microcom and was told that the STATE.MT file could be deleted using the Pascal Filer. I did what was suggested, was told by the Filer that STATE.MT had been deleted, although it hadn't.

Jon Stevens fixed the problem by booting MICROTERMINAL and using its utilities to rename STATE.MT with some useless name like TRASH.80. Then the system was rebooted and reconfigured to create a new STATE.MT file. As long as TRASH.80 stays on the disk, the bad spot on the disk will not be used for anything worth while.

WHAT TO DO IF THE PRINTER ACTS STRANGELY

The need to properly set the DCB parameters in a printer driver was emphasized when I began trying a borrowed Apple DMP Printer. When I tried to print the first text out of PALANTIR I got two of every character and an infinite ejection of paper at the end of the first line. I tried printing under BASIC, APPLEWRITER, and VISICALC and got double letters but no page ejection. After calls to

Sintec, where I borrowed the printer, it was determined that the parallel driver DCB values (E8 C8 ØØ ØØ ØA) for Epson printers (see Page 19 of the UPIC manual) were the likely culprit. The E8 tells the driver to monitor the printer status through eight lines in the input port. The C8 indicates the normal state of those lines. The Apple DMP is supplied with a cable which apparently does not have the signals specified by the Epson parameters. The apparent solution was to change the DCB parameters to ØØ ØØ ØØ ØØ ØA. This took care of the double letters, but the infinite page eject continued. A call to Designer Software resulted in the suggestion that the C.Itoh printer handler on the PALANTIR installation disk be used since the C.Itoh internals are essentially the same as those of the Apple DMP. They also suggested that the "count line" option be used rather than the "form feed" option when installing PALANTIR regardless of which printer is being used. The C.Itoh printer handler worked and no other problems have been experienced with the DMP.

I have reluctantly recounted this experience at the risk of looking like a novice because of its value to those who are novices.

MINIMIZE TYPING WITH EXEC FILES

Although the subject of EXEC files on the Apple /// warrants a whole article, it is worth while mentioning what they can be used for and how to create them.

EXEC files are TEXT files which contain keyboard commands. These commands can be either immediate commands such as LIST, CATALOG, etc., or can be lines of BASIC code. When you are in BASIC and type the command "EXEC filename", the contents of the file will be read into memory from disk as though you were typing them. If you have a BASIC program in memory and the lines of text in the file begin with numbers they will become part of the program. If you have a BASIC program in memory and want to list it on a printer, you could use an EXEC file to activate the printer, shift the printer to compressed print, list the program with 120 characters per line, eject a page, deactivate the printer, and restore the listing width to 80 characters. The file can be created by writing a BASIC (or Pascal) program that would write the commands into a file. An easier way, particularly if you don't program, is to use a text editor or word processor, such as APPLEWRITER ///. With a text editor you would type the commands you would normally type to perform a keyboard task and store them in a file. Then, when you wanted to execute those commands, just type EXEC and the file name. The following are the commands to list a BASIC program on an Epson printer as outlined above:

```
OPEN #1,.PRINTER
OUTREC = 120
OUTPUT #1
PRINT #1;CHR$(15);
LIST
CLOSE #1
OUTREC = 80
```

What you can do with EXEC files is limited only by your imagination and patience.

FILE CONVERSION UTILITIES

One of the problems frequently encountered on the Apple /// is conversion of a file in one format to another format. The following list is not exhaustive, but should be of value to most of you in figuring out how to convert many types of files.

APPLESOFT TO BUSINESS BASIC - APPLECON, a public domain program that converts Applesoft syntax to Business BASIC syntax. Available from IAC or HAAUG Apple /// Library.

TEXT FILE CASE CONVERSION - CASE.CONVERTER, a utility to convert the a SOS text file to all upper or all lower case. Used in conjunction with APPLECON output file to take advantage of editing features of Business BASIC. Available in the HAAUG Library.

APPLE]\[TEXT TO APPLE /// TEXT - DOS TO SOS CONVERTER converts DOS text file to SOS. Available from IAC or HAAUG Apple /// Library. Also possible with APPLE WRITER /// Utility Disk, although dialog is confusing.

APPLE /// TEXT to APPLE]\[TEXT - APPLE WRITER /// Utility Disk.

APPLE /// TEXT TO CP/M - SOSXFER utility program on Apple /// CP/M system disk. Note that Apple /// and Apple]\[CP/M disks are the same format and can be read by either.

APPLE]\[CP/M TO APPLE]\[TEXT - CPMXFER public domain utility program converts CP/M binary or text files to Apple]\[binary or text files. Available from HAAUG Library.

APPLE]\[OR /// CP/M TO APPLE /// TEXT - Use CPMXFER in emulation mode to convert CP/M text file to DOS text file. Then use TEXT FILE CONVERTER in Apple /// mode to convert the DOS text file to a SOS text file. If the CP/M text file was created with a word processor, be sure that the CP/M text file does not contain extraneous header information since certain control codes can blow the Apple /// console driver up. When using Palantir, for example, save the file as "filename.TXT" instead of "filename.WP" or "filename.WPB".

APPLE]\[VISICALC TO APPLE /// - APPLE WRITER /// Utility Disk or DOS TO SOS CONVERTER. TheVISICALC file may be either a DIF or normal VISICALC file.

APPLE /// VISICALC TO APPLE]\[- APPLE WRITER Utility Disk. VISICALC file may be either a DIF or normal VISICALC file.

APPLE]\[TO APPLE /// PASCAL - Apple /// Pascal can read Apple]\[Pascal diskettes, but not vice versa. Apple]\[Pascal programs must be recompiled to run on the Apple ///, although code using some specialized features such as graphics may have to be modified. Apple /// codefiles may be executed on an Apple]\[, although the Apple /// Pascal compiler has an option to compile specifically for the Apple]\[.

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In a recent review (*80 Micro*, September 1982) **Palantir** was compared to Select™ and Scripsit™ 2.0. It was not surprising (to us, anyway) that the reviewer, a Scripsit user, found **Palantir** easiest to learn and to use. (Select was third.) But even *we* were surprised when our tutorial was also rated highest. We, too, had believed Select's ads about typing "T" for Teach™.

OK, you say, maybe you do have the easiest word processor; but those others are hard because they can do so much. How do you compare in power to old warhorses like WordStar™?

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PRINTING TO DISK

One of the Apple /// features which alone almost makes it worth the extra cost is the ability to have essentially any program optionally print to a named disk file (.Dn/filename), the screen (.CONSOLE), or a hardcopy device (.PRINTER, .SILENTYPE, .QUME). Even though the program may be on a protected disk with a proprietary file structure, you can print a report to a file named "TEST.TEXT" on Drive 2 by by typing ".D2/TEST.TEXT" when asked for the pathname for the output. You can then read it into your word processor to include it in a document, transmit it to another computer, or use the data in your own program. The only thing you can't do is load it into VISICALC, since VISICALC expects a DIF file. To my knowledge, no program is available to do this, although it wouldn't be too difficult to write in either BASIC or Pascal.

READER INPUT SOLICITED

Your comments, contributions, and questions would be appreciated. If you have difficulty with a program or learn some new trick, let others know about it. We'll benefit from it.

HOW TO GET RID OF THE BLOCK FLASHER

by
DeWayne Van Hoozer

This "creative" piece of work was left on my CRT one night...

There once was a FLASHER named Block
Who blinked with each tick of the clock

Its rate was just fine
But the Block blew my mind

So underline he became on the next tock

Well... it was late.

The assembly language routine which inspired some midnight "poet" is important for two reasons. First, it shows how to write position independent code. Second, it provides a marvelous chance for me to tout my latest assembler, the S-C Macro Assembler. (Would I use any other?)

Yes folks, I finally dug up the spare bucks to upgrade my S-C Version 4.0 to the new MACRO version. If I had any idea how much easier my life would be with macros, I would have done it sooner.

OK, back to basics... the blinking cursor routine is a combination of two routines I found in Apple Assembly Line, a monthly newsletter of the S-C Company. In the August '82 issue of AAL, Bill Linn had an article detailing the body of the underlining cursor routine. The month before, Bob Sander-Cederlof (so where did youu think the S-C came from?) was quoting Bob Nacon, author of Amper-Magic, on some of Nacon's ways of writing relocatable subroutines. It seemed to me that these two routines were a natural to combine.

The heart of the "run anywhere" hook code (lines 1260-1420) is the JSR MON.RTS at line 1260. MON.RTS (address $FF58) is just an RTS. All this does is place the return address - 1 onto the processor stack and then pull it off again. Lines 1270 - 1340 pulls this return address off the stack again and stores it into the Apple's input redirection vector. Lines 1350 - 1400 adjusts this address to point to the next byte after the RTS at line 1420.

It would be a minor modification to make the routine work with either the output vector or Applesoft's ampersand vector. Just change the address associated with MON.KSWL.

If you do not have an assembler you can enter the code using the following commands:

```
]CALL-151
*300:20 58 FF BA CA CA 9A 68
*308:85 38 68 85 39 18 A9 1A
*310:65 38 85 38 90 02 E6 39
*318:20 EA 03 60 48 86 4E C9
*320:DF D0 02 A9 A0 48 A9 DF
*328:A4 24 D1 28 D0 02 68 48
*330:91 28 A0 50 AD 00 C0 30
*338:08 CA D0 F8 88 D0 F5 F0
*340:E5 68 A0 0A 20 E4 FB A4
*348:24 A6 4E 68 4C 26 FD
*3D0G
]BSAVE UNDERLINE CURSOR,A$300,L$4D
```

To execute this routine type "BRUN UNDERLINE CURSOR, A$XXXX", replacing the XXXX with any HEX address at which you want the routine to be loaded.

If you want another blinking rate try poking different numbers at decimal location 819 (HEX $333). If you loaded the routine at an address other than $300 then the blink rate control byte is at offset 51 decimal from the load address. If you want a different key click sound change the number at offset 67 decimal. If you want no key click at all, just do the following commands:

```
]BLOAD UNDERLINE CURSOR,A$300
]CALL-151
*342:EA EA EA EA EA<cr>
*3D0G
]BSAVE UNDERLINE CURSOR W/O CLICK,$A300
```

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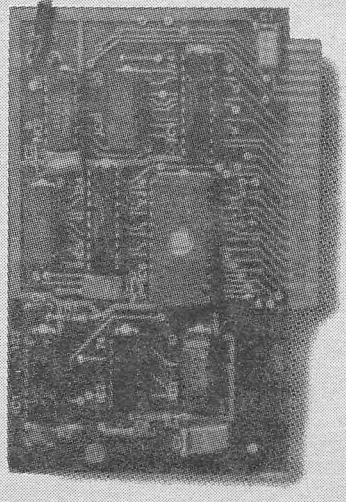

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```
UNDERLINE CURSOR 2.0  PAGE 0001

                1010 *--------------------------------
                1020 *       BLINKING UNDERLINE CURSOR
                1030 *       AUTHOR:    BILL LINN
                1040 *                  (AUG. 82  AAL)
                1050 *       MODIFIED BY: D. VAN HOOZER
                1060 *           WITH A MODIFICATION OF
                1070 *           BOB NACON'S RUN
                1080 *           ANYWHERE TECHNIQUE
                1090 *               (JUL. 82  AAL)
                1100 *--------------------------------
                1110         .OR $300
                1120         .TF UNDERLINE CURSOR.OBJ
                1130 *--------------------------------
0024-           1140 MON.CH      .EQ $24
0028-           1150 MON.BASL    .EQ $28
0038-           1160 MON.KSWL    .EQ $38
004E-           1170 MON.RNDL    .EQ $4E
                1180 *--------------------------------
FBE4-           1190 MON.BELL2   .EQ $FBE4
FCA8-           1200 MON.WAIT    .EQ $FCA8
FD26-           1210 MON.KEYIN3  .EQ $FD26
FF58-           1220 MON.RTS     .EQ $FF58
03EA-           1230 DOS.IOHOOK  .EQ $3EA
                1240 *--------------------------------
00A0-           1250 BLANK       .EQ $A0
00DF-           1260 UNDERLINE   .EQ $DF
                1270 *--------------------------------
C000-           1280 KEYBOARD    .EQ $C000
                1290 *--------------------------------
0300- 20 58 FF  1300 HOOK    JSR MON.RTS    WHERE AM I?
0303- BA        1310 HERE    TSX
0304- CA        1320         DEX
0305- CA        1330         DEX
0306- 9A        1340         TXS
0307- 68        1350         PLA
0308- 85 38     1360         STA MON.KSWL
030A- 68        1370         PLA
030B- 85 39     1380         STA MON.KSWL+1
030D- 18        1390         CLC
030E- A9 1A     1400         LDA #KEYIN-HERE+1 ADJUST TO END OF
0310- 65 38     1410         ADC MON.KSWL      HOOK ROUTINE
0312- 85 38     1420         STA MON.KSWL
0314- 90 02     1430         BCC .1
0316- E6 39     1440         INC MON.KSWL+1
0318- 20 EA 03  1450 .1      JSR DOS.IOHOOK
031B- 60        1460         RTS
                1470 *--------------------------------
031C- 48        1480 KEYIN   PHA            SAVE SCREEN CHAR
031D- 86 4E     1490         STX MON.RNDL   SAVE X-REG
031F- C9 DF     1500         CMP #UNDERLINE     IF CHAR ON SCREEN
0321- D0 02     1510         BNE .1         IS AN UNDERLINE
0323- A9 A0     1520         LDA #BLANK     THEN ALTERNATE WITH BLANK
0325- 48        1530 .1      PHA            SAVE CHAR TO ALTERNATE
                1540 *--------------------------------
                1550 *       ALTERNATE UNTIL KEY IS PRESSED
                1560 *--------------------------------
0326- A9 DF     1570 .2      LDA #UNDERLINE
0328- A4 24     1580         LDY MON.CH
032A- D1 28     1590         CMP (MON.BASL),Y
032C- D0 02     1600         BNE .3
032E- 68        1610         PLA            GET ALT CHAR
032F- 48        1620         PHA            BUT MAINTAIN IT ON STACK
0330- 91 28     1630 .3      STA (MON.BASL),Y
0332- A0 50     1640         LDY #80        80*256 BETWEEN BLINKS
0334- AD 00 C0  1650 .4      LDA KEYBOARD KEY PRESSED?
0337- 30 08     1660         BMI .5         YES, CLICK AND RETURN
0339- CA        1670         DEX
033A- D0 F8     1680         BNE .4
033C- 88        1690         DEY
033D- D0 F5     1700         BNE .4
033F- F0 E5     1710         BEQ .2         ...ALWAYS
```

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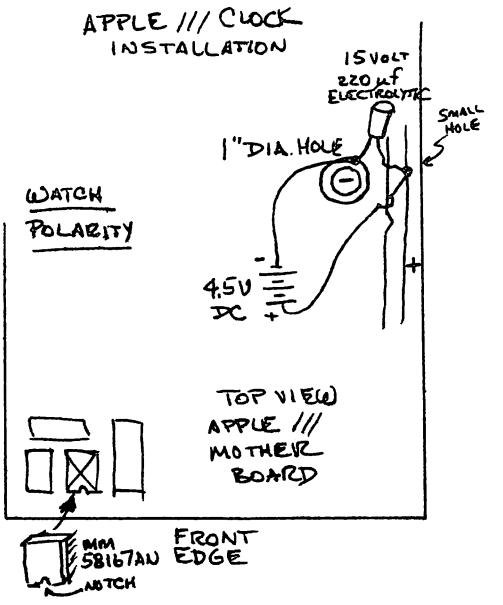
```
                1720 *--------------------------------
                1730 *       A KEY HAS BEEN PRESSED
                1740 *--------------------------------
0341- 68        1750 .5      PLA           POP STACK ONCE
0342- A0 0A     1760         LDY #10       MAKE A CLICK
0344- 20 E4 FB  1770         JSR MON.BELL2
0347- A4 24     1780         LDY MON.CH
0349- A6 4E     1790         LDX MON.RNDL RESTORE X-REG
034B- 68        1800         PLA           RESTORE ORIGINAL SCREEN CHA
034C- 4C 26 FD  1810         JMP MON.KEYIN3


SYMBOL TABLE

00A0- BLANK
03EA- DOS.IOHOOK
0303- HERE
.01=0318
0300- HOOK
C000- KEYBOARD
031C- KEYIN
.01=0325, .02=0326, .03=0330, .04=0334
.05=0341
0028- MON.BASL
FBE4- MON.BELL2
0024- MON.CH
FD26- MON.KEYIN3
0038- MON.KSWL
004E- MON.RNDL
FF58- MON.RTS
FCA8- MON.WAIT
00DF- UNDERLINE

0000 ERRORS IN ASSEMBLY
```



VIDEX DOES IT AGAIN

By Mike Kramer

Many of you have probably dealt with Videx or have read the numerous letters to editors of the various magazines praising them for their outstanding approach to handling their customers. I'd had favorable dealings with them in the past, getting firmware updates at no charge and technical advice when I asked for it. I found it necessary to call them again when I couldn't get an inverse chip to function on my very old, second hand 80 column card. My intent was to obtain a repair order number and preauthorize $25 in repairs before sending the card to them for repair. I had not mentioned that I was president of HAAUG or editor of the newsletter, so was shocked when the young lady volunteered to send me a new card in exchange for the old one. I'm not so sure Videx really wants to give everyone a new card, but they do take care of their customers and their 80 column card is supported by essentially every commercial Apple][software product that works with an 80 column card. Keep this in mind when you consider buying one.

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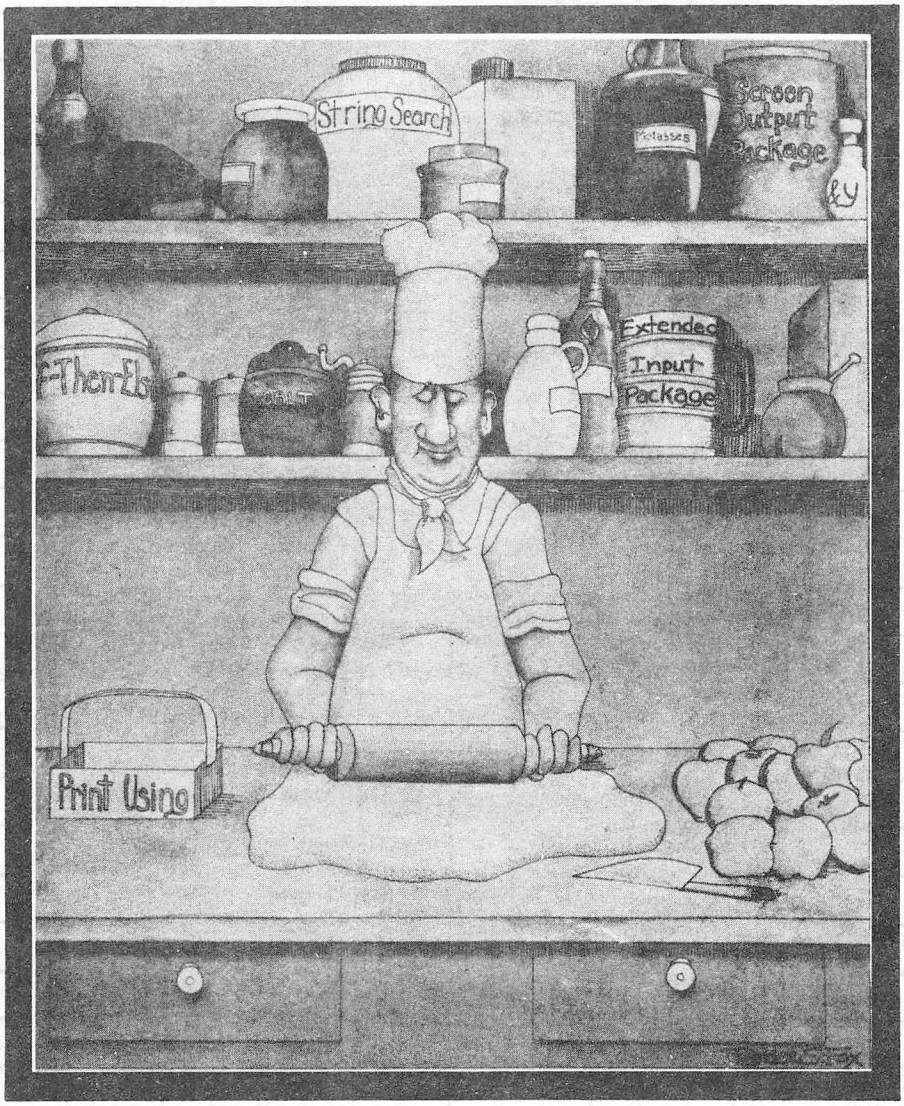

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By: Corey Kosak & David Fox

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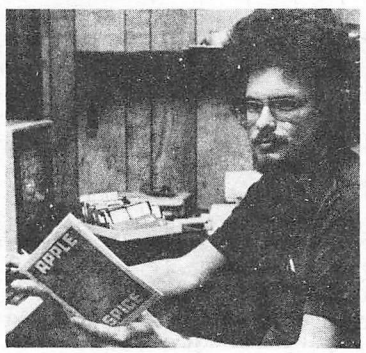

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DEALING WITH DOS

By

Clark Johnson

Part #4

This article should put us in a position of finishing up on most of the basic elements of DOS . We haven't covered all of the DOS commands, only the most often used ones. And there are plenty of DOS utility software packages, not on the System Master disk, that we could explore. But these issues will be brought up on an as-needed basis.

Therefore, this month we will complete the discussion of the DOS 3.3 System Master disk by examining these "utility" programs:

1) MASTER CREATE
2) MAKE TEXT
3) RETRIEVE TEXT
4) BOOT13
5) INTBASIC
6) FPBASIC
7) RENUMBER
8) HELLO
9) APPLESOFT

The word utility was enclosed in quotes because not all of the above programs are true utility programs, but they are worth mentioning because they lead to a better understanding of DOS.

MASTER CREATE

This program has been mentioned in previous articles. It has two major functions:

1) To convert a slave disk into a master disk.
2) To change the name of the program that will automatically run (the hello program) when DOS is booted.

The merits of slave vs. master disks have been discussed at length. (Oct-Nov and January Apple Barrels). My recommendation is not to bother with converting slave disks into master disks, unless you or someone you know has an Apple of less than 48K.

We have explored the differences in the way the two types of disks operate when booted. (The slave loads DOS into the part of RAM memory at the same location where DOS resided when the slave was created. The master "looks for" the highest part of memory available and loads DOS there. In 99.99% of the cases, these two locations are the same.) It would now be educational to explain how the two types of DOS are physically different on the disk.

The major difference is in two sectors on Track 0, Sectors A and B. (In case you have trouble telling the difference between a 'zero' and an 'O' on this printer or any other printer, just remember that only 'zeroes', not O's, are used in the hexadecimal numbering system. So that is Track 'zero' we wish to read.)

For those of you who have DISKFIXER or some other equivalent utility, now use the utility program to read these sectors, both on a slave disk and on a master disk. You will note on the slave disk that those sectors are "empty" - they contain all zeroes. On the master disk, however, the sectors do contain hex codes.

These sectors on the master disk, then, contain a machine language routine that checks for computer memory size and then relocates the DOS to the top part of memory. They obviously aren't necessary on a slave disk. When DOS is being booted, the machine language routine on these sectors loads into lower memory, performs its function, and then is lost whenever another program writes over that memory area. These two sectors, therefore, aren't loaded into the normal DOS area of memory and consquently are not available to be put back on a new disk when it is initialized. That's why the initialization process creates only slave disks.

MASTER CREATE does have one other important option. You will notice when you use this program that you will be given a chance to rename the hello program. This would be an opportunity to replace the hello program name (which is stored in DOS) with another name. For example, if you had initialized a disk with the name "HELLO" and then later decided to change the name of the boot-up program to a different program named "START", the MASTER CREATE program allows you to do this. Of course, you could keep the same hello name if you wish. Also, obviously the disk must have a program named, in this example, "START".

BOOT13

This is a short utility program that is used to boot 13-sector (DOS 3.2) disks. Simply 'BRUN BOOT13' and then insert your 13-sector disk into Drive 1 to boot up the DOS 3.2 disk.

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MAKE TEXT & RETRIEVE TEXT

These are two short utility programs that are mainly used for educational purposes to show how Text files are created and then how to read information back from Text files. They make use of the DOS commands - OPEN, READ, WRITE, and CLOSE - which are used to create a Text file and write information to it or read data from it. It might be beneficial for you to scan through the program listings to see how these commands are used.

We wil use these two programs to find out what the DOS command EXEC does. First, to make a really worthwhile demonstration, make a back-up copy (using COPYA) of the System Master and do not put a write protect tab on it. We will use just one disk drive for this experiment. There is an Applesoft program on the System Master named EXEC DEMO, which is also used to demonstrate the use of the EXEC command. But I believe it will be more instructive to construct our example.

First type in this one line:

```
POKE 44596,96
```

This line is a simple modification to DOS that is used to prevent the CATALOG listing from stopping after the screen is full, as it normally does. Since the System Master does have a long CATALOG, we want to prevent the CATALOG listing from stopping; we don't want to have to touch the keyboard for this example.

Now put your new backup copy into Drive 1 and RUN the program `MAKE TEXT'. You will be prompted to enter data on Line 1. Now, ordinarily, you would enter data just as numbers, names, etc. into a Text File. But we are going to make this Text file into an EXEC file, so let's put some DOS, Applesoft, and monitor commands into the file to watch how "EXEC" can take over control of your computer.

Enter these commands after each appropriate line number prompt. (Those statements in parentheses are for explanations and are not to be entered.)

```
 1) CATALOG
 2) LOAD HELLO
 3) LIST  (HELLO will be listed)
 4) CALL-151  (Go to the monitor)
 5) 800.830  (Memory dump)
 6) 3D0G  (That's `three-D-zero-G')
 7) 500 FOR I=1 TO 1000 (Lines 7,8, & 9
 8) 501 NEXT       `freeze' the program)
 9) RUN 500
10) 5 PRNT  (Enter a mistake in the program)
11) SAVE HELLO2 ******  (New program name)
12) CATALOG  (HELLO2 ****** will be present)
13) SPEED = 0
14) RUN  (Will give an error in Line 5)
15) 5   (Delete HELLO2 ****** Line 5)
16) RUN (Should work this time)
17) DELETE HELLO2 ******
18) CATALOG
19) HOME
20) SPEED=50
21) ?"HI - JUST RESTING"
22) SPEED = 255
23) EXEC JUNK
```

You see a mixture of DOS, monitor, and Applesoft instructions in the above listing. Most of the explanations are fairly self-explanatory. In Lines 3,4,and 5, we are demonstrating that the EXEC command allows us to go into the monitor (4), do a memory dump or some other monitor function (5), and return back to the BASIC language prompt (6). Line 23 also requires a little more discussion. In this command, we are causing the EXEC file to start all over again by EXECing a new file (actually not new in this particular case, but the same one). Without Line 23, the above example would have stopped after Line 23 of the EXEC file.

After Line 23 has been entered while in the program `MAKE TEXT', press RETURN to end the input of data. When prompted, give this file the name `JUNK'. if you CATALOG the disk you will see our Text file JUNK at the bottom with a length of 4 sectors.

To validate that you have entered the data correctly, you could run the program `RETRIEVE TEXT' which can read back the contents of the Text file.

Now, when you type in `EXEC JUNK', the EXEC file will take over control over your computer and instruct it to follow all the commands listed. You don't have to touch a thing. As a matter of fact, the only way you can stop this particular EXEC file is to power down or to hit Reset (because of Line 23).

It is also interesting to note that the file will keep on running after an error. In this example, you got an error after you inserted the statement `5 PRNT' (an obvious error) into the HELLO program. The EXEC file simply picks control back up whenever the Apple has finished its last instruction, even if it encountered an error.

More practical uses of EXEC files would include 1)BRUNning or BLOADing a series of binary files that are necessary before you you run a final program, or 2) Making on-line changes to Applesoft programs because of different program configurations required. To do this you could set up several EXEC files that contain Applesoft program lines specific to particular configurations. After your main program is loaded, EXECing in a a series of Applesoft lines will either add new lines to the program, or delete or replace unwanted ones.

Have you ever noticed when you ran some software (much of the Muse software is a good example), that you saw several left brackets (]) come onto the screen before the program actually came on-line? This was caused by an EXEC file, with each bracket being produced by a separate command in the EXEC file.

The program `MAKE TEXT' does have two shortcomings which may detract from its use in constructing EXEC files. First, the program uses the Applesoft INPUT routine to allow entry of the commands. You are probably well aware the the INPUT statement does not allow commas or colons. These two separators are needed in many commands.

The other problem with `MAKE TEXT' occurs when the Text file is actually stored to the disk, because the program will add one number into the file prior to all the commands you entered. The number added is the actual number of lines inputted into the Text file (`23' in our particular case).This is useful when writing Text files for data storage, but not so when writing EXEC Text files. The number is used to tell the RETRIEVE TEXT program when to stop looking for more data, in order to avoid an `OUT OF DATA' error. However, when EXECing a Text file created by `MAKE TEXT', the first "command" that will be issued is that inserted number. This may or may not be a problem, depending on the application. In our example, it wasn't a problem. The number `23' simply came out of the EXEC file as a command that did nothing. However, if your first use of this EXEC file was to modify an Applesoft program, then line 23 in the Applesoft program would have been erroneously deleted because of this inserted number.

There are two ways to get around this second problem - 1) load `MAKE TEXT' and delete line 180 in that program to prevent insertion of the number or 2) use a conventional Text editor (word processor) to create your Text files. The first problem (the INPUT problem) can only be overcome by extensive modifications to the `MAKE TEXT' program or by using a conventional Text editor.

INTBASIC

This is not a utility program, but worth mentioning because of its importance and some possible confusion. You do not BRUN this program. The HELLO program on the System Master will automatically BLOAD this file if you have a RAM card. The HELLO program checks to see if a RAM card is present in Slot 0, and then loads Integer basic (INTBASIC) into the RAM card if present. After loading, you can now switch back and forth between Applesoft and Integer Basic with the DOS commands FP and INT.

The file INTBASIC contains an exact duplicate of the Integer basic language that came in the motherboard ROM when the Apples first came out. I won't discuss the details here (December's Apple Barrel articles by both Mike Kramer and Steve Knouse did), but the INTBASIC file also contains the PROGRAMMER'S AID and the MINI-ASSEMBLER. If you have ever read about these two packages being available on the earlier machines, but not available today, just remember that you can access them if you have a RAM card.

To do so, simply boot up the System Master disk (or just RUN its HELLO program). INTBASIC will be loaded onto the RAM card. Now type INT to activate the RAM card and then type CALL -151 to enter the monitor. Now both the PROGRAMMER's AID and the MINI-ASSEMBLER can be accessed using the commands given in the Apple Reference Manual.

Another program contained within the file INTBASIC is an exact duplicate of the monitor ROM that is located in the motherboard of the Apple. The necessity for this is a little difficult to explain without going into a fairly detailed explanation of the memory address system of the Apple and how the RAM card is addressed. For now, let's just accept the fact that while the RAM card is `turned on' (by typing INT, for example), the Apple cannot use the monitor that is located on the motherboard. The monitor program is therefore supplied in the RAM card itself when the file INTBASIC is loaded. This could prove to be useful when you have mastered more knowledge of the Apple, because you can put your own modified version of the monitor into the RAM card and use this version instead of the motherboard monitor.

FPBASIC

This program is the equivalent of the INTBASIC program, except that it is used by Apple owners who have Integer BASIC in the motherboard instead of Applesoft basic. The file FPBASIC is loaded in the RAM card to give this language to those people who do not have it in ROM (very few people today). However, it is also possible to load a modified Applesoft into the RAM card even if you have Applesoft on the motherboard. Or you can have your modified monitor program loaded onto the RAM card along with the FPBASIC file loaded there. The subject of manipulation of the contents of the RAM card is very interesting and warrants at least one complete article devoted solely to that topic.

HELLO & APPLESOFT

These two programs are very similar. The main function of the HELLO program is to determine if a RAM card is present and, if so, to load the Integer language. The APPLESOFT program is almost identical except it is designed for those people who have the Integer language already present in ROM. This program then checks for the present of a RAM card and loads the Applesoft language into it. Since the vast majority of Apple owners have Applesoft already in ROM, the usefulness of this program is practically nil.

RENUMBER

This last utility is not a DOS utility but rather an Applesoft programming utility. It is used to renumber an existing Applesoft program. The most frequent use of this utility is to renumber the Applesoft listing so that other program lines can be entered

after you have run out of available lines in a particular spot in the code. The program RENUMBER does have one well-documented bug. This bug can cause problems if you have a statement in the program as in the following example:

```
10 X = Y * 100
```

In some cases the `100' within the program will be renumbered along with the program lines. Obviously, this could cause havoc with your program. There is a fix for this, but I will not list it here. If any of you need the info on how to fix the RENUMBER program, call the HOT-LINE and leave a message for me.

KEYBOARD REFERENCE CHART FOR DISKFIXER

I have included in this month's Apple Barrel a quick reference chart for the program DISKFIXER that many of you ordered. First, you obviously need to read through the documentation and become familiar with the commands. However, after you have done that, it is useful to have a quick summary that you can reference quickly without having to dig back through the manual. The keyboard chart is laid out for that purpose.

NEXT MONTH

In next month's column, I intend to cover a review of many of the "fast-DOS" programs available today. These fast DOS's can be extremely beneficial to speed up your disk input and output. There are some that I recommend highly. The only possible hindrance in getting the review into next month's issue would be the lag time in getting my preliminary reviews back fron the software vendors. They will have the opportunity to comment on all my statements before the review is published.

UNIVERSAL TEXT FORMATTER

A software review by Rick Oshlo

One of the easiest to learn word processors has always been the Applewriter 1.1. However, the trade off for ease of use is lack of flexibility; and one of the main restraints with Applewriter has been that the user was not able to take advantage of many of their printer's features. As a result many users spent substantial sums to purchase more sophisticated word processors in order to gain that ability. But help is at hand for those Applewriter users that balk at the expense of other packages yet would like to have access to their printer's special features. That help is in the form of a program named THE UNIVERSAL TEXT FORMATER.

The Universal Text Formater (UTF) is customized to utilize your printer's specific control codes and then is used to replace the "Printer" routine on your Applewriter disk. It can support up to 32 printer control codes such as underline on and off, enhanced print, double width, print style and size changes, etc. Virtually any feature available on your printer can be utilized. A command consists of the @ sign to gain the attention of UTF and a "command character" embedded in the text as needed. UTF also supports all the standard Applewriter commands for setting margins, beginning a new page, etc. The program will work with seven different interface types including Grappler and CCS. It also allows page numbering to begin on any page.

All printers are not alike. They vary in features and even by how common features are executed. For instance the NEC is capable of turning enhanced print on and off within a line while the Epson is not. Consequently, it will probably be necessary for the user to do a little experimenting when customizing the program for their application. I use the program with an NEC 8023A printer. Even though a sample file was provided for the NEC (they are also provided for the Epson and the Centronics), I had to make several attempts to get it exactly like I wanted it.

All in all the UNIVERSAL TEXT FORMATER is the ideal solution for those people that want to fully utilize their printer while using Applewriter but do not need many of the other features provided by the more expensive and complex word processors.

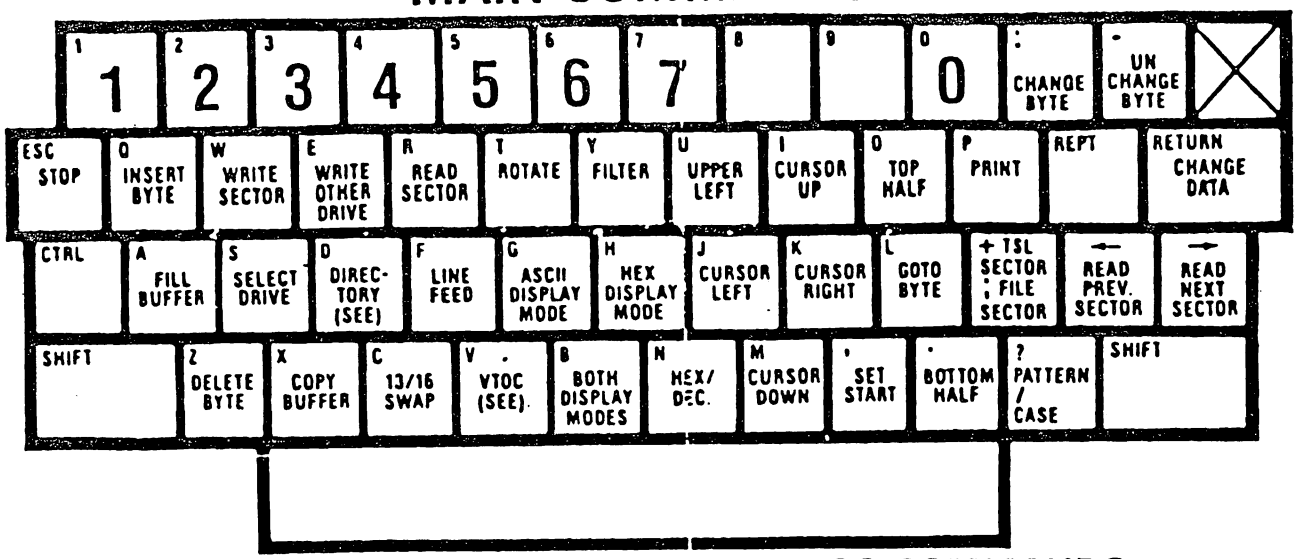
For those Centronics or NEC 8023A owners who have searched in vain for a word processor that will allow them to take full advantage of their printer's ability to print with proportionally sized and spaced print, Ziggurat has a program called the Proportional Text Formater. This program also interfaces with Applewriter 1.1 and contains many of the features found in the UTF. It also allows correct fill justification, centering and tabbing while in the proportional print mode.

Both programs are available for $34.95 each only through the author: Ziggurat Software, P. O. Box 453, Arlington Heights, Illinois 60006.

LATE ITEM... I have just received a flyer from Ziggurat Software that announces compatability of the Tex Formaters with Applewriter][. Evidently the enhanced versions have a conversion program that allows AW][files to be read by the formatting programs. I do not think that the formatters can be coresident with the editor as is the case with current AW][printer routine.

Disk Fixer Keyboard Card

MAIN COMMANDS



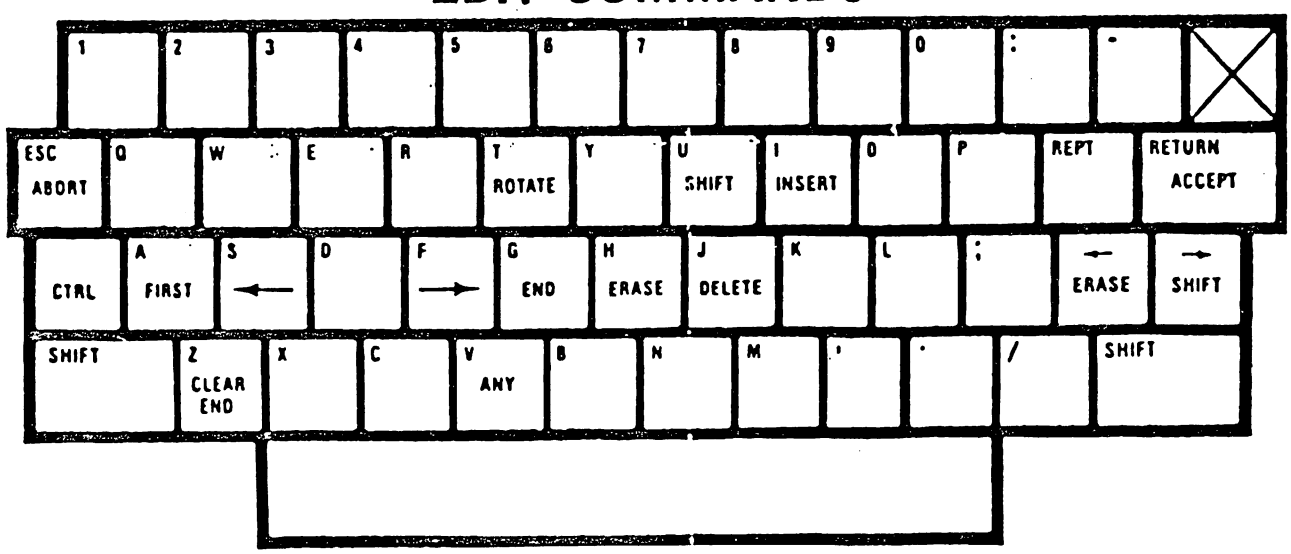
DIRECTORY COMMANDS

R: Read
W: Write
Space: Display
C: Change Filename
F: Fix File Sizes
G: Get Scan File
L: List Track/Sectors
S: Sort
?: Character Wildcard
=: End of Name Wildcard

VTOC COMMANDS

R: Read
W: Write
Space: Display
M: Map
F: Fix Usage
E: Edit

EDIT COMMANDS



[illegible] SLICES

Dave Knouse

Modifying Super Label Printer

Clark Johnson's "Super Label Printer", which is on the Club's Starter Disk and Volume 3A1 in the software library, was written for use with an Epson MX80, MX80 F/T or MX100 printer.

To use the program with another printer you must change three lines of the program; line 2040 which sends the control codes for emphasized print, line 2320 to switch the printer to double width characters (if the necessary), and line 2350 to take the printer back to normal sized print. (Note that line 2350 was not in the original program; the Epson will only stay in double width for one line.) Examples for several printers are given below:

```
NEC 8023
2040  PRINT  CHR$(27)"!";          19
2320  IF M = 2 THEN  PRINT  CHR$ (~~16~~);
2350  PRINT  CHR$ (~~20~~);
                                   15

OKIDATA 82A
2040
2320  IF M = 2 THEN  PRINT  CHR$(31);
2350  PRINT  CHR$(30);

IDS 560G, PRISM 80 and PRISM 132
2040
2320  IF M = 2 THEN  PRINT  CHR$ (1);
2350  PRINT  CHR$ (2);
```

Note that you delete line 2040 for the Okidata 82A and the IDS printers; they don't support emphasized print. If you have a different printer than those above you will have to make similiar changes using the control codes for your printer.

Line 4080 contains the printer setup string. A setup string is a set of control characters you send to the printer to "setup" certain characteristics. For instance the original program used the following statement to disable Apple's video output when printing:

```
4080  PRINT  "^I80N";
```

where ^I means control-I and is not visible [illegible] listing. On my MX80 with Graftrax Plus I have added to the string to also kill the [illegible] over-perf and to disable the paper out [illegible]r. The resulting statement is:

```
4080  PRINT  CHR$ (9)"80N"; CHR$ (27)"O";
      CHR$ (27)"8";
```

With my [illegible]IO at work I need to kill the video output by printing a null character and then doing a POKE as follows:

```
4080  PRINT  CHR$ (0);: POKE 1400+SL,128
```

If you are using a printer card other than an Epson APL, in other than slot 1, then you must change line 4050. For example if your interface is in slot 2:

```
4050 SL = 2: REM DEFAULT PRINTER SLOT
```

There is an option to print the label in emphasized or normal print which does not work; it always prints emphasized. If you want this feature to work add the following lines for the Epson and NEC printers (emphasized print is not supported on the Okidata 82A and the IDS printers).

```
Epson printers
405 EM = 1: IF  RIGHT$ (DF$(12),1)
     <  > "Y" THEN EM = 0
2050  IF EM = 0 THEN  PRINT  CHR$
     (27)"F";

NEC 8023
405 EM = 1: IF  RIGHT$ (DF$(12),1)
     <  > "Y" THEN EM = 0
2050  IF EM = 0 THEN  PRINT  CHR$
     (27); CHR$ (34);
```

To change the program load it from disk, type in the appropriate lines, save it to disk with a DIFFERENT name, and then try running it. Do not save the program back to the same disk with the same name. Be sure you keep an unmodified copy of the program.

Printer Control in AppleWriter][

Most newer printers have features, such as emphasized or compressed print, which are activated by sending the printer a control character or by sending an Escape character followed by other normal (i.e. not control) characters. For example to put the Epson MX-80 with Graftrax into emphasized print you send two characters, an Escape character and an upper case E. To cancel it, send an Escape and an F. Compressed print is done by sending a contol-T and is cancelled with a contorl-R.

In order to control your printer from Apple Writer][you must put the necessary control or Escape characters in the body of the text. Then when the document is printed the control characters will be sent to the printer along with the rest of the text. To enter control characters in Apple Writer][you must first type a CTRL-V (hold down the CTRL key and simultaneously press the V key). Then type the necessary control or Escape characters.

If you are not using a shift wire mod, note that the Escape character is entered by pressing the ESC key TWICE. Also when you need to send a upper case character be sure it [illegible] been capitalized by pressing ESC once fir[illegible]

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The following examples assume a shift wire mod is not installed:

To set the Epson MX-80 to emphasized print, type:

CTRL-V ESC ESC CRTL-V ESC E

To go back to normal print type:

CTRL-V ESC ESC CTRL-V ESC E

To set the Epson to compressed print type:

CTRL-V CTRL-T CTRL-V

To go back to normal print type:

CTRL-V CTRL-R CTRL-V

Ribbons for the NEC 8023 Printer

If you are having trouble finding ribbons for your NEC 8023, note that it uses the same ribbon as Apple's Dot Matrix Printer. This is because mechanically they are the same printer.

Compatibilty and Apple's Dot Matrix Printer

Apple's new Dot Matrix Printer (DMP) can print graphics but it, like most printers, uses its own protocol. (This is somewhat surprising and disappointing since it is mechanically the same as an NEC 8023 and one of the CITOH's.) This means that any graphics dump programs you have will not work with it. All is not lost because the disk that is supplied with the DMP has a graphics dump program on it.

Orange Micro's Grappler+, a printer interface card that makes it very easy to print graphics, has been modified to support the DMP. There are still plenty of the cards that don't support it though. The newer Grappler+'s have a sticker on the box that say it supports the DMP and have a serial number P800 or greater. As always the best way to check is to have the salesman demonstrate the Grappler with a DMP.

If you have a Grappler+ that doesn't support the DMP contact Orange Micro about getting the new EPROM firmware.

Orange Micro also told me that Apple told them that Apple would be changing the firmware in the DMP early in the year to support the NEC graphics printing protocol as well as the DMP's. I'll let you know if this comes to pass.

Videx Support

If you have any of Videx's products (like the Videoterm or the Keyboard enhancer) be aware that they have an excellent support policy. If they have upgraded they board's firmware since you bought it you can upgrade it very easily. Just call them. They prefer that to a letter. The charge for upgrades ranges from free while in warranty to $20 when out of warranty (though they have been known to waive the $20).

The latest firmware versions are 2.4 for the Videoterm and 1.1 for the Enhancer II.

PROGRAMMING CONTEST

by Gary W. Tubb

Every year we read of an international microcomputer programming contest in Creative Computing magazine. Did you know that the senior division winning team of Spencer Greene and Joe Truman was from Klein High School in Spring, Texas? Their competitors were from Europe to Australia. And mind you, the five problems that they had two hours to solve were not the easiest to program. Now I ask you, just what have we done to encourage young people to solve problems on a computer? Instead we give them another quarter to plunk into Pacman to escape problems. That's a problem! So that is why I am putting in my two-bits, and I need volunteers to help judge the April 30 contest.

The International Computer Problem Solving Contest III originates from the University of Wisconsin-Parkside. This year's contest will be held on Saturday, April 30, 1983. The contest is a timed event that challenges each team to solve as many problems from a set of five as they can within a two-hour time limit. A team consists of one, two, or three students. All teams are classified by divisions:

Senior	Grades 10-12	(maximum age 18)
Junior	Grades 7-9	(maximum age 15)
Elementary	Grades 4-6	(maximum age 12)

Any computer system or computer language may be used. However, each team may use only one input device (keyboard/terminal). After the two-hour period, each team is allowed time to list their programs and sample runs to a printer. In general, no outside help (such as books or written or stored programs) is allowed during the contest. The only exceptions allowed are a text editor for writing the programs and a reference book or guide to the computer system and the language being used. For more information, write me at P.O. Box 81-1510, Houston, TX 77281.

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>F41:(F39*F37)
>F39:+E39*(1+F35)
>F37:+E37*(1+F33)
```

Into This

```
F48:  1983 NET INCOME =+ 1983 GROSS INCOME *(1- 1983 TAX RATE % )+ 1983 TAX CREDITS
F45:  1983 GROSS INCOME =+ 1983 REVENUE -( 1983 VOLUME * 1983 UNIT COST )- 1983 BURDENS
F41:  1983 REVENUE =( 1983 AVER PRICE * 1983 VOLUME )
F39:  1983 AVER PRICE =+ 1982 AVER PRICE *(1+ 1983 INFLATION RATE % )
F37:  1983 VOLUME =+ 1982 VOLUME *(1+ 1983 SALES GROWTH RATE % )
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Below are two problems from past contests. Chip Doran's (junior high student) solution to the first problem is very clever. By the way, if a program does not solve the problem then the score is zero. That is fortunate. The other judges and I pondered over his solution. We knew it worked, but we were not certain of his algorithm.

PROBLEM 1: Round Numbers
A positive integer N is said to be a "round number" if the binary representation of N has at least as many zeros as ones. For example, 9 is a round number (since its binary representation is 1001) while 26 is not a round number (since its binary representation is 11010).

Write a program which will accept input of a positive integer K, and which will print the number of round numbers less than or equal K in the format:

THERE ARE xxx ROUND NUMBERS LESS THAN OR EQUAL TO K

There are 5 round numbers less than or equal to 10. Run your program twice, with inputs of 10 and 100.

SOLUTION:

```
10  HOME : PRINT "1 -- ROUND NUMBERS"
20  PRINT : PRINT
30   PRINT "ENTER POSITIVE INTEGER": INPUT "TO
BE CHECKED: ";K
40  HOME : PRINT "K= ";K
50  RN = 0
60  FOR A = 2 TO K
70 N = A: Z0 = 0: O1 = 0: D = 2
80  IF A => 2 ^ D THEN D = D +1: GOTO 80
90 D = D - 1
110  FOR B = D TO 0 STEP -1
120   IF N > 2 ^ B THEN N = N - 2 ^ B: O1 = O1
+1: GOTO 140
130  Z0 = Z0 + 1
140  NEXT B
150  IF Z0 => O1 THEN RN = RN + 1
160  NEXT A
170   PRINT  :  PRINT  "THERE ARE ";RN;" ROUND
NUMBERS LESS": PRINT "THAN OR EQUAL TO ";K
```

PROBLEM 2: NFL Helmets
There are 28 football teams in the NFL. Many supermarkets and discount stores have vending machines that dispense miniature team helmets for one quarter (25 cents) each. Assume that all helmets are equally likely to be dispensed by the machines.

You are to write a program to simulate putting quarters in vending machines until 28 helmets have been obtained. Your output should have the form:

TOTAL SPENT TO GET ALL 28 HELMETS = $xxx.xx

Run your simulation 3 times.

SOLUTION: Next newsletter.

GAME REVIEWS

by Bill Muhlhausen

NEPTUNE
PRODUCT of GEBELLI SOFTWARE

The object of this game is to destroy your opposition by shooting or bombing it. Guns and bombs may be fired at the same time. You have five ships to use and you gain one ship for each level you successfully complete.

This game may be played with either the keyboard or a joystick. Other features include a pause option, keyboard redefinition, and the ability to toggle between the Apple speaker and the cassette output port. The graphics are in color and they look very nice.

During my play test of the game I found that the keyboard was very hard to use if you advanced much beyond first level. The joystick was very responsive and you had to be careful not to over control. A player could run up a fairly good score at only level one with either type of control. Neptune has several ideas that make the game interesting to play. Once you have fought your way through the opposition you have to enter an underwater cave to refuel. There are two entrances to the cave. If you choose the wrong one your ship is wrecked against a dead end. Even if you choose the right one you must maneuver your ship past the Octonians. Your guns and bombs won't fire in the cave so you can not shoot them. If you are successful you gain a ship and advance a level. At level two you receive a shock as the entire screen display is upside down. Getting to level three firing at upside down targets takes a little time but can be done. At third level the display is again right side up but at this point some of the bubbles will destroy you.

I found the game to be one that is somewhat habit forming to play. It is certainly challanging enough to avoid becoming stale after a few weeks play. With a joy stick the younger computer gamers could be occupied for many hours. Overall I think that this is a fine game for the money, but it's one of those games you play for a while, put aside, but always come back to play again.

TIME ZONE
PRODUCT of ONLINE SYSTEMS

Time Zone is an adventure game in which it is up to the player to save Earth by traveling thru time and space. The game has fine color graphics. It has six two sided disks in the package along with a page which tells what time period each covers.

On opening this game the documentation states that if you have not played several adventure games before that this game is not

recommended for you. Unfortunately this is not so stated on the outside of the box. Another problem I find in this $100 software package is that there is virtually no documentation as to the commands necessary to run the program. To remedy this failing the producers have on rare occasions prompted the user to take the correct action. Even if you have played many adventure games you will be slaughtered with astounding regularity or be repeatedly frustrated by being unable to accomplish anything and not having the means to gain information as to why nothing works.

I spent 40 to 50 hours in running this program before writing this review. Two other gamers ran it at least 20 to 30 hours. We have all agreed that those of you who enjoy solving puzzles and enjoy realism in gaming will find this program one you can't do without. Those who prefer playability over realism or who want to have fun without having to solve a puzzle at every turn should avoid this big expensive game like the plague.

CONGLOMERATES COLLIDE
PRODUCT of ROCK ROY INC.

The object of this game is to have the largest equity at the time there are no more companies to buy. Each player starts out with 10 million in cash plus a like amount in stock.

The program generates purchase prices for 20 companies and their percent return on investment. Players may buy these firms with earnigs, credit, or sale of some of their stock. Money can also be made by selling your own stock short, accrued interest on cash on hand, and wind falls that the program generates randomly. You can also lose money because of random occurrences. When you borrow money the interest rate does not remain constant. You could borrow at 8% on turn one and have to pay 21% on turn two. The price of your stock varies depending on the random generation of price earnings ratio and your net worth at the time. When you sell stock you are not always able to buy it all back.

In order to make your decisions you are given a several tools to work with. These include line graphs, a financial center, and a summary of your current status showing sources of income, expenses, projected income for the next turn, stock price, interest rate and other items. All of these aids are updated as soon as you do something such as pay of debt, buy something, or sell stock.

This game is a real winner. One to four players can play. Instructions are on the disk and it only takes a few minutes to read them and be able to play the game. It is ultra user friendly. The only mistake you can't correct is the command to end your turn. The only caution I found is that you must not at any time punch the right and left arrow keys or the program restarts. Escape also restarts the program. It takes about two hours to play a game with your friends. Solitaire play with multiple computer opponents takes about a hour. In solitaire mode this is a really tough game to win. The computer plays very rough and you had better do the same or both computer opponents will crunch you. This is one of those easy to learn games that it takes several sittings to see all the neat game stratagies available to the player.

This is a game for computer gamers of all ages. I strongly recommend that you pick up a copy for your software library. I don't think you can go wrong on this one.

Programs reviewed were provided courtesy of Computer Galleries, 2493 South Braeswood at Kirby.

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MESSAGE
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MESSAGE TAKEN BY Don Pearce, Center Manager

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SERIOUS NUMBER GAMES

SELF CHECK NUMBERS — MODULUS 10

This is part two of a series of articles on a technique of systems analysis named self-check numbering. Given a number with a width of n digits, a data entry machine or a computer program can predict the rightmost digit value. When a self-check number is used as a control field to a computer data file, update or inquiry transactions need no key verifying of the control field. The person who is keying the transaction knows immediately if this data field is keyed erroneously. This month's article will describe the techniques of calculation for modulus 10 self check numbers. Modulus 10 checking is better than 96% accurate in detecting single digit key errors. Please refer back to the Apple Barrel of Dec. 1982 for an introduction to why we like modulus self-check numbers.

The general idea is to use mathematics on a numeric field to predict what the rightmost (last, low order) digit must be. The checking arithmetic will multiply each digit of the field by a "weight factor"; this multiplication yields products; add up these products to a sum; compute the check-digit for this sum to be evenly divisible by the "modulus", either 10 or 11. Next month's installment will treat Modulus 11 check digiting.

MODULUS 10 CHECK DIGIT FORMULA AT WORK

Here is an example of how to calculate a Mod 10 check digit. Let's assume a field size of nine digits, and a "check type" of product digit add. The weight factors for Modulus 10 are given as a constant; we use for our example the weights 1 2 1 2 1 2 1,etc.

Step 1. Assign weight factors for each digit position of the nine digit field

Digit position: 1 2 3 4 5 6 7 8 C

Weight factors: 1 2 1 2 1 2 1 2 1

Please note that the weight factor digits, 1 2 1 2 etc., are "given." These weights are assigned from right to left beginning with 1 then 2 then 1 then 2 then 1, etc. For this example of nine digits, we encode the weights as shown above with a weight of "1" under the rightmost digit of the base number.

Step 2. Multiply

Multiply the weight factors by the digits of the field. Each separate digit is multiplied by the column's weight factor to develop products. The product developed for each column will be two digits wide.

(2 * 9 = 18, the maximum product we will ever have). These several products are used in the next arithmetic step.

Step 3. Sum

The third step in the calculation is to sum the product digits. In Modulus 10 checking, it is proper to add the individual digits of the several products to a sum. These products did require a size of two digits each, so to sum the digits, separate each product to it's left side digit and it's right side digit. For example, a product of 2 * 9 = 18 yields the left product digit of 1 and the right product digit of 8. Adding these to a sum is 1 + 8 = 9. 9 is the product digit sum.

Step 4. Subtract

For the sum of the product digits calculated in step 3, find the next higher number ending in 0. Subtract your sum from this number to get a difference; this difference is the check digit for the entire field number.

SPECIFIC EXAMPLE

A specific example for Modulus 10 will enlighten us. Let's try one.

Assume a base number of 12345678. I desire a modulus 10 check digit for this number in the ninth digit position.

1. Assign the weight factors for Mod 10. Start with the unit position of the base number.

2. Multiply the digits by the weight factors.

```
Base number  : 1  2  3  4  5  6  7  8  C
 * Weights   : 1  2  1  2  1  2  1  2  1
-----------------------------------------
 = Products    1  4  3  8  5 12  7 16  X
```

3. Add each digit of the products from step 2 using a product digit add.

1 + 4 + 3 + 8 + 5 + 1+2 + 7 + 1+6 = 38

4. Subtract to find the check digit.

Find the next higher number, above 38, which ends in zero. 40 will do fine. Subtract 40 - 38 = 2. This 2 is the check digit, modulus 10, for the base number 12345678. So 123456782 is a valid mathematical control number field, modulus 10.

For programming personalities there is another way to do step 4. Divide the sum from step 3 by 10 (10 is our modulus).

38 / 10 = quotient 3, remainder 8.

Complement the remainder by subtracting it from 10:

10 - 8 = 2. This is the check digit, 2, the same as just found above.

In this programmer's technique there is a caveat. If the remainder after dividing by the modulus is zero, then the check digit is zero. So, skip the complement step if the remainder is zero and use 0 as your check digit.

Now that we have our numbers in order, we can test the formula on Visa, MasterCard, American Express and many bank account numbers. Here are a few Modulus 10 numbers for you to test.

For 69052C, the check digit C is 9.

Let's work it together:

```
Write the base #: 6  9  0  5  2  C
Assign weights... 2  1  2  1  2  1
-----------------------------------
Multiply.........12  9  0  5  4  X
Sum the digits..1+2 +9 +0 +5 +4  =  21
```

Subtract 30 - 21 = check digit of 9.

Or, 21 / 10 is Quot. 2, remainder 1; and 10 - remainder 1 = 9, the same check digit.

02539401-6 and 02539402-4 are valid Mod 10 check digited numbers. Use your VISA, Mastercard or AMEX bankcard account number to test your skill.
Get out your scratch paper and work these for yourself.

We can perform the calculations to predict the check digit for a number. Or, better yet, we can "validate" a number as it is keyed by using a slight variation of the mathematics. This application becomes the real "meat" and value of check digiting. The arithmetic variation for number validation is very simple for a number which includes its check digit.

For complete number 6 9 0 5 2 9
* weights of 2 1 2 1 2 1 as usual.

Multiply all 12 9 0 5 4 9 (note we used the last column also)
Then sum the product digits, and if this sum is not evenly divisible by the modulus, 10, then the number is NOT valid. This is precisely how a keypunch machine's arithmetic validates a modulus 10 check-digited number. The result is pass or fail, where fail has a beep.

Remember why we try to do this self checking on numbers keyed by humans. People do make key errors; we can reduce the errors of computer processing if we stop the error exactly when it is made, at the key station. Many business transactions are keyed in a batch and subsequently processed in a computer. If programmers and analysts provide checking formulas on employee numbers, vendor numbers, and account numbers, we can in fact reduce errors and reduce computer search times on disk files. Techniques such as Modulus 10 checking will reduce key errors on file control keys in the "batch" of transactions. Error detection at the key station with self-checking is not difficult to perform.

My large business computer allows touch-tone telephone keying of VISA and MasterCard account numbers. Before sending these credit inquiries to the VISA center, I perform a Mod 10 validation of what the user keyed on the telephone pad. An error found in the structure of the account number would beep the user rather than be sent to the VISA computer. Because VISA used self checking techniques in their account number structures, my savings and increased accuracy are possible. Checking saves system time and reduces the costs of a credit inquiry system because VISA charges a few cents for each credit inquiry/authorization. You can see why we "professionals" use the self-check formula as a strategy. You can use it also if you design your computer applications to have numeric "keys" with check digits appended. Then, when you key transactions to your files, validation will save you and your computer lots of time.

Next month I will discuss Modulus 11 self checking. The formula is similar to mod 10, but modulus 11 provides even greater accuracy of keyed number fields.

Dan Herron

SO WHAT GOOD IS A KEYBOARD MACRO?

by Mike Kramer

A term which is frequently heard but probably not understood by many is "keyboard macro". "Macro" is usually used as a prefix and means large. When used in conjunction with the word "keyboard", "macro" means a redefinition of a key to produce a series of keystrokes when that key is pressed. Many programs, such as Program Line Editor (PLE), PALANTIR Word Processor, Advanced Visicalc for the Apple ///, etc., provide the capability to redefine a key.

One of the several useful features of the new Videx Keyboard Enhancer IIc is the ability to redefine any key to produce any string of characters (within reason) when pressed. The redefinition can be done by BRUNning a Macro file created with the Macro Editor provided on the Enhancer IIc diskette. More important, however, is the ability to define a keyboard macro at any time within any program! A lot of fun things can be done with key redefinition, such as causing your friend Alan to type "Bobo" when he types his name. Many more practical things can be done, however, to reduce the amount of effort you expend on practical use of your Apple IIc so that you have more time to play Chop Lifter. One of my fun chores is entering the contents of the HAAUG member survey into PFS. I use key redefinition extensively to avoid retyping such things as "713-" and "Houston", "Texas", and "77" in the city, state and zip code slots. Data can be entered into more than one data field by including a right arrow or carriage return as part of the key redefinition. Key redefinition can also be used to speed up typing an assembly language program by redefining various shifted keys to enter "LDA", ".EQ $", etc.

With the addition of the Videx Function Strip, which plugs into the Enhancer IIc, you can have up to 16 additional keys which can be defined independently of the main keyboard. If you edit a newsletter or have other reason to use several word processors, you probably confuse the various commands as you go from one program to another. With the function strip you can set up a Macro file for each word processor so that the first key is "INSERT", the second is "DELETE", etc. This approach would be useful if you use more than one assembler, since the directives vary significantly from one to another. Of course, even more exotic uses can be thought up, such as log-on sequences when dialing another computer, printer configuration commands, etc. The possibilities are endless.

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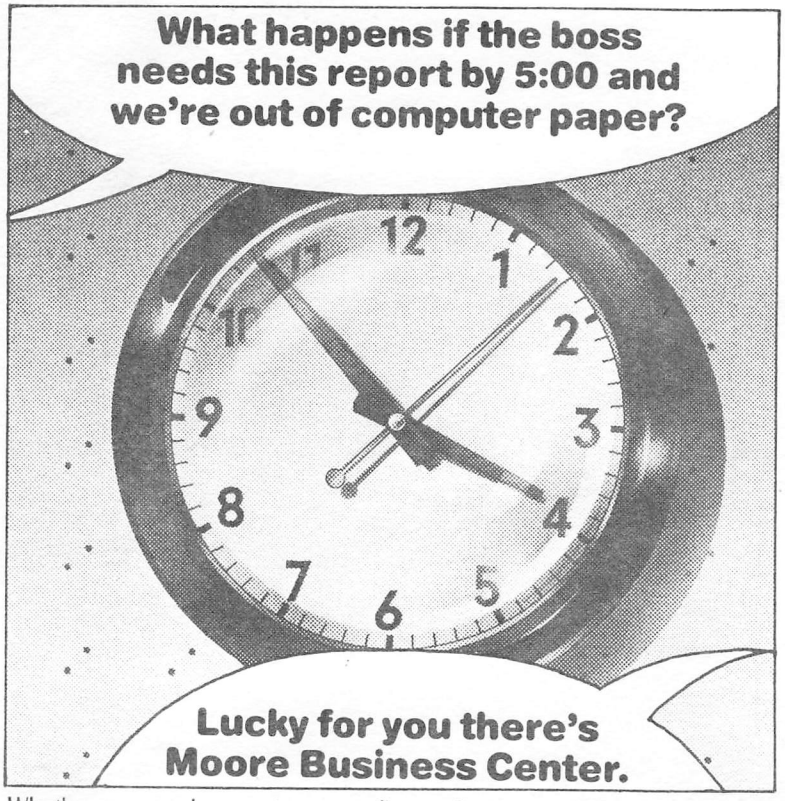

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