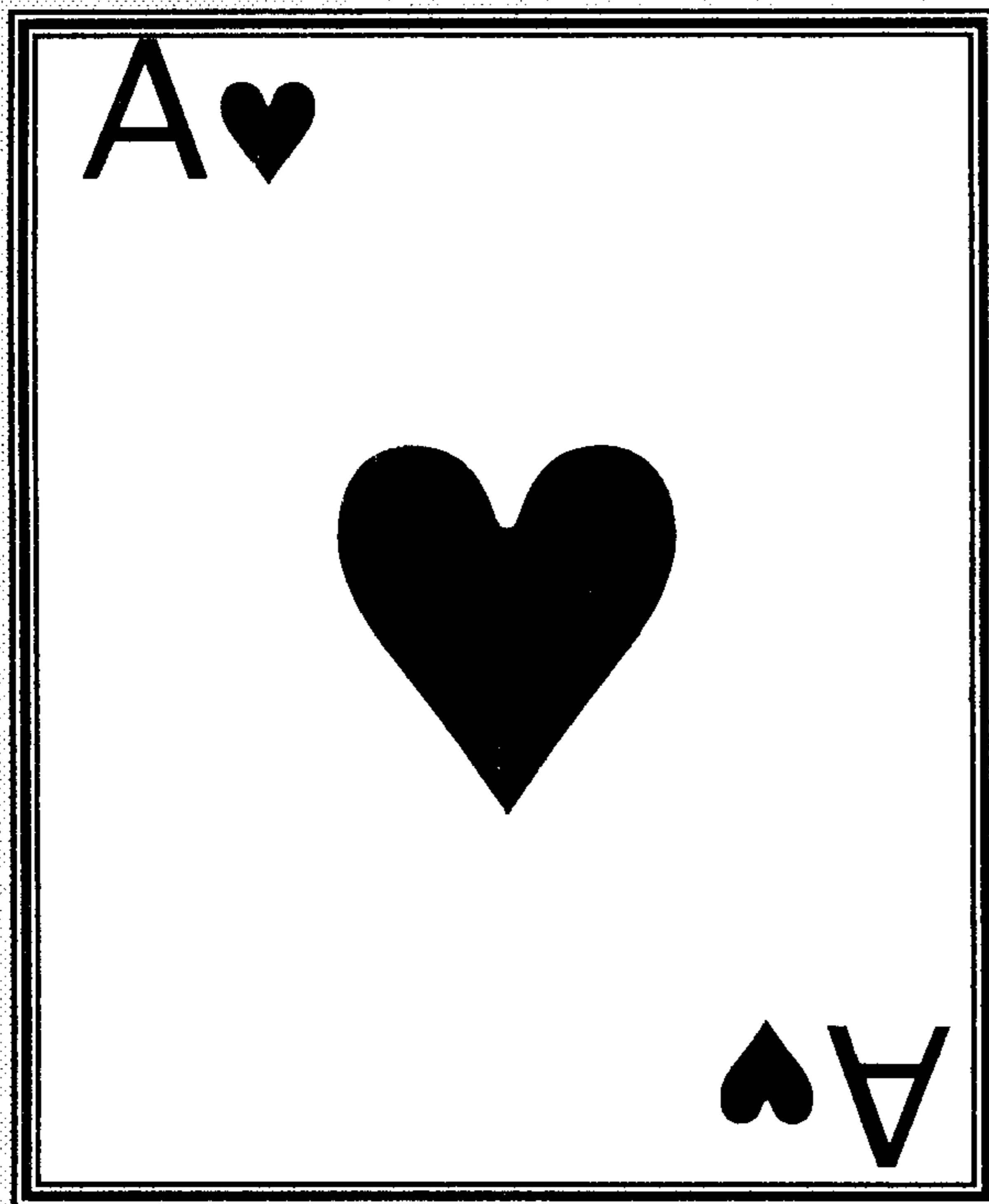


MICROpendium

Volume 13 Number 1

February 1996

\$3.50



♥ ♦ ♣ ♠

Playing cards

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Jim Peterson Award Nominees

Fast Extended BASIC

More Home Computer Era History

Recreating TI Documents

Converting TI-Artist Instances

**MICRO-Reviews: Remind Me! Calendar,
MBP Real Time Clock Card, Remind Me!**

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MICROpendium

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Laura Burns.....Editor

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*READ THIS

Here are some tips to help you when entering programs from MICROpendium:

1. Most BASIC and Extended BASIC programs are run through Checksum, which places the numbers that follow exclamation points at the end of each program line. Do not enter these numbers or exclamation points. Checksum is available on disk from MICROpendium for \$4.
2. Long Extended BASIC lines are entered by inputting until the screen stops accepting characters, pressing Enter, pressing FCTN REDO, cursoring to the end of the line and continuing input.

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- #52 ANIMATION 99
- #69 PLAYER PIANO
- #93 KBGB GIRLIE CALENDAR (P) *
- #103 SORGAN (ORGAN)
- #107 STARTREK MUSIC ALBUM
- #111 POPMUSIC & GRAPHICS
- #114 PANARAMA
- #115 GRAPHICS DESIGN
- #120 BITMAC (P)
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- #231 THE SINGING TI VOL. 3 (S)
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- #35 PROGRAMMING AIDS/UTIL. VOL. 1
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- #53 HACKER CRACKER
- #55 SCREEN DUMP (P)
- #62 DISK MANAGER II (M)
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- #76 PROGRAMMING AIDS/UTIL. VOL. 2
- #78 ARTCON GRAPHICS CONVERTER
- #79 DISK MANAGER 1000
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- #85 AUTOBOOT UTILITY
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- #71 KIDS LEARNING VOL. II
- #95 WEATHER FORECASTER
- #138 FIREHOUSE COOKBOOK
- #142 TOUCH TYP. TUTOR (M)
- #184 FACE MAKER (M)
- #194 ST. NICK (M)
- #195 TINY LOGO
- #196 JOTTO
- #199 MILLIKEN ADDITION (M)
- #200 MILLIKEN DECIMALS (M)
- #203 MILLIKEN FRACTIONS (M)
- #204 MILLIKEN INTEGERS (M)
- #205 MILLIKEN LAWS MATH (M)
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- #213 MILLIKEN PERCENTS (M)
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- #216 METEOR MULTIPLE (M)

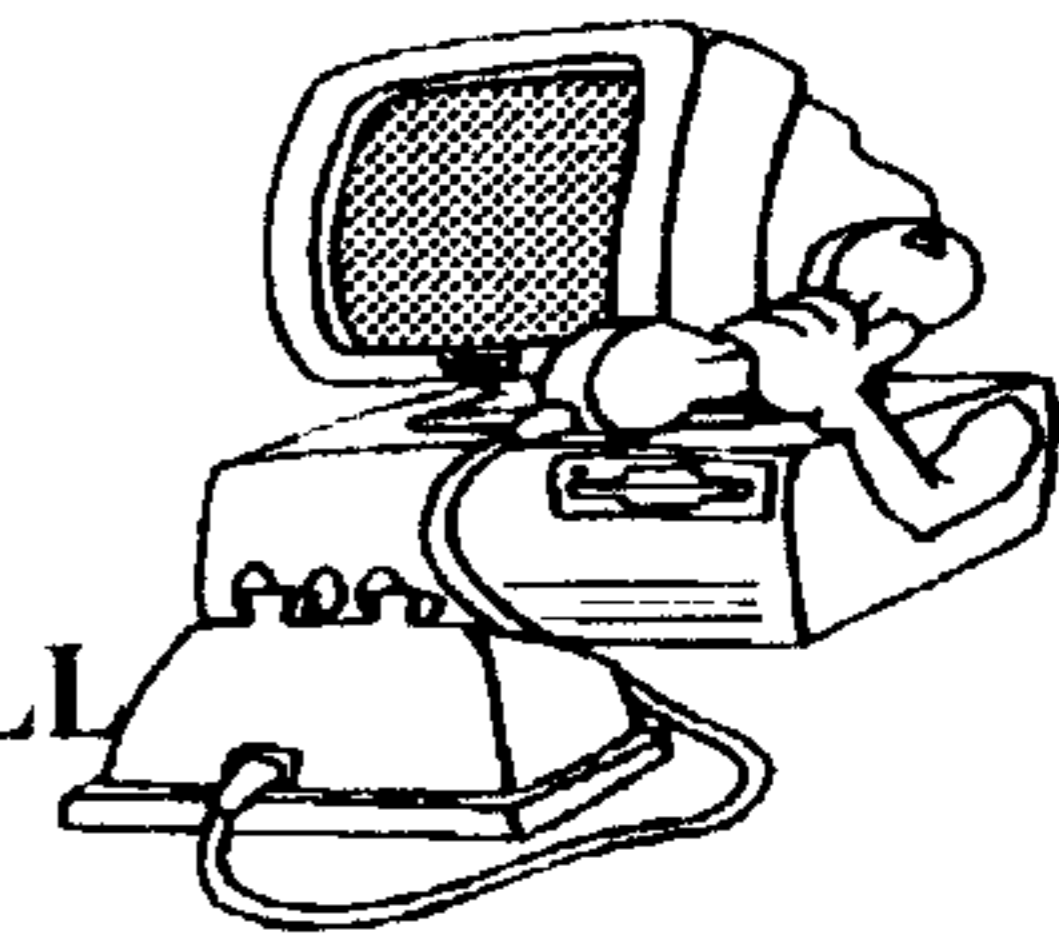
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- #223 PHYSICAL FITNESS (M)
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- #227 DEMOLITION DIVISION (M)
- #228 DRAGON MIX (M)
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- #262 ASTRONOMY 3
- #263 ASTRONOMY 4
- #264 HIGHER MATH
- #265 HIGHER MATH 2
- #266 ELECTRONICS MATH
- #268 CALCS. & CONVERTERS
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- #39 GREAT GAMES VOL. 2
- #43 BEST OF BRITAIN VOL. 1
- #45 BEST OF BRITAIN VOL. 2
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- #47 INFOCOM RAPID LOADER
- #48 GHOSTMAN
- #49 DEMON DESTROYER
- #50 OH MUMMY!
- #51 BERLIN WALL
- #60 FREDDY
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- #64 MAJOR TOM & SPACE STATION
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- #102 COLOSSAL CAVES (ADV.)
- #105 KINGS CASTLE
- #106 QUEST "D&D ADV."
- #121 SUPER YAHTZEE & WHEEL II
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- #123 GREAT TI GAMES VOL. 5
- #124 GREAT TI GAMES VOL. 6
- #125 BLACKJACK & POKER (M)
- #126 VIDEO CHESS (M)
- #128 TETRIS
- #131 COMPUTER CRAPS
- #135 ARTURUS
- #137 CROSS-FIRE (M)
- #139 MOON MINE (M)
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- #145 BUCK ROGERS (M)
- #148 KENO & SLOTS
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- #150 ULTIMATE TRIVIA
- #176 AMAZING (M)
- #178 DEMO DEDYTROYER (M)
- #179 POPEY (M)
- #180 QUEBERT (M)
- #181 METOER BELT (M)
- #182 BLASTO (M)
- #183 CARWARS (M)
- #185 SUPER FLY (M)
- #186 SPACE BANDITS (M)
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KEY

P = PRINTER REQ.
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MM = MINI MEMORY
E/A = EDITOR ASSEMBLER
ADV = ADVENTURE REQ.
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COMMENTS

Considering options

We've received some more bad news from our printer. The cost of printing MICROpendium is going up in March. The cost of labeling the magazine will more than double.

We've reached a point at which there is nothing else we can do to trim costs. Our choices have been reduced. Based on current and projected revenues, we cannot continue for long to publish MICROpendium in its present form on a monthly basis.

We've been considering several options. One is to publish it nine times a year instead of 12. This is approximately every six weeks, instead of every four weeks. There is a possibility that we could increase the number of pages per issue to 40, at least some of the time. But we couldn't do this every month because that would negate most of the savings that would result from eliminating three issues per year.

Another option is to cut back to bimonthly, or six times per year. In this case we'd definitely increase the number of pages, at least to 40 and maybe to 48.

Another option is to output it to a laser printer and offer it without binding. We'd probably use three-hole punched paper, printing on both sides. It would be mailed in envelopes. But we'd have to buy a duplexing laser printer, which is expensive. And this would be labor intensive and possibly impractical. I'm grasping at straws on this one.

We've also considered cutting back to 24 pages per month, but that results in a very tiny savings. What seems odd is that increas-

ing the number of pages from 32 to 40 results in a sizable cost increase. Go figure.

I'm open to other suggestions.

Charging a higher price, say \$50 for a monthly subscription, probably won't fly. A sizable number of our current subscribers pay only \$25 because of fixed-income. I doubt very much they could afford an extra \$25.

I don't anticipate making these changes overnight. There are details that would have to be worked out with the post office regarding our second class mailing permit. And I'm the kind of person who waits until the last minute before finally making drastic decisions. I'd also like to get some feedback from you about what you think. A lot of you have been readers since the first issue and have as much of a stake in this as Laura and I. You can mail feedback, or contact us on the Internet at jkoloen@io.com or on GE-nie, at J.KOLOEN or on Delphi at MICROpendium.

As a reassurance, I don't anticipate MICROpendium closing down anytime in the near future, regardless of what happens.

CECURE'S NEW TECH NUMBER

If you're looking for technical support from Cecure Electronics, don't call its toll-free order line. The toll-free number is now operated outside of the company and the person answering it is not a technician. As their ad states, it's for orders only. If you want technical support, you can reach them at 414-679-9918.

—JK

FEEDBACK

Lack of support goes both ways

I went to the Lima Multi Users Group Conference in May of 1994 and saw the TI

Emulator demoed.

I purchased a disk at the fair and sent in my registration fee of \$40 at that time. I was told at that time and the printed file that came with the TI Emulator stated:

READER TO READER

Bill Gaskill, 2310 Cypress Court, Grand Junction, CO 81506, Ph: (970) 242-8842, writes

I am trying to use Asgard's Schedule Manager v1.3 to track personal information on my 99/4A. However, it appears that v1.3 cannot handle dates past 1993, because I have not been able to set up a calendar or a notebook for any date later than 12/31/93. Looking at the Extended BASIC code in the SCHED1 program seems to verify this, as several lines (1100, 1102 for example) contain

89 and 93 as the lower and upper ranges for calculating dates. Does anyone have a list of all the code changes or "fixes" required to make Schedule Manager work beyond 1993?

Reader to Reader is a column to put TI and Geneve users in touch with other users. Address questions to Reader to Reader, c/o MICROpendium, P.O. Box 1343, Round Rock, TX 78680. We encourage those who answer the questions to forward us a copy of the reply to share with readers.

All the cartridge transfers I have in my library, along with archives of any files included with those programs.

The modules that I have transferred that will be included in the registration package:

The Attack
Household Budget Management
Carwars
Editor/Assembler
TI Invaders
Munchman
Music Maker
Parsec
Indoor Soccer
Personal Record Keeping
TI-Writer
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Disk Manager II

(See Page 6)

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(TWO DISK SET AND 54 PAGE MANUAL)
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- SMU ELECTRICAL ENGINEERING LIBRARY DISKS +MANUAL \$20
REQUIRES THE SMU COMMAND MODULE TO RUN
- UNRELEASED SMU ELECTRICAL ENGINEERING DISKS+MANUAL \$20
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- NEW HARDWARE:
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NEW 1996 CATALOG! STILL FREE AND CONTAINING MORE FOR SALE THAN ANY OTHER IT IS THE YELLOW PAGES OF THE TI WORLD

WE HAVE ADDED HUNDREDS OF TITLES AND OUR PRICES AVERAGE 50% OF WHAT TED USED TO CHARGE WHEN HE RAN COMPETITION. STILL NO EXTRA CHARGE FOR CREDIT CARD ORDERS NO "HANDLING" CHARGES NON-PROFIT SHIPPING CHARGES. YOU ONLY PAY WHAT WE PAY WE ACCEPT: PERSONAL CHECKS(4 BUSINESS DAYS FOR CLEARANCE) MONEY ORDERS MASTERCARD AND VISA

NOW AVAILABLE !!!

TRIS THE TETRIS CLONE FOR THE TI IS NOW AVAILABLE EXCLUSIVELY FROM COMPETITION COMPUTER IN CARTRIDGE FORMAT

TYPEWRITER 99 IS NOW ALSO AVAILABLE IN CARTRIDGE FORMAT

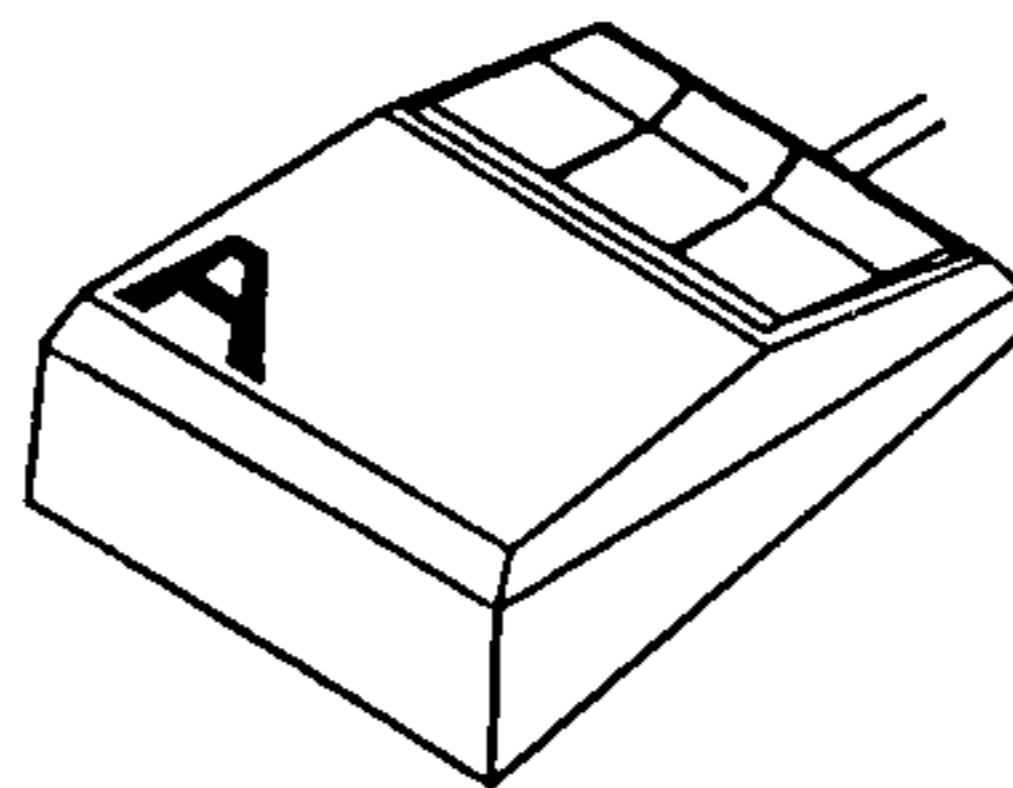
ASGARD DEVELOPED THESE CARTRIDGES SEVERAL YEARS AGO AND THEY HAVEN'T BEEN AVAILABLE FOR SOME TIME NOW BUT IN AN AGREEMENT BETWEEN COMPETITION COMPUTER AND CHRIS BOBBITT THEY ARE NOW AVAILABLE AGAIN FROM US. BOTH WILL SELL FOR \$20.00 EACH(PLUS \$3 SHIPPING FOR EITHER OR BOTH)

Asgard Mouse

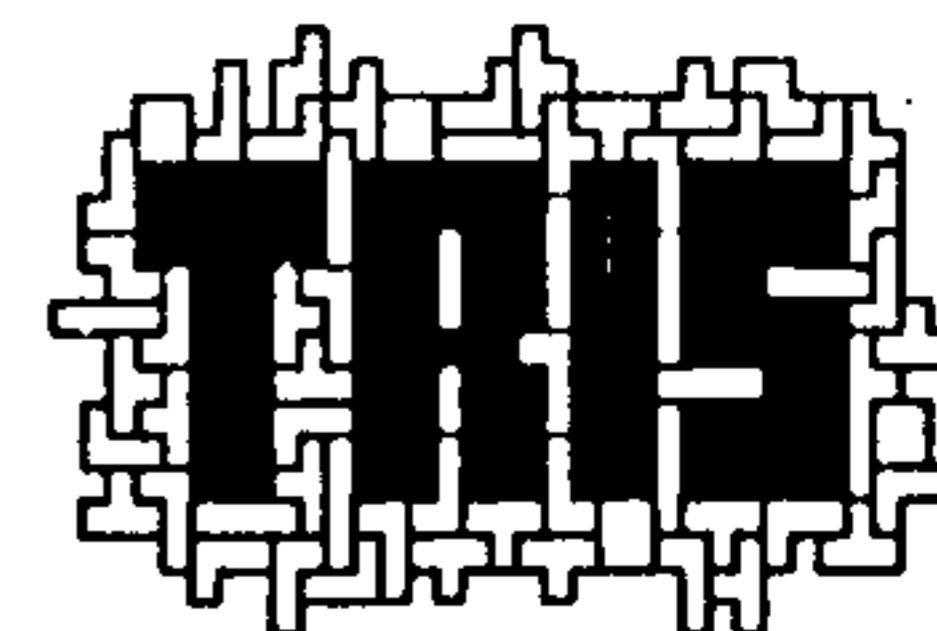
The *Asgard Mouse* is a high-quality, inexpensive serial mouse for use with the TI-99/4A and the Myarc Geneve 9640 computers. Compatible with all configurations of both computers, the *Asgard Mouse* is ideal for third-party software development as it not only functions on all systems (as no other mouse available does), it also functions the same in all situations. A solid device, the *Asgard Mouse* carries a lifetime warranty. This new and improved package includes software for interfacing the mouse to *Ti-Artist* and *Ti-Artist Plus*, several example programs, and a lengthy manual. Requires a TI-99/4A with an RS232 port or a Geneve with an RS232 card. Asgard Software products currently compatible with the *Asgard Mouse* include *Y.A.P.P.*, *Mouse Developers Package, Batch III 2.0*, *Page Pro Poster Maker, Classic Checkers, TI Pei* and many more soon.

E9150 Peripheral \$39.95

← LAST MINUTE ADDITION! Thanks Chris!



A mind-bender!
Tris



An extremely addictive mind-teaser! In Tris you must rotate and move colorful, falling shapes to fill in the holes in the bottom of the screen. Completed rows disappear but incomplete ones just cause the screen to fill up! Simple to play but difficult to master, Tris will challenge and amaze for hours. This novel game is based on the popular Russian program that perpetually tops the best-seller lists for IBM and Apple software, but it has better sound effects and color than any version ever produced! By Jim Reiss and Asgard Software.

Typewriter 99

Typewriter 99 is the remarkable program that turns your computer into a full featured electronic typewriter! A word processor is too much for some jobs - short notes, labels, addressing envelopes, etc. - that is why we wrote *Typewriter 99*. It features bold and underline commands, text justification and auto-centering. Set margins/tabs on the screen, and even see the 6 lines previously typed.

TI-99/4A™ CD ROM

CD ROM UPDATE. WE WILL BE DEMONSTRATING THE TI 99/4A CD ROM AT FESTWEST. NOW SHIPPING THE TI CD ROM FOR SINGLE USER/SUBSCRIBERS. FIRST ISSUE IS 140MB ARCHIVED. FOREIGN SUBSCRIBERS SHOULD BE AWARE EXTRA POSTAGE COSTS WILL MEAN FEWER BUT LARGER ISSUES FOR OVERSEAS SUBSCRIBERS. PRICE REMAINS AT \$100 FOR A 650MB SUBSCRIPTION(ABOUT 4-5 ISSUES FOR DOMESTIC SUBSCRIPTIONS)

IMAGINE 650 MEGABYTES OF SOFTWARE WRITTEN FOR THE TI99/4A AND 9640 ON ONE CDROM. THAT IS WHAT YOU WILL HAVE AT THE END OF YOUR SUBSCRIPTION TO THE TI 99/4A CDROM. FOR THE PRICE OF 30 -50 PUBLIC DOMAIN DISKS YOU WILL RECEIVE 1900 DISKS INITIALLY AND MANY MORE IN PERIODIC UPDATES UNTIL YOU WILL HAVE 650 MEGABYTES OF TI SOFTWARE. THATS A LOT OF SOFTWARE FOR YOUR COST OF ONLY \$100. SEND YOUR ORDER FORM WITH A CHECK OR MONEY ORDER PAYABLE TO MILLBRAE CD ROM,350 MARCELLA WAY, MILLBRAE, CA 94030. VOICE:(415) 697-1108 .FAX:(415)697-7406

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CDROM PLAYER AND PLATFORM INFORMATION:
MY CDROM PLAYER IS MADE BY: _____ MODEL#: _____
I HAVE IT CONNECTED TO: IBM/COMPATIBLE ___ MAC ___ HORIZON SCSI ___
IF YOU CHECKED HORIZON SCSI: IT IS CONNECTED TO:TI99/4A ___ 9640 ___
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WE WILL BE DEMONSTRATING THE TI CD ROM AT FEST WEST SEE YOU AT TUCSON!!!

FEEDBACK

(Continued from Page 4)

Hunt the Wumpus
Mini-Memory

This is not what I received when I registered.

I received: A-MAZE-ing, TI Logo II, TI Extended BASIC, Hunt the Wumpus and TI Demonstration.

I have written Mr. Swartz and I received a note 8/22/94 which stated as follows:

"Contrary to the promise in the TI.READ.EXE file, I am no longer able to include the archive of the transferred module ROMs in the registration files or the shareware releases.

"I will remind you that the fee you paid me was for recognition of my program and for the transfer utilities. I never was selling the modules — they served only to demonstrate how CARTxx programs worked."

Mr. Swartz in the TI-README.EXE letter states that the registration fee will include 17 modules but I only received 5.

We continually read how the users are not supporting the programmers. How can you support a programmer who promises 17 modules but sends you only 5 and then states that he was not selling them?

I now read in your Comments column (December 1995) how Mr. Swartz did not receive the support for his program. The above may be the reason.

I read in the newsletters that when he first posted his program he stated specifically that he did it for fun and that he did not expect any remuneration. I now read in various newsletters that he has an updated version (version 6) and has renamed it V9T9 and now is only asking \$25.

This is a great program, but without the complete package you were promised it falls flat. The program that I received was the same one that was on the bulletin board, but since I do not belong to that BB

I sent in the money as requested and got the short version.

This is another problem that we have developed, and I hope other programmers will not follow Mr. Swartz down the wrong road, as some of us users do send in payment for the programs and expect what was advertised.

Frank W. Aylstock
Yorba Linda, California

Fort Wayne group still meeting

The Fort Users Group meets on the second Saturday of the month at the Shawnee Branch Library, 5600 Noll Ave., Fort Wayne, Indiana. Meetings are normally 10 a.m.-1 p.m.

John Cains
Secretary-Treasurer
Ossian, Indiana

Defending TELCO

I read Charles Good's review of Term80 in the December MICROpendium with a great deal of interest because I purchased Term80 in October 1995 and can not get it to do all the good things he claimed in the review. However, I must come to the defense of TELCO, which is the only emulation that I can get to work almost flawlessly in connecting to the local Freenet, local Library catalog, etc., with my 99/4A. He mentioned that TELCO "produces a 40-column display that is hopelessly confusing." He also stated that "the confusion is more than what you get with a word processor."

I submit that the statement is not quite true. If one configures TELCO's autodialer to reflect ANSI as the type of emulator and a screen width of 80, then TELCO will display an 80-column screen. You must

use FCTN-5 to toggle right and FCTT to toggle left to review the total 80 characters. Reviewing 80 columns on the screen without toggling is certainly preferable, but since I can not get Term80 to connect to an outside agency, toggling TELCO back and forth (a minor inconvenience) has kept me on the network.

Believe me, I'm still trying to get Term80 up and running.

Harold Timmons
Columbus, Ohio 43230

TI-BAR revisited

You missed something important in your TI-Bar review. Cecure Electronics sent me the software and I was preparing a MICRO-Review. I printed some envelopes and took them to the post office for evaluation. Their scanners can read TI-BAR's bar codes, but *only* if they are within 0.5 inch of the bottom of the envelope. The post office always puts its bar codes there. I have received several TI-BAR coded exchange newsletters with additional post office bar code placed at the bottom. If you position the envelope in the printer so that the TI-BAR bar code will appear at the bottom, then the sendee address appears at the bottom center of the envelope and the return address appears in the left middle of the envelope, which doesn't look good.

I suspect that the problem can be fixed by changing TI-BAR's Extended BASIC code, but the author and not I should make the change. As it is sold, TI-BAR is not as useful as it might otherwise seem.

Charlie Good
Venedocia, OH

Send your letters and comments to
MICROpendium Feedback, P.O. Box
1343, Round Rock, TX 78680.

Tesch modifies Archiver to handle hard drives

Tim Tesch has uploaded Archiver 4.0 with hard drive capability to GENie and Mike Maksmik's BBS. The program has also been uploaded to Delphi.

In his message regarding the program, Tesch states "Archiver 4.0 is now avail-

able. Yes, I did another one of those reverse engineering deals to update a program. This version allows you to unarchive files from any hard drive device (or floppy) to another hard drive device (or floppy). Archiving process is still floppy

only due to memory constraints, but a I wanted to make sure that *both* TI and Geneve users could use it, so I did not make this version Geneve-specific."

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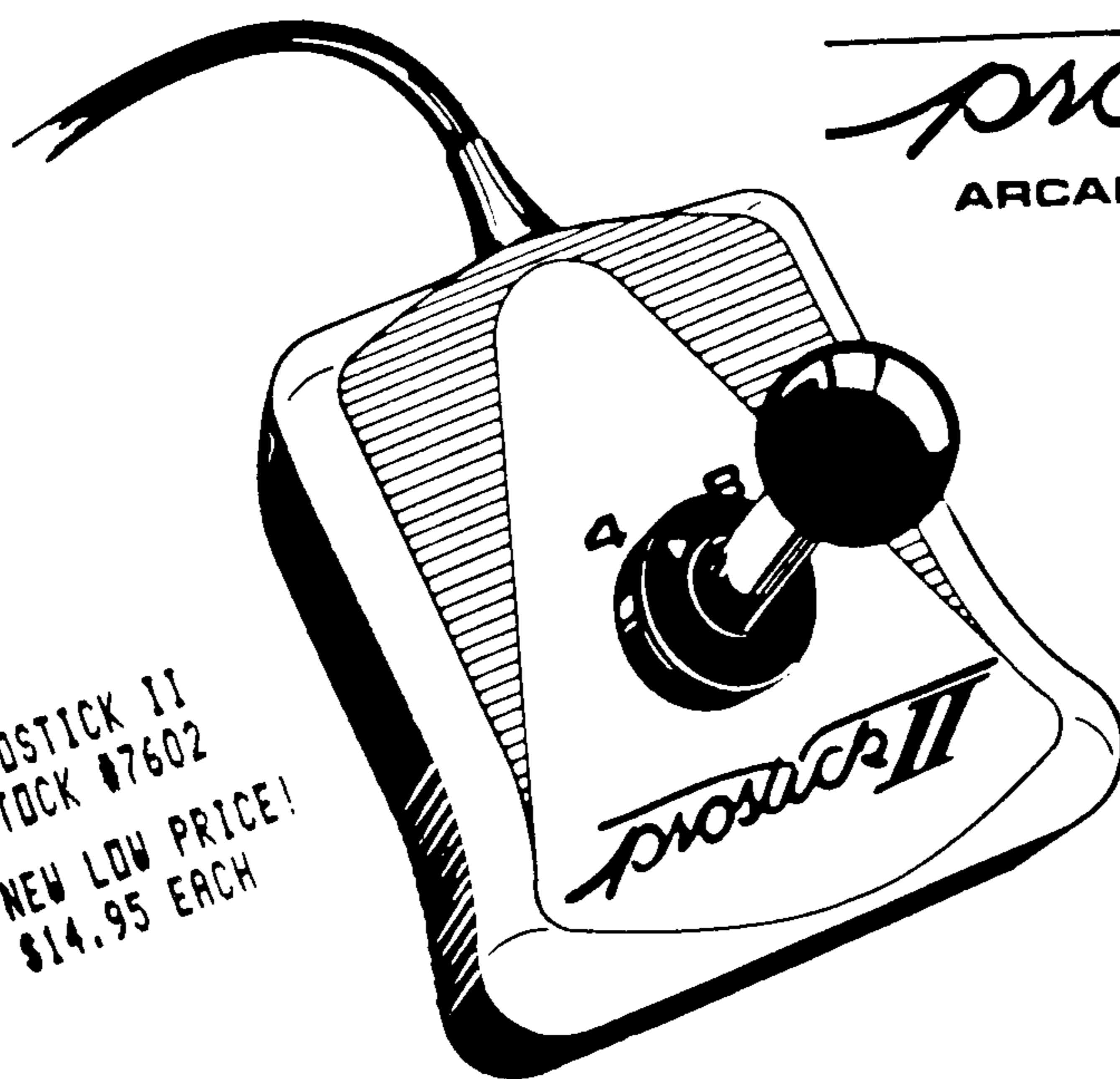
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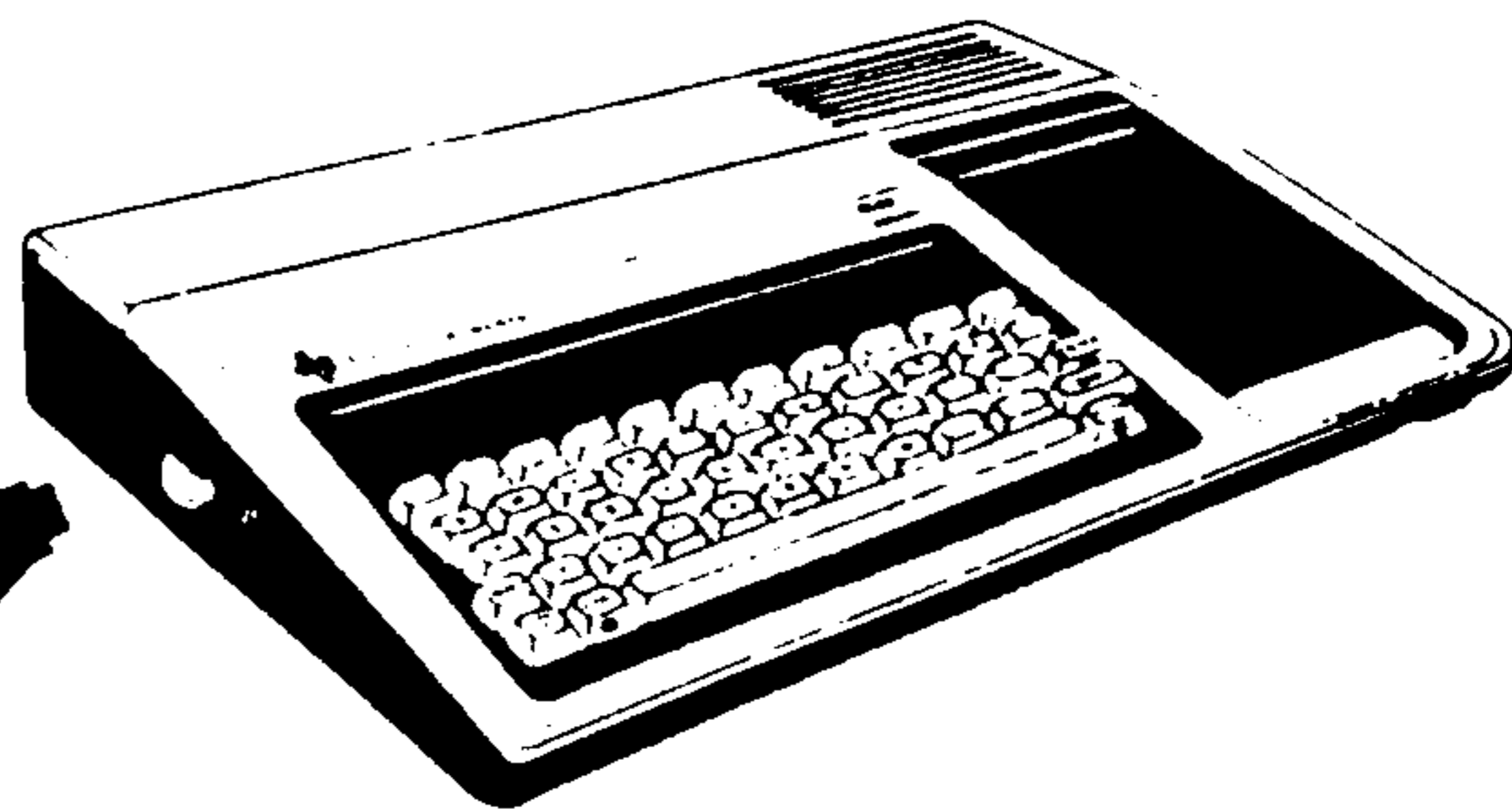


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Jim Peterson Achievement Awards **Nominees listed, voting ends April 25**

Nominees have been selected for the 1996 Jim Peterson Achievement Award, according to an Internet post by Jim Krych.

All responses, according to the rules of the award, should go to Deanna Sheridan. TI and Geneve users can email them to: aa726@cleveland.freenet.edu; or mail them to: Deanna Sheridan, Jim Peterson Achievement Award, 20311 Lake Rd., Rocky River, OH 44116.

The last day to receive votes is April 25.

Nominees in the software category are Art Green, Tony and Will McGovern, Chris Bodenmiller, Jeff Brown, Ken Gilliland, Ron Wolcott, Barry Boone, Bill Reis, Bruce Harrison, Brad Snyder, Bill Gaskill and Clint Pulley.

Hardware nominees are Bud Mills and the SouthWest 99ers (SuperAMS).

Community nominees are Dr. Charles Good, Jack Sughrue, Eunice Spooner, John Koloen/Laura Burns, Barry Traver and Martin Smoley.

Nominees in the 9640 category are Tim Tesch, James Schrader, Don Walden, Western Horizon Technology's SCSI, Beery Miller, Clint Pulley, Barry Boone and Mike Maksimic.

The Cleveland Area Users Groups are conducting voting for the awards to honor the late Jim Peterson, who published a great deal of software for the TI99/4A through his company, Tigercub Software, and who made his column, Tips from the Tigercub, available to users group newsletters. He was a founding member of the Central Ohio 99ers and contributed articles to *MICROpendium*. Peterson died in January 1994 at age 70. The award is planned for presentation annually at the

The Cleveland Area Users Groups are conducting voting for the awards to honor the late Jim Peterson, who published a great deal of software for the TI99/4A and who was a founding member of the Central Ohio 99ers.

Ohio Multi Users Group Conference.

Nominations had to be made by a person or group other than the one nominated.

Awards are designed for presentation on the following bases:

Software Achievement: Awarded to the individual or group whose programming efforts have made a lasting and valuable contribution to the TI 99/4A computer. Product must be an actual program that is past the beta, or prototype, stage. Program may be shareware, fairware, commercial or public domain.

Hardware Achievement: Awarded to the individual or group whose product has increased the usefulness and longevity of the TI99/4A. This must be an actual, working, product, and not an unfinished project. Unfinished product is defined as hardware lacking needed software to run the device.

Community Achievement: Awarded to the individual or group that has best

served the TI and Geneve community's needs. (Any person or group who has made an effort to increase the life of the 99/4A community.)

9640 Achievement: Awarded to the individual or group that has designed hardware or software that has extended the usefulness of the 9640 Computer. Software, criteria defined in the Software Specialty, and hardware, criteria defined in the Hardware Specialty, that was created by an individual or group effort, to increase the life and usefulness of the 9640 computer.

Awards are scheduled to be presented at the closing of the Ohio MUG Conference.

Voting can be on all four of the items, or as few one, according to the award's sponsors. Only one vote is allowed per category, or the vote by that person is validated. Results are based on largest number of votes, per item. There are no second-place or runner-up awards.

The award sponsors say they will send award winners a confidential mail packet saying that they have won the Achievement Award in their area of specialty. If regular mail will be too slow, then e-mail or other means will be used to notify. If a person or group cannot attend, a person of the award winner's choice, to represent that individual or group, will be allowed to accept the award on the winner's behalf.

A list of each year's winners is planned to be kept as the "Class of xxxx." A picture of the person or group will be kept in a journal. The group sponsoring the Ohio MUG Conference is responsible for the records.

Frantz closes TI computer brokerage, not enough sellers

Raymond Frantz, of Phoenix, Arizona, says he has shut down his brokerage for used TI equipment.

The business matched sellers of TI

equipment with buyers wanting the equipment.

Frantz says the only reason he closed the business is that he had "buyers but no sell-

ers." He says a number of transactions took place through the business, but that eventually the situation occurred that "nobody wants to get rid of their stuff."

Fast Extended BASIC

Program lets user test sprite attributes before programming

By LUCIE DORAIS

©1995 L. Dorais

The following was originally published in the newsletter of the Ottawa 99/4A User Group.—Ed.

Sprite Tester allows you to test all the sprite attributes before you actually write your program line: definition, color, starting position (dotrow and dotcolumn), motion (velocity), and magnification. The variables are kept on the screen all the time, and change before your eyes as you play with them. If you don't want to enter a sprite definition, there is a pre-defined sprite. This program could also be useful for people who just want to learn more about sprites.

We start by defining PD\$ as our pre-defined character, repeated four times to make a sprite; N\$ is a 32-character string used in the test screen. In line 140, we initialize the limit checking values for sprite movement: I hope to have made the movement routines a bit faster by using variables. The remainder of the line is the beginning of the pre-scan.

The program proper starts in line 160. You must choose between a pre-defined sprite (CHAR 136=PD\$ in line 170) or your own. In this case, you enter four lines of hex codes (for four characters). If you need only one character (magnification 1 or 2), enter nothing on lines 2-4; lines 200-210 will adjust the default magnification and define characters 136-139 accordingly.

Lines 220-230 display the instructions — STEPPING means the number of pixels the sprite will jump if you position or move it. The starting default "J" is set to 8 in line 250, for a full character jump. For fine tuning, press any digit key from 1 to 8. I used "K" for Color because "C" is used to position the sprite.

Other variables initialized here are sprite color, starting dotrow and dotcolumn, and velocities. After you press any key, the test screen is built, with the 24 rows and 32 columns numbered at top and

left (the sprite's dotrow and dotcolumn pixel values are eight times bigger). The CALL SPRITE statement and the magnification factor are displayed at the bottom, with a line of explanation (290). Because we refresh that statement each time we change something, we use the subroutine in line 520 to display an IMAGE. But since the character "#" tells Tex to expect a value, how do we display that character for itself? Well, we send it as a constant string value, along with the other variables.

Now you can start to play with your sprite! You can find its starting position or set it in motion, but you cannot do both at the same time. The flag MOT is set to "0" when velocity values CV and RV are 0 (line 300). Otherwise, as soon as you press an Arrow+FCTN key, MOT is set to "1" and the position keys (ESDXWRZC) will not respond anymore (line 330: IF MOT THEN 310; remember, IF MOT means IF MOT<>0). If you want to modify the starting position after you started motion, just play with CV[EL] and RV[EL] until they are both 0: line 300 will then reset MOT to 0 and relocate your sprite at its starting position indicated by DR and DC. To indicate that you are back into "positioning," the little squares reappear in the background. The other functions, Color (K), Magnification (M), Stepping (1-8) and Exit (Q) can be used any time, whether positioning or moving the sprite.

The digit key press is dealt with in line 320 — stepping default J is reset to the key value minus 48. Changing color is done in lines 470-480; it is a cycle, coming back to black (2) at the end. Magnification (lines 480-490) is also a cycle. Upon exiting with Q, you are asked if you want to Rerun or Quit.

I tried to simplify my positioning and moving routines. I still use a user-defined SUB SP to check for limits Y and Z passed as parameters A, B, C, D (initialized in line 130). But by carefully designing the key-pressed position string (line 330), I

grouped them by two and found that the only difference for DR or DC is in the stepping: positive or negative, depending on K being odd or even. By setting ST to j or -J accordingly (line 340), I got rid of half the moving statements! J is still used when we move the sprite diagonally (lines 380-390). Those four lines all lead to line 400, where the sprite is re-located and the new values are shown on the screen.

As soon as you press a FCTN+Arrow, i.e. a key value of 8-11, you branch to line 410; flag MOT is set to "1" and the little squares (character 140) disappear. Then again, ST becomes J or -J depending on the key pressed (the odd-even bit did not work here...). Lower limit for velocity is really -128, but I set it to -127 (-D) for simplicity. Again, our sub SP does the job of stepping and checking. The sprite motion is modified in line 450, and the new values are displayed by sub 520. Have fun!

SPRITETEST

```

100 ! SPRITE TESTER / L.Dora
is, Ottawa UG / Aug. 89 !127
110 !!131
120 CALL CLEAR :: CALL SCREE
N(4) :: CALL COLOR(14,3,4)!07
8
130 PD$=RPT$("993C7EFFFF7E3C
99",4) :: N$=RPT$("1234567890
",3)&"12" !156
140 A=1 :: B=192 :: C=256 ::
D=127 :: GOTO 160 :: A$,CV,
DC,DR,J,K,MA,MOT,RV,S,SC,ST,
X :: CALL KEY :: CALL CHAR :
: CALL HCHAR !249
150 CALL SPRITE :: CALL DELS
PRITE :: CALL MAGNIFY :: CAL
L LOCATE :: CALL MOTION :: !
@P- !001
160 DISPLAY AT(3,9)ERASE ALL
:"SPRITE TESTER" : : : "SPRI
TE: <1> pre-defined" : : "
<2> user-defined" !229
170 GOSUB 530 :: MA=1 :: IF
K=49 THEN CALL CHAR(136,PD$)

```

(See Page 10)

EXTENDED BASIC —

(Continued from Page 9)

```

:: GOTO 220 !147
180 DISPLAY AT(16,1):"SPRITE
DEFINITION:" !133
190 FOR X=18 TO 21 :: DISPLA
Y AT(X,2):">" ;TAB(19);"<" ::
ACCEPT AT(X,3)VALIDATE("012
3456789ABCDEF")SIZE(-16):A$
!209
200 IF X>18 AND A$<>" THEN
MA=3 !045
210 CALL CHAR(118+X,A$):: NE
XT X !250
220 DISPLAY AT(1,1)ERASE ALL
:"In the SPRITE TEST screen,
": "PRESS:" : " ARROWS/WRZC
to POSITION it": "then": :
" FCTN+ARROWS for MOTION." !
176
230 DISPLAY AT(12,1):"any ti
me": : " 1-8 to change STEPP
ING": : " K to cycle COLOR":
: " M to cycle MAGNIFICATION"
: : " Q to EXIT" !011
240 DISPLAY AT(24,3):"press
ANY KEY when ready" !183
250 CALL KEY(0,K,S):: IF S=0
THEN 250 ELSE CALL CLEAR ::
J=8 :: SC=2 :: DR=73 :: DC=
113 :: RV,CV=0 !074
260 FOR X=1 TO 32 :: K=ASC(S
EG$(N$,X,1)):: CALL HCHAR(1,
X,K)!129
270 IF X>1 AND X<25 THEN CAL
L HCHAR(X,1,K):: CALL HCHAR(
X,2,140,31)!066
280 NEXT X :: CALL MAGNIFY(M
A):: CALL SPRITE(#1,136,SC,D
R,DC)!238
290 DISPLAY AT(24,1):"(s#,c#
,co,dro,dco,rvel,cvel)" :: C
ALL HCHAR(24,32,109)!130
300 IF RV=0 AND CV=0 THEN MO
T=0 :: CALL CHAR(140,"FF8181
81818181FF"):: GOTO 400 !149
310 CALL KEY(0,K,S):: IF S=0
THEN 310 ELSE IF K>7 AND K<
12 THEN 410 !145
320 IF K>48 AND K<57 THEN J=
K-48 :: GOTO 310 !195
330 K=POS("EXSDWRZCKMQ",CHR$
(K),1):: IF K=0 THEN 310 ELS
E IF K>8 THEN 460 ELSE IF MO
T THEN 310 !038
340 IF K/2=INT(K/2)THEN K=K-

```

ROOTS answers a need I had for years: Tex can give the square root of any number with SQR(x), but I sometimes needed the cubic root, and found no function. I got the answer in a math program on TV Ontario....

```

1 :: ST=J ELSE ST=-J !117
350 ON (K+1)/2 GOTO 360,370,
380,390 ! position sprite !0
63
360 CALL SP(DR,ST,A,B):: GOT
O 400 !178
370 CALL SP(DC,ST,A,C):: GOT
O 400 !164
380 CALL SP(DR,-J,A,B):: CAL
L SP(DC,ST,A,C):: GOTO 400 !
219
390 CALL SP(DR,J,A,B):: CALL
SP(DC,ST,A,C)!183
400 CALL LOCATE(#1,DR,DC)::
GOSUB 520 :: GOTO 310 !238
410 MOT=1 :: CALL CHAR(140,"
"):: IF K=9 OR K=10 THEN ST=
J ELSE ST=-J !072
420 ON INT(K/2)-3 GOTO 430,4
40 ! move sprite !227
430 CALL SP(CV,ST,-D,D):: GO
TO 450 !174
440 CALL SP(RV,ST,-D,D)!041
450 CALL MOTION(#1,RV,CV)::
GOSUB 520 :: GOTO 300 !038
460 ON K-8 GOTO 470,490,510
! color,magnify,quit !121
470 SC=SC+1 :: IF SC=17 THEN
SC=2 !048
480 CALL COLOR(#1,SC):: GOSU
B 520 :: GOTO 310 !122

```

```

490 MA=MA+1 :: IF MA=5 THEN
MA=1 !219
500 CALL MAGNIFY(MA):: GOSUB
520 :: GOTO 310 !086
510 DISPLAY AT(12,1)BEEP:" P
ress <1> RERUN <2> QUIT" :
: GOSUB 530 :: IF K=50 THEN
END ELSE CALL DELSPRITE(#1):
: GOTO 160 !064
520 DISPLAY AT(23,1):USING "
(#n,ch,##,###,###,####,####)
": "#",SC,DR,DC,RV,CV :: CALL
HCHAR(23,32,MA+48):: RETURN
!106
530 CALL KEY(0,K,S):: IF S=0
OR K<48 OR K>50 THEN 530 EL
SE RETURN !079
540 !@P+ !062
550 SUB SP(V,S,Y,Z):: V=V+S
:: IF V<Y OR V>Z THEN V=V-S
!189
560 SUBEND !168

```

ROOTS

ROOTS answers a need I had for years: Tex can give the square root of any number with SQR(x), but I sometimes needed the cubic root, and found no function. I got the answer in a math program on TV Ontario: you cube many carefully chosen numbers until the result matches your input number. This is called the "Averaging" process because at each pass the program decides if your answer lies before or after the average value of HI and LO. And why not add more roots? My program works with roots 1 to 9!

ON WARNING NEXT in line 120 tells Tex to repeat the statement if by mistake you enter a letter (or nothing) where it expects a number. E\$ is a 6-line eraser, and S\$ just some spaces. I cut the character definition to single characters, but of course you could CALL CHAR(120,"0000....101"), i.e. up to 123, as one long string.

Line 150 displays a nice root symbol on the screen and GOSUB 280 to ask for a root value, default being 3. The ACCEPT routine in the sub should not accept 0, therefore we validate a string instead of digit. The ACCEPT N statement in line 160 validates numeric because it has to include "E+" if you wish to use scientific notation — even if you don't, Tex will for

(See Page 11)

EXTENDED BASIC —

(Continued from Page 10)

very big numbers (see below).

Next we deal with root values of 1 and 2, which don't need the averaging process. Any number powered to 1 is always itself, therefore its one root is also itself; and of course the XB guru gave us the SQR(x) function to find square roots.

The averaging process starts in line 180: we arbitrarily set LO to zero, and HI to the SQR value of our number N; why not? It will always be higher than our final answer. Next, AV becomes the average of HI and LO, and Tex finds what the answer T would be if AV were raised to the R power. In line 200, it is told to stop when the current AV is equal to the previous (OAV) one, otherwise it could go on forever!

If AV and OAV are still different, we go on. If our number N is smaller than the trial answer T, the root we are seeking is between LO and the average value AV. Therefore, AV becomes the new HI. Otherwise, if N is higher than T, its root is between AV and HI, so AV becomes LO, and we return to line 190. Harder to explain than to do. Tex takes only a few seconds, and displays all its intermediate AV values in line 200. The final AN(swer) is displayed in line 220, preceded by a "="

and announced by a beep. You can then print the result if you wish (with a nice root symbol), or change the default root, do another, or quit.

How accurate is it? Well, up to a few decimals, and I think only the really big numbers are a bit off mark, because Tex transforms them into scientific notation. For example, for the cubic root of 57899987899, I got 3868.65045. Tex printed "5.79E+10" as my number. So I reentered 5.79E+10 as my N value, and got 3868.650719. If you stick to smaller values, you will be closer to the truth.

ROOTS

```
100 ! ** ROOTS ** L.Dorais/O
ttawa UG/July 1989 !071
110 !!131
120 ON WARNING NEXT :: CALL
CLEAR :: PR$="PIO" !226
130 L$=RPT$("}",28):: E$=RPT
$(" ",168):: S$=RPT$(" ",8)!
069
140 CALL CHAR(120,"000000000
002050F",121,"1F102020404080
80",122,"018182C2C4646830",1
23,"0B0101",125,"FF")!167
150 DISPLAY AT(5,9):"x3y"&RP
T$("}",10):S$&"{z" :: GOSUB
```

```
280 !011
160 ACCEPT AT(6,12)VALIDATE(
NUMERIC)BEEP:N :: IF R>2 THE
N 180 !100
170 IF R=1 THEN AV=N :: GOTO
220 ELSE AN=SQR(N):: GOTO 2
20 !151
180 AN=N^(1/R)!221
220 DISPLAY AT(12,8)BEEP:"="
;AN !203
230 DISPLAY AT(22,1):L$:" [A
]nother [C]hange root [P
]rint [Q]uit" !181
240 CALL KEY(0,K,S):: IF S=0
THEN 240 ELSE K=POS("ACPQ",
CHR$(K),1)!226
250 IF K=0 THEN 240 ELSE ON
K GOTO 260,260,270,290 !085
260 DISPLAY AT(7,12):E$:E$:E
$ :: IF K=2 THEN GOSUB 280 :
: GOTO 160 ELSE 160 !183270
OPEN #1:PR$ :: PRINT #1:S$&"
_____":S$&" "&STR$(R
)&"/" :: PRINT #1:S$&"\"/ ";N
;TAB(26);"=";AN:"" :: CLOSE
#1 :: GOTO 240 !210
280 ACCEPT AT(5,10)VALIDATE(
"123456789")SIZE(-1)BEEP:R :
: RETURN !008
290 END !139
```

NEWSBYTES

MUG plans set

The Cleveland area TI99/4A users groups, comprising the TI-CHIPS and the Northcoast 99ers, have announced further details of the Multi-Users Group Conference May 25 at the National Guard Armory in Brookpark, Ohio.

Setup will be 3:30-8 p.m. May 24, with the National Guard providing its regular after-hours security on the premises. At 8 p.m. a social get-together will be held at the Middleburgh Heights Recreation Center, with snacks and nonalcoholic beverages. Food will be available during the conference May 25.

The conference is free to attendees and vendors. However, organizers ask that reservations be made as early as possible.

For information, contact Glenn

Bernasek, 13246 Harper Rd., Strongsville, OH 44136; phone: (216) 846-0865 (after 9 p.m. EST); e-mail: dd314@cleveland.freenet.edu.

MLM enhanced

Bill Gaskill provided the following information on an enhancement he has created for his Mailing List Manager (MLM) program. It applies to version 1.2's BROWSE program and adds a GOTO option to the BROWSE program so another record number can be entered when one is already on the screen. This means a user who currently has record 25 on screen, say, can press G for GOTO or N for NUMBER and then enter a record number to jump to for printing or editing.

Users can add the enhancement to their

copies of MLM by loading the BROWSE program, then entering:

```
ELSE IF K=71 THEN 1100 ELSE IF
K=78 THEN 1100
```

to the end of line 280. Because of the length of line 280, users will probably have to bring it up under the FCTN-8 editing technique to get the extra code in, Gaskill says. He says those who are unfamiliar with that technique in Extended BASIC can create a line 282 and add:

```
IF K=71 THEN 1000 ELSE IF K=78
THEN 1100
```

Next, create line 1100 at the end of the BROWSE program.

```
1100 DISPLAY AT(24,1):"go~to
~record:";R :: ACCEPT AT(24,
15)SIZE(-5)VALIDATE(DIGIT):R
:: IF R<=B THEN 250 ELSE IF
R>B THEN R=B-1 :: GOTO 250
```

THE ART OF ASSEMBLY — PART 56

Playing cards

By **BRUCE HARRISON**

Well, another month and more random numbers. This time, however, we're going a couple of steps beyond the numbers themselves, and giving you a shuffled deck of cards on the screen. Besides giving you an extremely fast shuffle routine, we've provided a quick and easy way to "map" the numbers into suits, complete with the symbols for Spades, Clubs, Hearts and Diamonds, and the card values from Ace through King. In the sample program, we've even set things up so that the numbers for the red suits will be in red, while those for the black suits will be in black. (Yes, the Heart and Diamond symbols are in red, too)

WHAT'S IT FOR?

You decide! What's provided in today's sidebar is a complete program. It will start with a "PRESS ANY KEY TO BEGIN" prompt, so that we can perform a proper seeding of the random number generator. When you do that, lots of things will happen in just a few milliseconds. You'll see a deck of 52 cards appear on the screen almost instantly. They'll be nicely shuffled, so we can't tell you what order they'll appear in. Of course, these are not a simulation of real cards, but the numbers and symbols in their correct colors on a gray background. There will be eight rows of six cards each, then a

last row of four, for a total of 52. At the bottom of the screen will be the legends PRESS ENTER TO EXIT PGM and ANY OTHER KEY TO REPEAT. Try this second option by pressing the space bar. A new "deal" of shuffled cards will appear almost instantly. To see how fast, just start pressing keys randomly as quickly as you can. New decks will appear just about as fast as you can press keys. Impressed? We hope so. Of course, this complete program isn't a card game per se, but you can use what's here to make one, by taking pieces of this source code and building upon this base.

FROM THE TOP

The opening is conventional, simply getting us into our own workspace and putting a prompt on the screen. Instead of just getting a keystroke, however, there's some trickery done here with the Screen Timeout and Vertical Interval timers so that when we finish this "key input" loop, the random number seed at >83C0 has an unpredictable number in the range 0 through 65,535. In some of our other routines, we've used a shortcut method to "seed" our random numbers, but the way shown here gives the best possible results in terms of randomness.

We set up the colors for character sets 0 through 18 to black on gray. Later, we'll set colors for sets 19 through 21 at red on gray for the red card suits. This will leave us with a gray background color and a green border, and, as you'll see, the red card suits will have red numbers as well.

Now we set up character definitions. For this, we borrow some of the original TI character definitions, but copy them so that all of the characters we'll be using will be above the "normal" ASCII range. Thus, our first character will be at 128. That character will be an A. But first, we grab the character definitions for "2" through

"9," and copy those in as definition for characters 129 through 136. Next we take the "A" character definition and place that at 128's definition. In similar fashion, J, Q and K are copied into the definitions for 138-140. Finally, we take a special character definition that makes the number 10 in one 8x8 block, and put that in character 137. This gives us a set of 13 characters starting with 128 and going through 140 that will print as the card numbers A, 2, 3, ... J, Q, K. In order to allow for red numbers in the red suits, we'll now copy this set from 128-140 into 160-172 character definitions. Finally, we take the "suit" symbols, each of which has four character definitions, and place those in VDP where characters 144 through 159 definitions belong. We finish the preparations by setting the color bytes for character sets 19 through 21 to red on gray.

BUILD AND SHUFFLE

Now it's time for the real business of the program to start. Starting at label SHUFLE, we build an array of 52 bytes with the values 0 through 51 starting at label TBL1 in the data section. This array will be the source of our "cards." We'll take these numbers one at a time in random order into the array TBL2, which will be our shuffled deck. We've described the process of selection without replacement previously, and this shuffle works exactly that way.

DISPLAYING THE CARDS

At this point, TBL2 has the 52 numbers from 0 through 51 in random order. We take each number in turn, place that into R2, then right justify in that register, so that R2 has a value of 0 through 51. Now we clear R1, so that the register pair R1-R2 has that number in it. We then divide the R1-R2 pair by 13 (in R6). After this division, R1 contains a quotient that's 0 through 3, and R2 has a remainder that's 0 through 12. Let's take an example or four. Suppose the number in R2 were 0. When divided by 13, this yields a quotient of zero (Spades) and a remainder of 0 (Ace). If it were 15, we'd get quotient 1, remainder 2, which displays as the 3 of Clubs. For 26, we'd get a quotient of 2, with 0 remainder, and that's the Ace of Hearts. For 51, we get a quotient 3 and remainder of 12, which becomes the King of Diamonds. All clear now?

Since there are four possible states for R1, the number there will be the "suit" indicator. R2 has 13 possible values, so that will be used to represent the card numbers Ace through King. (Note that the value 0 is taken as the Ace, and 12 as the King. In some games, Ace can be either below deuce or above King, while in others it's always above the King. How it's valued in a particular game is immaterial to the use in this program.)

We check the value in R1 at this point, to see whether the suit we're dealing with is black or red. The number 0 or 1 in R1 means a black suit, while the number 2 or 3 means a red suit. The suit symbols themselves have been placed in VDP so that the first two are in one character set that's black and the other two are in a char-

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acter set that's red. We check here to see which is the case, and add an offset of 32 to the card number in R2 if the suit is a red one.

The next order of business in the program is to put the suit symbol on the screen. That process starts at label SHL, where the number in R1 gets multiplied by four to account for the fact that each suit symbol is four characters. The number in R1 now, after SHL R1,2 is 0, 4, 8 or 12. Now we add the offset 144, which is the start of the suit characters, so that R1 contains the number of the first character in one of the suits.

Confession time again. These suit symbol characters were originally used in an old Extended BASIC program we wrote, and were used with magnified sprites. Thus, the first character in the symbol is the upper left quarter, the next is the lower left quarter, the third is the upper right quarter and you can guess where the fourth one goes. Thus, this little section of source code writes a character, moves down one row, writes the next one, then moves up and right for the third and down one for the fourth.

Next to be written is the card number, which is still there in R2. It may or may not have had 32 added to it, depending on the suit. In either case, we move it to R1 and add the offset 128 to point to one of the sets of card numbers. We subtract 34 from R0 so the card number will be placed to the left of the upper left quarter of the symbol, swap the bytes in R1, perform a BLWP @VSBW, and we've got the card number and suit symbol on the screen. Now we move six spaces to the right, and we're in position to start the next card.

Before writing the next card, though, we first DEC R5, and if that's zero, we've written all 52 cards, so we skip ahead to label KEY. We also DEC R6 and see if that's become zero. If not, we can still put another card on this row. Otherwise we adjust the screen position two rows down from the start of the current row and jump back to NXT0 to start another row of six cards.

The code starting at label KEY just puts the "PRESS ENTER..." and "ANY OTHER KEY..." legends on screen, then waits for a keypress. If ENTER is pressed, we exit, and any other key (except Function=) will cause a branch back to label SHUFLE, and put a whole new shuffled deck on screen.

VARIATIONS ON THE THEME

In the part of the source file just before and after label KEY1, you'll see four lines that have been "commented out" with an asterisk. If you erase the asterisks from these lines, the program won't wait forever for you to press a key after displaying a shuffled deck. It will wait precisely four and 1/60th seconds, then will reshuffle and display again. If you don't like four seconds, change the 4 in the line LI R0,120*4 to some other number, and that's how many seconds the program will wait for a keystroke. The limit is 273 in this case, which will wait about 4.5 minutes. Pressing a key during this interval will have the same effect as before, causing a new shuffle immediately. For those who get MICROpendium on disk, we've included the file SHUFFLE/O, so you can try this out without having to assemble it.

In this program, we've "borrowed" the standard character definitions for 2 through 9, A, J, Q and K, then put in our own special character for 10, so that 10 can get printed as just one character.

You might want to design your own characters for the numbers and letters, making them a bit narrower so they'll look better with the 10 character. You might also want to make single-character suit symbols so they needn't take up so much screen space, and you might want to shift the definitions around so that the numbers go from 0=2 through 12=Ace. In some card games, that would make evaluating hands easier than the mapping we've used here, as an Ace at 12 would "beat" a King at 11.

The rest is up to you, dear reader! Using this "baseline" you could make some fascinating games that use ordinary decks of cards. You could add two Jokers, make card outlines, and so on. For a real challenge, try making this over into a Pinochle deck with its 48 cards and multiple same suit and values. You've now got your work cut out for you, but with this "leg up" in today's sidebar, it should be a bit easier. May the luck of the draw go with you always. Bye for now.

SIDEBAR 56

```

0001 * SIDEBAR 56
0002 * A COMPLETE PROGRAM
0003 *
0004 * SHUFFLE/S
0005 * SHUFFLES 52 CARDS
0006 * AND DISPLAYS THEM
0007 * Code by Bruce Harrison
0008 * PUBLIC DOMAIN
0009 * 6 JANUARY 1995
0010 *
0011 DEF START ENTRY POINT
0012 REF VSBW, VMBW, VMBR, VWTR, KSCAN REF UTILS
0013 START LWPI WS USE OUR WORKSPACE
0014 CLR @>8374 CLEAR KEY-UNIT
0015 *
0016 * NEXT SECTION AWAITS KEYPRESS AND THEN
0017 * PROPERLY SEEDS THE RANDOM NUMBER
0018 *
0019 MOV @>8378, R8 CAPTURE VERTICAL COUNT
0020 ANDI R8, 1 JUST LEAST SIGNIFICANT BIT
0021 LI R1, PAK "PRESS ANY KEY..."
0022 LI R0, 11*32+4 ROW 12, COL 5
0023 LI R2, 22 22 CHARS
0024 BLWP @VMBW WRITE THAT
0025 KEY0 MOV @>83D6, R10 SCRN TIMEOUT TO R10
0026 BLWP @KSCAN SCAN KEYBOARD
0027 LIM1 2 ALLOW INTS.
0028 LIM1 0 STOP INTS.
0029 CB @>837C, @ANYKEY KEY PRESSED?
0030 JNE KEY0 IF NOT, REPEAT
0031 MOVB @>8379, R10 VERT TIME TO R10
0032 A R8, R10 ADD 1 OR 0 FROM R8
0033 MOV R10, @>83C0 R10 TO RAND SEED
0034 CLR @>8378 CLEAR VERT TIMER
0035 *
0036 * NEXT SECTION ERASES THE "PRESS ANY KEY"
0037 *
0038 MOVB @ANYKEY, R1 >20 (SPACE) TO R1
0039 CLR0 BLWP @VSBW WRITE A SPACE
0040 INC R0 MOVE ONE TO RIGHT
0041 DEC R2 DEC COUNT
0042 JNE CLR0 RPT IF NOT 0
0043 *

```

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0044 * NEXT SECTION SETS COLORS FOR CHAR SETS
0045 * 0 THROUGH 18 AT BLACK ON GRAY
0046 *
0047     LI  R0,>380     POINT AT COLOR TABLE
0048     LI  R4,19      19 BYTES
0049     LI  R1,>1E00   BLACK ON GRAY
0050 COLOR BLWP @VSBW  WRITE ONE
0051     INC  R0         POINT AHEAD
0052     DEC  R4         DEC COUNT
0053     JNE  COLOR     RPT IF NOT 0
0054 *
0055 * NEXT SECTION MAKES CARD CHARACTER DEFINITIONS
0056 * USING NUMBERS AND LETTERS WHERE NEEDED
0057 *
0058     LI  R0,>32*8+>800 START AT DEF FOR "2"
0059     LI  R1,TBL1    TBL1 IS TEMP STORAGE
0060     LI  R2,64      8 CHARACTERS WORTH
0061     BLWP @VMBR     READ THOSE
0062     LI  R0,129*8+>800 START AT CHAR 129 DEF
0063     BLWP @VMBW     WRITE 2-9 DEFS THERE
0064     LI  R0,'A'*8+>800 CHAR DEF FOR "A"
0065     LI  R2,8       EIGHT BYTES
0066     BLWP @VMBR     READ CHAR PAT
0067     LI  R0,128*8+>800 CHAR DEF FOR 128
0068     BLWP @VMBW     WRITE 'A' CHARPAT THERE
0069     LI  R0,'J'*8+>800 CHAR DEF FOR "J"
0070     BLWP @VMBR     READ PATTERN
0071     LI  R0,138*8+>800 "J" CHAR IN CHR 138
0072     BLWP @VMBW     PUT "J" PAT THERE
0073     LI  R0,'Q'*8+>800 "Q" CHAR PAT
0074     BLWP @VMBR     READ THAT
0075     LI  R0,139*8+>800 139 CHAR
0076     BLWP @VMBW     WRITE "Q" PAT THERE
0077     LI  R0,'K'*8+>800 "K" CHAR PAT
0078     BLWP @VMBR     READ
0079     LI  R0,140*8+>800 140 CHAR PAT
0080     BLWP @VMBW     WRITE "K" PAT THERE
0081     LI  R0,137*8+>800 137 CHAR
0082     LI  R1,SPCHAR  SPECIAL CHAR "10"
0083     BLWP @VMBW     WRITE "10" PAT THERE
0084 *
0085 * NEXT SECTION COPIES 13 CARD NUMBERS INTO
0086 * AREA FROM CHR 160 - 172 DEFINITIONS
0087 * FOR THE RED CARD CHARACTERS
0088 *
0089     LI  R0,128*8+>800 128 CHAR PAT
0090     LI  R2,104     104 BYTES (13 CHARS)
0091     LI  R1,TBL1    TEMP STORAGE
0092     BLWP @VMBR     READ 13 CHAR PATS
0093     LI  R0,160*8+>800 CHAR 160 PAT
0094     BLWP @VMBW     WRITE 13 CHARS THERE
0095 *
0096 * NEXT SECTION DEFINES CHARS 144 THRU 159 AS
0097 * SUIT SYMBOLS (4 CHARS EACH)
0098 *
0099     LI  R0,144*8+>800 CHAR 144 PATTERN
0100     LI  R1,CHR144  SUIT CHARS
0101     LI  R2,128     16 CHAR PATS
0102     BLWP @VMBW     WRITE THOSE
0103 *
0104 * NEXT SETS COLORS FOR CHAR SETS 19, 20 & 21 TO RED ON
0105 * GRAY
0106     LI  R1,>6E00   RED ON GRAY
0107     LI  R0,>380+19 CHAR SET 19 COLOR BYTE
0108     BLWP @VSBW     WRITE
0109     INC  R0         CHAR SET 20
0110     BLWP @VSBW     WRITE
0111     INC  R0         CHAR SET 21
0112     BLWP @VSBW     WRITE
0113 *
0114 * NEXT SECTION BUILDS DECK IN TBL1
0115 * THEN SHUFFLES THAT INTO TBL2
0116 *
0117 SHUFLE CLR R3     SET R3=0
0118     LI  R9,TBL1    POINT AT TBL1
0119     LI  R4,52      52 CARDS
0120     A    @>8378,@>83C0 ADJUST SEED
0121 BLDTBL MOV B R3,*R9+ LEFT BYTE R3 TO TABLE
0122     AI  R3,>100    INC LEFT BYTE R3
0123     DEC  R4         DEC COUNT
0124     JNE  BLDTBL    RPT IF NOT 0
0125     SWPB R3        SWAP BYTES IN R3
0126 *
0127 * R3 NOW CONTAINS 52
0128 *
0129     LI  R10,TBL2   POINT AT TBL2
0130 RANDNO LI R4,28645  BIG NUMBER IN R4
0131     MPY  @>83C0,R4  MULTIPLY BY SEED
0132     AI  R5,31417   ADD BIG NUMBER
0133     MOV  R5,@>83C0  RESULT TO SEED
0134     CLR  R4         CLEAR HI WORD
0135     DIV  R3,R4      DIVIDE BY R3
0136     MOV B @TBL1(R5),*R10+ GET BYTE FROM TBL1 TO TBL2
0137     MOV B @TBL1-1(R3),@TBL1(R5) REPLACE THE USED ONE
0138     DEC  R3         DEC COUNT IN R3
0139     JNE  RANDNO    RPT IF NOT 0
0140 *
0141 * AT THIS POINT TBL2 HAS 52 BYTES RANGING FROM 0 THROUGH
0142 * 51
0143 *
0144 * NEXT SECTION DISPLAYS ALL 52 CARDS ON SCREEN
0145 *
0146     LI  R0,32+3    ROW 2, COL 4
0147     MOV  R0,R13     SAVE R0 IN R13
0148     LI  R9,TBL2    SHUFFLED DECK IN TBL2
0149     LI  R5,52      52 CARDS TO SHOW
0150     LI  R6,13      13 IN R6
0151 NXT0  LI R4,6      6 CARDS PER ROW
0152 NEXT  MOV B *R9+,R2 GET CARD VALUE
0153     SRL  R2,8       RT. JUST.
0154     CLR  R1         R1=0
0155     DIV  R6,R1      DIV R1-R2 BY 13
0156 *
0157 * AT THIS POINT R1 CONTAINS QUOTIENT RANGING FROM 0 THRU
0158 * 3
0159 * THIS IS THE "SUIT" FOR THIS CARD WITH 0=SPADES, 1=CLUBS
0160 * 2=HEARTS, 3=DIAMONDS
0161 * R2 CONTAINS REMAINDER IN THE RANGE 0 THRU 12
0162 * THIS IS THE NUMBER OF THE CARD, WHERE:
0163 * 0=ACE, 1=DEUCE, 2=TREY ... 10=JACK, 11=QUEEN, 12=KING
0164 *
0165     CI  R1,2        IS R1<2?
0166     JLT  SHL        IF LESS, JUMP
0167 *
0168 * IF SUIT IS BELOW 2, BLACK NUMBERS
0169 * ELSE MOVE NUMBER TO RED CHARACTERS
0170 *

```

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```

0171      AI  R2,32      ELSE ADD OFFSET FOR RED
0172 *
0173 * FOLLOWING PUTS 4 CHARS OF SUIT SYMBOL ON SCREEN
0174 *
0175 SHL   SLA  R1,2      MULTIPLY R1 BY 4
0176      AI  R1,144     ADD 144
0177      SWPB R1        SWAP BYTES
0178      BLWP @VSBW    WRITE ONE BYTE
0179      AI  R0,32     DOWN ONE ROW
0180      AI  R1,>100   NEXT CHAR
0181      BLWP @VSBW    WRITE
0182      AI  R0,-31    UP ONE, ONE RT.
0183      AI  R1,>100   NEXT CHAR
0184      BLWP @VSBW    WRITE
0185      AI  R0,32     DOWN ONE
0186      AI  R1,>100   NEXT CHAR
0187      BLWP @VSBW    WRITE
0188 *
0189 * FOLLOWING PUTS THE CARD NUMBER ON SCREEN
0190 *
0191      MOV  R2,R1     GET CARD NUMBER
0192      AI  R1,128    ADD OFFSET 128
0193      AI  R0,-34    MOVE TO LEFT AND UP
0194      SWPB R1        SWAP BYTES
0195      BLWP @VSBW    WRITE CARD NUMBER
0196      AI  R0,6      MOVE 6 TO RIGHT
0197      DEC  R5        DEC R5 COUNT (52 CARDS)
0198      JEQ  KEY      IF ZERO, WE'RE FINISHED
0199      DEC  R4        DEC CARDS ON ONE ROW COUNT
0200      JNE  NEXT     JUMP TO NEXT IF NOT 0
0201      AI  R13,64    ADD 2 ROWS TO R13
0202      MOV  R13,R0   PUT THAT IN R0
0203      JMP  NXT0     THEN ANOTHER ROW
0204 *
0205 * NEXT SECTION PUTS LEGENDS AT BOTTOM, AWAITS KEY PRESS
0206 *
0207 KEY   LI  R0,20*32+4  ROW 21, COL 5
0208      LI  R1,ENTMSG    ENTER MESSAGE
0209      LI  R2,23        23 CHARS
0210      BLWP @VMBW      WRITE
0211      A   R2,R1        NEXT MSG
0212      AI  R0,64        TWO ROWS DOWN
0213      BLWP @VMBW      WRITE THAT
0214 *   LI  R0,120*4     TIME IN 120THS SECOND
0215 *   CLR @>83D6      CLEAR TIMEOUT COUNT
0216 KEY1  BLWP @KSCAN    SCAN KEYBRD
0217      LIM1 2          INT ON
0218      LIM1 0          INT OFF
0219 *   C   @>83D6,R0    CHECK TIME
0220 *   JGT SHUFLE      IF UP, RE-SHUFFLE
0221      CB @>837C,@ANYKEY KEY STRUCK?
0222      JNE KEY1       RPT IF NOT
0223      CB @>8375,@ENTERV "ENTER" STRUCK?
0224      JEQ EXIT       EXIT IF SO
0225      B   @SHUFLE     ELSE NEW SHUFFLE
0226 EXIT  LWPI >83E0    LOAD GPL WORKSPACE
0227      B   @>6A       GO TO GPL INTERPRETER
0228 *
0229 * DATA SECTION
0230 *
0231 WS    BSS 32        OUR WORKSPACE
0232 *
0233 * CHR144 IS START OF DATA FOR SUIT SYMBOLS
0234 * FOR SPADE, CLUB, HEART, AND DIAMOND
0235 *
0236 CHR144 DATA >0103,>0707,>0F0F,>1F1F \
0237      DATA >3F7F,>7F7D,>3101,>0307 | SPADE SYMBOL
0238      DATA >80C0,>E0E0,>F0F0,>F8F8 |
0239      DATA >FCFE,>FEFE,>8C80,>C0E0 /
0240
0241      DATA >0103,>0707,>0331,>79FF \
0242      DATA >FF79,>3101,>0103,>070F | CLUB SYMBOL
0243      DATA >80C0,>E0E0,>C08C,>9EFF |
0244      DATA >FF9E,>8C80,>80C0,>E0F0 /
0245
0246      DATA >183C,>7EFF,>FFFF,>FF7F \
0247      DATA >3F3F,>1F1F,>0F07,>0301 | HEART SYMBOL
0248      DATA >183C,>7EFF,>FFFF,>FFFE |
0249      DATA >FCFC,>F8F8,>F0E0,>C080 /
0250
0251      DATA >0103,>070F,>1F3F,>7FFF \
0252      DATA >FF7F,>3F1F,>0F07,>0301 | DIAMOND SYMBOL
0253      DATA >80C0,>E0F0,>F8FC,>FEFF |
0254      DATA >FFFE,>FCF8,>F0E0,>C080 /
0255 *
0256 * SPCHAR IS 10 AS ONE 8X8 CHARACTER
0257 *
0258 SPCHAR DATA >0046,>C949,>4949,>4946
0259 TBL1  BSS 52        UNSHUFFLED DECK
0260 TBL2  BSS 52        SHUFFLED DECK
0261 ENTMSG TEXT 'PRESS ENTER TO EXIT PGM'
0262 ANYMSG TEXT 'ANY OTHER KEY TO REPEAT'
0263 PAK   TEXT 'PRESS ANY KEY TO BEGIN'
0264 ENTERV BYTE 13      ENTER KEY VALUE
0265 ANYKEY BYTE >20     HEX 20 TO COMPARE
0266      END

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- Bus interface: Serial
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The 1980s Home Computer Era — Part 9

The TI99/4A

By **BILL GASKILL**

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The year 1982 would turn out to be a year of mixed blessings for TI and for the Home Computer. Through William J. Turner's outrageous projections, his continued ability to get Mark Shepherd and Fred Bucy to authorize price decreases and rebate programs for the 99/4A and through his ability to recruit more and more retailers to carry the Home Computer, Turner was able to paint a false picture of hope that led Texas Instruments to believe the fortunes of the TI99/4A were turning around.

As almost any article you find will point out, TI was a company of engineers who lacked any feel whatsoever for marketing. Turner was the marketer and his methods seemed to be working, so he was given his head to do whatever it took to get the bottom line up. For a while he did that, but on price alone, and it was ultimately price that cost the 99/4 its life. The competition, which was mainly Commodore's VIC-20, could be built for less than \$70. It cost more than \$100 to build a 99/4A.

January 1982: Texas Instruments announces the release of the Peripheral Expansion Box at the Consumer Electronics Show Jan. 7. While it is an improvement over the chained peripherals that plagued the 99/4, the price of the P-Box with a disk controller, RS232, 32K Memory and one SS/SD disk drive is a whopping \$1,474.75. To make matters worse, it was in very short supply, so the Home Computer owners willing to pay the price still had a difficult time getting one.

- Scott, Foresman releases the School Management Applications software system developed in conjunction with Edusystems Incorporated of St. Paul, Minnesota.

February 1982: Introduction to TI BASIC book by Zamora and Albrecht is released.

- Texas Instruments announces the impending release of the new Value Packs.

- TI announces the much maligned "Munchman Plan." This was a sales incentive program that ran from February

1982 until May 1982. The plan required a user to purchase any three existing Solid State Software Command Modules or one major hardware peripheral in order to receive Munchman. TI issued proof-of-purchase certificates retailers, requiring them to give the certificates to customers meeting the plan requirements. Customers then had to mail the certificate to TI in order to receive their free copy of Munchman.

March 1982: TI retailers begin receiving shipments of Editor/Assembler that were promised for the third week in January on March 16. TI advises its retailers that Mini-Memory will begin shipping the last week of March.

- TI releases 11 new software libraries. They include: Home Financial Manager, Family Entertainer, Elementary Educator, Music Educator, Super Programmer, Speaking Math Teacher, Speaking Reading Teacher, Arcade Games and Computer Introductory Package.

- Reading Fun and Personal Report Generator are released.

April 1982: Reading Roundup and Tunnels of Doom are released.

- The International 99/4 Users Group raises its membership rates and creates the President's Club as an alternative to regular membership status.

- The street price of a 99/4A is now down to \$329.95.

May 1982: Electronics and Computing Magazine places a 12-page TI99/4A supplement in its May issue.

- Texas Instruments offers a free spreadsheet program called Freeform, written by Aardvark Software, with the purchase of the new p-Code system.

- TI begins a new promotion on May 15. They offer a free TexNet subscription to anyone purchasing a modem, RS232 and Terminal Emulator II cartridge between May 15 and Oct. 16, 1982.

- The unpopular Munchman Plan is discontinued.

- TI and Epson reach an agreement allowing TI to put its name on the Epson MX-80 dot matrix printer and market it as the TI Impact Printer.

- TI Logo II is introduced, featuring a

three-tone sound generator and sprites.

June 1982: William J. Turner succeeds in hiring Bill Cosby as the ad campaign spokesman for the Home Computer. It costs TI \$1 million a year, but Advertising Age magazine has recently named Cosby the most trusted of all pitchmen.

- Impending releases for Computer Math Games II and VI, the Scholastic Spelling Series, the Milliken Math Sequences, Multiplan, TI-Writer, Aardvark's Personal Tax Plan, Chisholm Trail and Parsec are announced at the Consumer Electronics Show.

- In a move that in retrospect appears consistent with the beginning of TI's September 1982 mass merchandising strategy, TI closes six of its TISCO (TI Supply Company) retail outlets.

- Commodore announces the Commodore 64 computer.

July 1982: A New York marketing firm conducts a survey which shows that TI is losing shelf space to the Commodore VIC-20 in the Toys 'R Us, K-Mart, Woolco and Montgomery Ward stores surveyed.

- Despite its January 1982 release, TI's Peripheral Expansion Box and the cards sold for use with it remain in short supply, angering dealers and frustrating owners.

- TI initiates the Product Support Representative program.

- William J. Turner is appointed vice president of the Consumer Products Group over Don Bynum.

August 1982: Texas Instruments fires the first volley in the home computer price wars by announcing Aug. 2 that, beginning Sept. 1, it will offer a \$100 rebate towards the purchase of the \$299 Home Computer. TI is thought to have 26 percent of the home computer market at the time. Mistake No. 4, according to Joseph Nocera.

- On Aug. 16 Commodore International fires a return volley in the price war by cutting the wholesale price of the VIC-20 by \$40. The VIC-20 is selling for \$199 and is the flagship of Commodore's 23 percent of the home computer market.

- TI-Writer and Parsec are released.

(See Page 17)

HISTORY PART 9 —

(Continued from Page 16)

- Timex Sinclair jumps into the home computer fray with the \$99 TS 1000. Timex is estimated to have a 26 percent share of the market based mostly on sales of their ZX-80 machine.

September 1982: Atari enters the price wars by offering \$60 worth of discounts on its extensive library of educational and entertainment software, while pointing out that their machine runs the popular arcade games such as Asteroids, Pac-Man and Space Invaders. Atari has 17 percent of the home computer market at this time.

- The tactic of mass merchandising enters the home computer wars as the now inexpensive machines begin popping up in an amazingly wide variety of shops. Customers can find them in supermarkets, drug stores, catalog showrooms, boutiques and department stores. Toys 'R Us, the largest toy chain in the United States, did not carry a single computer in 1981, but now has floor-to-ceiling displays of Atari, Commodore and Texas Instruments machines in all of its 144 stores. Safeway stores are offering Commodore computers in 12 stores from Seattle to Anchorage. Macy's will sell 1,000 Timex machines in four days in September 1982.

- TI begins the \$100 rebate campaign on the 99/4A console that was announced in August. The rebate promotion is slated to end Jan. 31, 1983. In another promotional TI offers a free Speech Synthesizer to anyone purchasing six Solid State Software Command Modules between Sept. 15, 1982, and Jan. 1, 1983.

- The Computer Advantage Club is introduced.

- Control Data Corporation announces that it will produce PLATO Courseware, formerly available only on mainframe computers at an hourly fee for its use, for a variety of microcomputers.

- Robert Peterson is installed as president of USUS, the UCSD Pascal Users Society, in Dallas, Texas.

October 1982: The 99er Magazine TI-Fest takes place in San Francisco Oct. 22-24. Later word on the first and only Texas Instruments-supported "Fest" is that it is a success. No one mentions how much money TI pumped into the Gary Kaplan idea to keep it from becoming a failure and poten-

tial embarrassment to TI, however.

- TI Forth makes its first showing at the TI-Fest.

November 1982: Texas Instruments obtains exclusive rights to distribute the TI Count line of accounting software for the 99/4A.

- A free hotline is opened for prospective customers to find out where they may purchase the 99/4A, or to take orders for the system directly from Texas Instruments.

- 99er Magazine goes monthly.

- Rumors of an upcoming 99/4A E.T. game cartridge surface in the IUG newsletter.

December 1982: The \$100 rebate plan announced in August is extended to April 15, 1983.

- Super Bugger is purchased from Navarone Industries.

- Model Masters announces Disk Manager 2 on disk with promises of a cartridge version to follow shortly.

- Myarc introduces 5- and 10-megabyte hard disks for the 99/4A.

By the end of 1982 the TI99/4A is the number one home computer in America. William J. Turner's \$100 rebate strategy has been working like a charm since September and 99/4As are outselling VIC-20s at a rate of three to one. TI is producing 150,000 consoles a month and now more than 12,000 retail outlets sell the computers. Things look great for TI and Turner, but as we know, it didn't last.

January 1983: Commodore cuts the price of the VIC-20 to \$125. TI is forced to follow suit with the 99/4A. With this round of price reductions the Home Computer is now being sold at break-even prices. TI realizes no profit on the sale of a unit at all.

- TI releases a 220-page software directory for \$8.95 (part No. 1049749-1) that lists all known TI and third-party software written for the TI-99.

- The Compact Computer 40 and the TI99/2 Basic Computer are announced at the Consumer Electronics show.

- Compute! magazine begins carrying TI99/4A articles, programs and advertisements.

- Scott, Foresman and Company releases the Mathematics Action Game Series.

The series consisted of three cartridges (each sold separately) with two programs per cartridge, housed in a 9x6-inch vinyl book. The cartridges were referred to as Module A, B and C. Module A consisted of Frog Jump/Picture Parts, Module B consisted of Pyramid Puzzler/Star Maze and Module C consisted of Number Bowling/Space Journey. Each module sold for \$75.95.

February 1983: Shipments of 99/4As halt when an apparent defect is discovered in power supplies shipped with the Home Computer. TI loses \$50 million fixing the problem. The power supply was one that TI bought from another company and it had passed safety tests in the U.S., but not in Canada.

- TI releases its own cassette player/recorder for use with the 99/4A. Actually, it was a General Electric product, but it carried a Texas Instruments name and logo.

- Datamost of Chatsworth, California, begins advertising for TI99/4A programmers and it lists the 99/4A as one of several computers which will have the popular Zaxxon game written for it.

- Thorn EMI announces Submarine Commander and River Rescue cartridges for the 99/4A, to be released in the spring.

- Milton Bradley announces that the MBX Voice Recognition System will be available in April.

March 1983: Microsoft Multiplan is released.

- Datamost cancels plans to port Zaxxon to the 99/4A, saying that it could not fit the program in an 8K Grompack module and it did not feel enough 99/4A disk systems existed to justify a release of the program on disk. The Grompack excuse seems rather weak, however, as Zaxxon would ultimately be ported to the Atari 2600 VCS and other game-playing machines which had no more (and in most cases even less) memory than the TI99/4A.

- Texas Instruments offers its new Disk Manager 2 cartridge to owners of the original Disk Manager for \$9.95. TI apparently bought the program from Model Masters.

- TI offers a free console dust cover and (See Page 18)

HISTORY PART 9 —

(Continued from Page 17)

cartridge holder to current Computer Advantage Club members who enroll in a second class between March 1 and July 31.

- Don Bynum is reassigned to TI's Dallas headquarters because of health problems attributed to the stress of life in the Home Computer Division.

- Sears stores join the 99/4A retail network.

April 1983: On April 4 Commodore cuts the price of the VIC-20 to \$99, which is less than it costs to produce the 99/4A. Since TI cannot follow suit, it begins los-

ing sales to the VIC-20 because consumers, not knowing any better, and not being told any differently by TI, opt for the less powerful VIC-20 on price alone.

- On April 25 TI begins offering a free Peripheral Expansion Box to anyone purchasing any three of the following: an RS232 card, a Disk Controller card, a Disk Drive, a 32K Memory Expansion card, a p-Code card, TI-Writer or Multiplan.

- At TI's annual meeting, J. Fred Bucy announces that TI has shipped its millionth Home Computer. He also announces that the \$50 million power supply problem with the Home Computer has

wiped out all profits made by 99/4A sales during the first quarter 1983.

- Retailers begin sending TI99/4As back to TI in order to make room for other items on their shelves. The walls are beginning to crumble.

- Mark Shepherd and J. Fred Bucy replace William J. Turner with Jerry Junkins. Turner has become a "loser" at TI and would leave the company just before the decision to drop out of the home computer business.

May 1983: Plans to produce the TI-99/2 Basic Computer are canceled

NEWSBYTES

Dowling releases bar code for labels

William Dowling, author of TI-Bar, is scheduled to release beta test copies of his new bar code label program in February, according to Don Walden of Cecure Electronics.

Walden said the program is designed for dot matrix and ink jet printers, and "we're going to try it on a Panasonic Laser 4410." The program can be configured to print out bar codes on the four-inch labels for ink jet and laser printers as well as the 3.5-inch labels for dot matrix printers, and can use draft or "letter perfect" quality

printing, Walden says.

Plans are for the completed program to contain a utilities disk to read D/V80 files from TI-Writer as well as PR-Base and TI-Base files, so that users can convert their labeling programs.

Walden says he expects commercial release of the program in March.

New web page focuses on 4A

Kerry High of Rolla, Missouri, has created a new web page for the TI99/4A.

In an Internet post, he says that the page has only a few links to other pages and

FTP sites, but he plans to add more soon.

The page is located at: <http://www.umn.edu/khigh01/994a.html>.

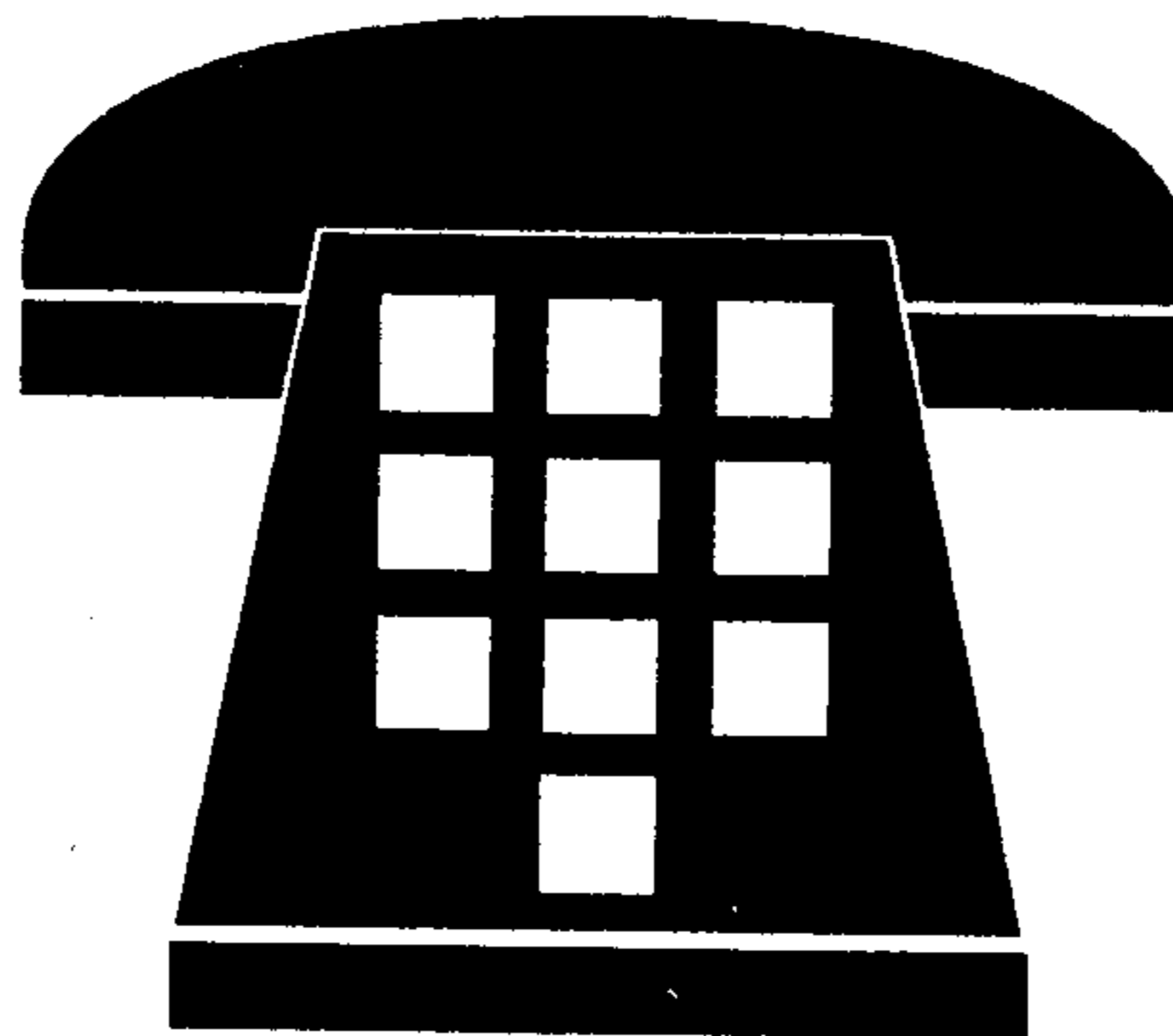
He says users can e-mail khigh01@umn.edu with suggestions regarding the page.

Fest West web site has information

The SouthWest Ninety Niners User Group has a web site on the Internet with information about Fest West '96. You can find it at <http://www.theriver.com/TheRiver/Cafe/Calendar/fest.html>.

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Saturdays. If you call at
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Portable Document Formats

Recreating original TI manuals

By MIKE WRIGHT

If you pay a visit to your local bookstore and buy a book, some subtle events occur that you probably don't even notice. The first of these we'll call content. The fact that you have the book in your hand means that you have access to its content. The second is form. When you open the book it contains pages, each of which contain information that you can peruse.

If someone at home picks up the book, they are exposed to the identical content and form. And, if you mail the book to someone in another city, that person, too, has access to the same content and form.

As you can see, this works great for books. In fact, we could say that a book is a "portable document" and define this to mean that, no matter where the book is sent, it will retain its content and form. (Of course, this assumes that it won't be mangled in the mail, or that some thoughtless reader will not tear out a page.)

Now, let's consider a magazine. There will be lots of advertisements in the magazine, and quite a few of these will be in color. If you give the magazine to someone, it can still be considered to be a portable document. But say you photocopy an article that surrounds a color ad, and you do it on a black-and-white copier. You will probably preserve the content of the ad, but you will impact the form of the ad, since it is no longer in color. Your copy is no longer a faithful portable document.

Finally, let's say you read a newspaper article, and then write a letter to a friend that paraphrases one or two paragraphs from the article. These extracts no longer reflect the content of the original article, and have no resemblance to the original form. In this case, there the portability of the original article is not preserved at all.

These concepts of content and form become more difficult when it comes to electronic documents.

Suppose we call you User 1. Load up TI-Writer and create a new file. On the screen enter:
This is line 1.
This is line 2.
and follow each line with a carriage return.

Then save the file as DSK1.TEST. User 1 can now load the file into TI-Writer again and read its contents. User 1 can send the file to a printer. And, User 1 can copy the disk and send it to another TI user (User 2).

If User 2 has TI-Writer, then the same operations that User 1 was able to perform, can be performed by User 2 as well. Voila! We have a portable document format in the TI world.

The file has no ambiguities. User 1 and User 2 will both see the identical screen display. And, even if they have different brands of printer, the line endings will be the same. We may sacrifice a modicum of form if the printers have slightly different fonts.

However, this portability is achieved at a price. First, we have to use short lines, and they have to end with a carriage return. But most text is not set like this. If we want to achieve the flow of typical text setting, we need to allow more text on the line and allow it to wrap.

We can overcome this problem if we specify that all characters that we type are the same width. This is the default case with the TI PHP2500 Impact Printer. In normal mode, the PHP2500 will print 80 characters to a line. It doesn't matter if we are printing 80 Ws or 80 i's — they will occupy the same horizontal escapement.

If we accept this limitation, we can still have portability. If we create a document of four paragraphs, with two carriage returns separating each paragraph then User 1 and User 2 will still be able to do the same things with this document.

Now suppose that User 1 gets a bit more creative. Let's say User 1 wants to create a bulleted list. Unfortunately, there is no bullet on the TI keyboard. One way to print a bullet is to create a graphic character for it. To do this, User 1 has to know how to put the printer into graphics mode, how to construct the graphic character and how to return the printer to normal mode.

If User 1 wants to print three bullets in a document, it is safer to define a "format" containing the printer instructions to create the bullet. In TI-Writer you can create

a format using the Transliterate function. Here is a pseudo-Transliterate to create the bullet:

```
.TL @:  
{put printer into graphics mode,  
output bullet character,  
return printer to normal mode.}
```

If an "@" is entered, and the document is printed using the Formatter, then a bullet will appear. Unfortunately, this will only happen if the printer accepts the codes that are generated by Transliterate. If User 2 happens to have a different printer that uses a different command set from User 1, then there will be "garbage" instead of a bullet.

As you can see, the problems of maintaining content and form even in relatively simple cases is quite difficult. If we now move on to sophisticated documents, containing graphics, tables, and quality fonts, the level of difficulty in maintaining portability quickly increases.

At least two companies have addressed the problem of portable documents. They are Adobe and WordPerfect (Novell). The Adobe product is called Acrobat, and the WordPerfect product is called Envoy. They run on PCs (and on Unix-based systems).

The principle is that User 1 uses an application, such as a word processor, to generate the document. User 1 then outputs the document using Acrobat or Envoy. The result is a file that can be passed to User 2. User 2 can then view the document and will see the original content and form, including pagination and fonts. In the case of WordPerfect the viewer can be built into the file. In the case of Adobe, the viewer (or reader) is free.

We at CaDD Electronics were recently given permission by Texas Instruments to release all of the documentation associated with the TI99/4A in electronic form. Given the above background, we elected to use WordPerfect's Envoy as the distribution format.

Here are the steps we go through to convert a TI manual for distribution:

1. Our hardware setup includes a PC
(See Page 20)

PORTABLE DOCUMENT FORMAT —

(Continued from Page 19)

with a Hewlett-Packard scanner. The HP software included with the scanner can scan an image and produce a TIFF 5.0 file. We also purchased OmniPage 6.0 Professional. This software can perform optical character recognition (OCR) on a scanned image. In other words, it "reads" the page and converts it from a graphic to text.

2. A first pass scan is made of each page of the manual. Each page image is passed to Omnipage for OCR. The file is saved to disk.

3. A second pass scan is made of pages that contain graphics. Each black-and-white graphic is scanned at 600 dots per inch (dpi). Color graphics (usually only the cover) are scanned at 150 dpi. The scanning resolution is a trade-off between image quality and disk space.

4. The text is loaded into WordPerfect 5.1+ for DOS. It is then edited and "marked up." The markup includes designating heads and other typographic information (such as italics). We do not try to preserve the TI line endings, but for most manuals, we try to preserve the page breaks.

5. The scanned graphics are then converted from TIFF to WordPerfect Graphic format (WPG).

6. The graphics are then imported into the text file, and sized to match the original.

7. The document is then validated by running a WP spell check. We also look for double spaces, and other possible scanning errors.

8. Page cross-references are entered using WP's cross-reference feature.

9. The document is then "generated" by WP. This resolves any cross-references, and generates a table of contents. We use WP's auto-number feature for all heads in the manual.

10. The document is viewed on screen and visually compared with the original.

11. The document is then imported in WordPerfect 6.1 for Windows. (We use the DOS version for editing because it is so much quicker than Windows, and allows single-keystroke macros.)

12. The document is "printed" using the WP Envoy driver. This creates an executable disk file (.EXE).

If this .EXE file is executed under MS Windows, it will start the built-in Envoy

viewer, and display the original document, properly paginated, and complete with fonts. Envoy allows you to search the text (even though it is in binary form), to highlight selected portions of the document, and to print the document to a Windows-compatible printer.

A typical manual runs to about 1Mb. The worst manual so far is Multiplan, which because of its 156 graphics and large color cover, runs to 8Mb. It is important to note that the size of a text-based document with some graphics is considerably smaller than if we had simply scanned each page. Converting to text also gives us a decided advantage in that we can make changes and additions. There are quite a few errors in the original TI manuals that have already been corrected. In the case of Extended BASIC, we have incorporated all the changes from the TI addendum into our manual and have fixed the keystrokes to reflect the 99/4A, as opposed to the 99/4.

As you can see from the above, this is a very labor-intensive and time-consuming procedure. So far we have completed manuals for modules PHM3000 through PHM3021. We have also completed Extended BASIC, the Editor/Assembler, TI-Writer and Multiplan. Each manual presents its own difficulties in conversion. For example, Weight Control & Nutrition contains many pages of tables; Securities Analysis contains many equations; and Video Chess requires special chess characters not commonly found.

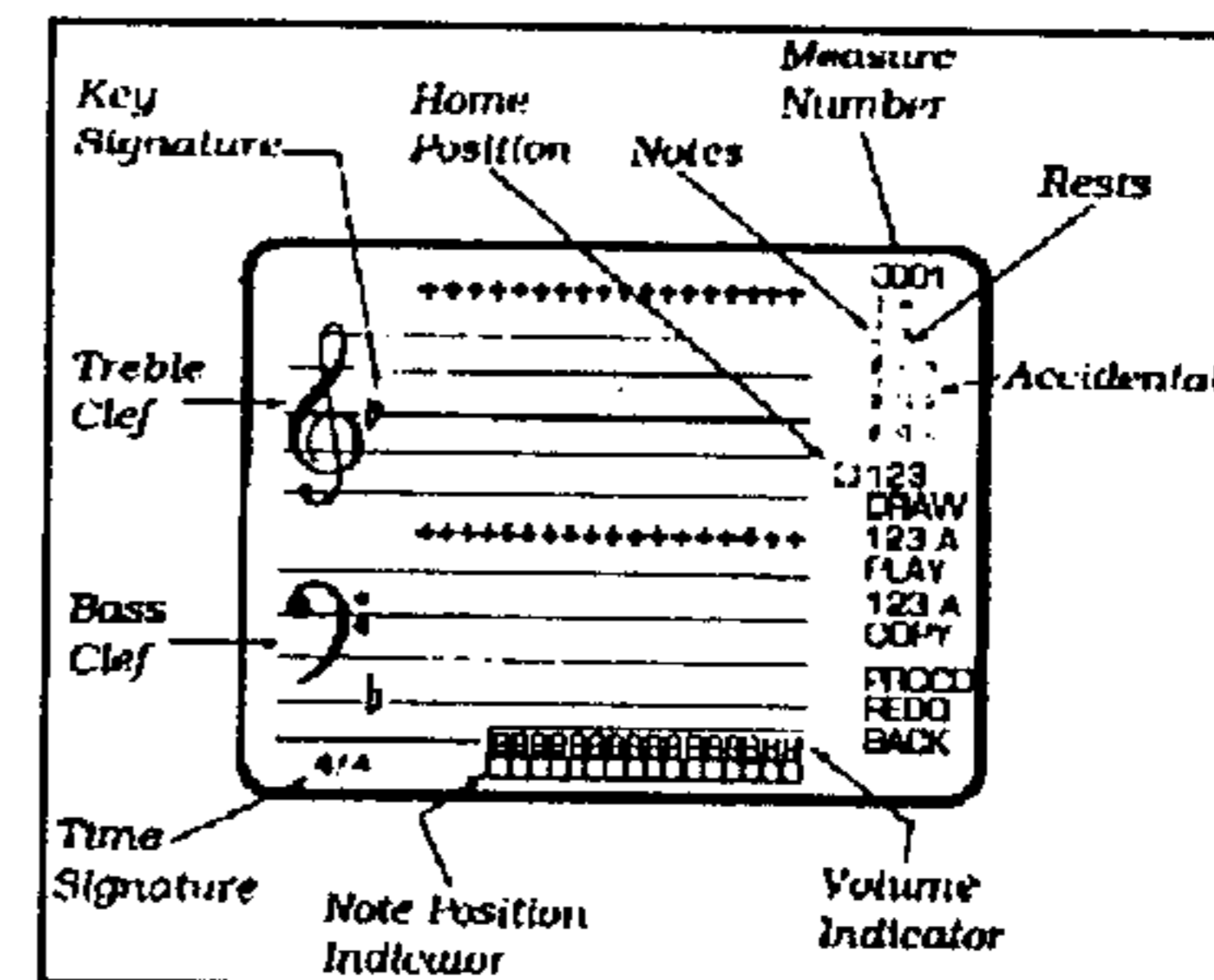
Our goal is to complete all of the PHM and PHD manuals, along with the User's Reference Guide and the manuals that came with the peripherals. Our aim is to offer these manuals to users of our PC99 product and other TI'ers who own a PC and would like to have access to the con-

TEXAS INSTRUMENTS HOME COMPUTER

Once a measure is completed for a chosen voice, you can add another voice to the same measure. To do this, move the cursor over a different voice number in the DRAW area, and press ENTER. You can enter up to three voices in any order you wish.

4.3.1. Features of Traditional Mode

Now that you're familiar with the basics of composing in TRADITIONAL MODE, let's look at some of the additional features that add to the enjoyment of this activity.



Color-coding — The notes on the staff and the squares in the Volume and Note Position Indicators are color-coded by the voice you select in the DRAW area. The first voice is represented by blue; the second, by red; and the third, by green.

A sample from the manual for Music Maker. This is reduced to 50 percent of size. At actual size, the page is sharp

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tent of the original TI manuals.

CaDD Electronics is offering these manuals for sale for \$2 each for the 8.5x 5-inch manuals (Diagnostic, Demonstration, etc.) and for \$3. each for the 8.5x11-inch manuals, such as E/A, TI-Writer, Multiplan (and Extended Basic). You must supply one formatted 1.4Mb (or 1.2Mb) diskette for each manual ordered (four for Multiplan), and return postage.

Please note that only PHM3000 through PHM3021 are currently available.

To use these manuals you must have a PC running MS Windows 3.1.

CaDD Electronics is at 45 Centerville Dr., Salem, NH 03079-2654.

Cecure comments on TI-Bar review

Don Walden of Cecure Electronics, distributor of TI-Bar, commented on MICROpendium's January review of the product.

Walden says TI-Bar does 20 names, not 10 as state in the review, and that it works with inkjet printers.

Converting TI-Artist instances

This version of TIA2FW5 handles instances with more than 9 columns

By JACQUES GROSLOUIS

In my previous article (June 1995), I presented a program to convert TI-Artist instances to a D/V80 file which can be printed by Funnelweb editor V5.01. That program had a major limitation if the number of columns in the instance was greater than nine. This limitation has now been overcome if your Epson-compatible printer will handle reverse linefeeds and horizontal tabs.

As explained in my previous article, the problem is that a carriage return and linefeed is placed after every 80 characters in D/V80 file. This plays havoc with single-density graphics printing. My solution was to shorten the lines saved to disk and to override the carriage return and linefeed commands with reverse feed and horizontal tabs. Since the horizontal tab function of printer code relates to characters that are six dots wide and the program converts TI-Artist instance columns which are eight dots wide another problem arose.

I initially wanted to use groupings of nine columns in each line, which would require a horizontal tab of 12 characters. This could not work because the printer code to set reverse feed, horizontal tabs and graphics mode was 12 characters long, and this would make a line longer than 80 characters. The number of columns times eight must equal the number of character spaces times six in order that blank spaces no appear in the printout. I selected six columns, which matches with eight character spaces. The other limitations caused by characters 255 and 32 explained in my previous article are still there.

The instance printed in Fig. 1 is 32 columns wide by 22 rows high and was created by using Bruce Harrison's excellent Instant Editor program. The TI-Artist picture was loaded in Harrison's program and converted to an instance.

The program listed below was then used

The problem is that a carriage return and linefeed is placed after every 80 characters in D/V80 file. This plays havoc with single-density graphics printing.

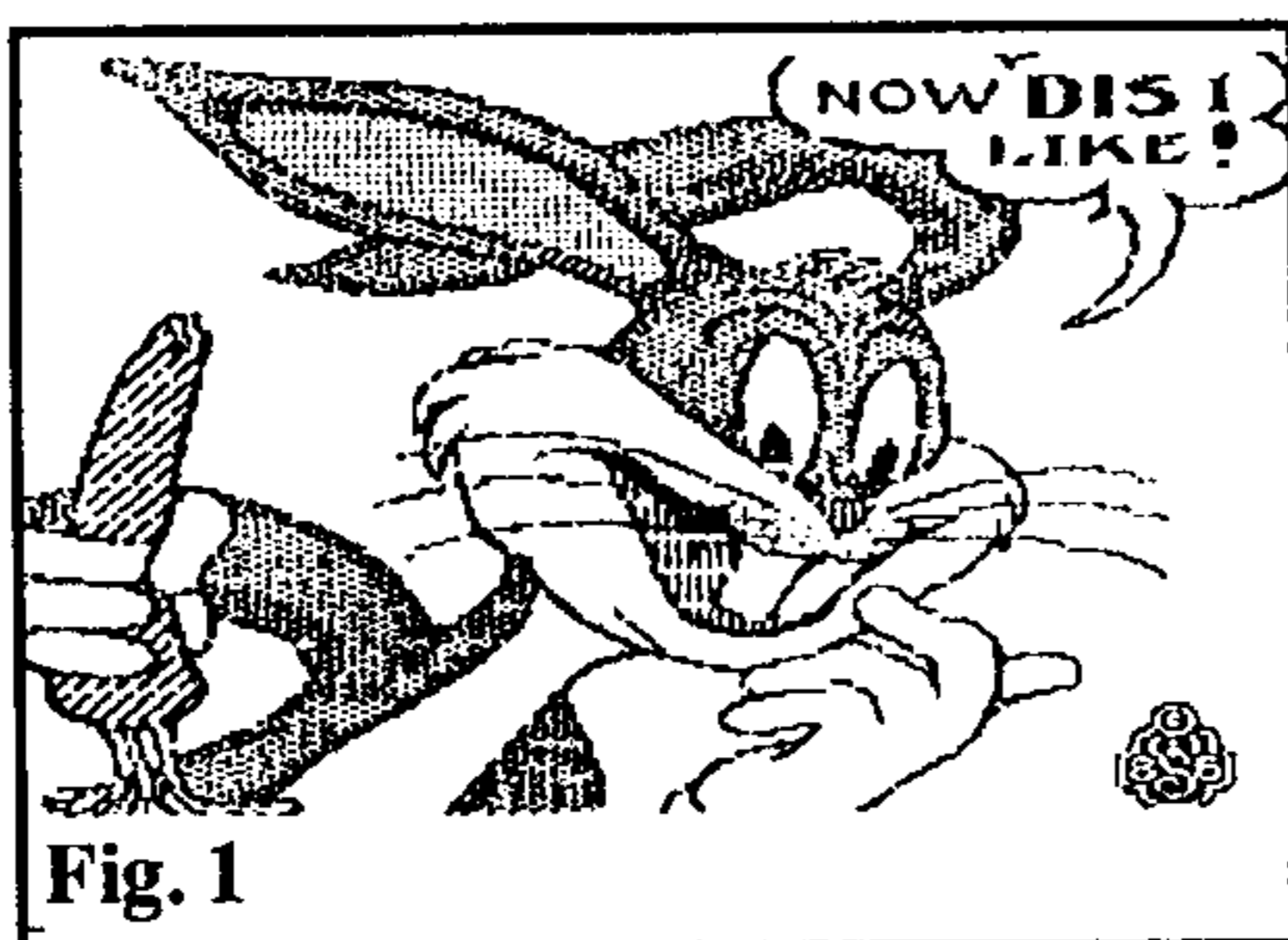


Fig. 1

to convert the instance to a file that could be printed by the Funnelweb editor. This full picture instance took a bit over an hour to convert. Although the instance is 32 columns wide, it takes up the space of about 42 characters — add about one-third to the number columns — and entering 19 — being $(80-42)/2$ — at the tab prompt in the program will center the instance when printing.

You can change the tab location by editing the third character of the first line of the file produced by my program. At tab 19, the

third character is produced by CTRL-U, Shift-S, CTRL-U.

The letter "S" is the 19th letter of the alphabet. On my system this shows up as inverse video "S" because I have changed Funnelweb file CHAR@1 to show all control characters in inverse video. Perhaps some assembler programmer would like to convert this program so that it will run faster.

TIA2FW5G

```
100 ! SAVE DSK1.TIA2FW5G !09
2
110 E$=CHR$(27):: Q,W=8 !057
```

```
120 F$=E$&CHR$(3)&CHR$(0)::
HT$=CHR$(9):: RF$=E$&CHR$(10
6)&CHR$(24)!174
130 DEF ST$=E$&CHR$(68)&CHR$
(W)&CHR$(0)!244
140 CALL SCREEN(11):: DISPLA
Y ERASE ALL AT(1,4):"TI-ARTI
ST TO FWB v5.0": "CONVERSIO
N PROGRAM" !104
150 DISPLAY AT(5,1):"INSTANC
E file name:" :: ACCEPT AT(5
,21)VALIDATE(UALPHA,DIGIT)SI
ZE(8):NAME$ !238
160 DISPLAY AT(7,3):"The fil
e is on drive 1" :: ACCEPT A
T(7,24)SIZE(-1)VALIDATE(DIGI
T):FD !178
170 DISPLAY AT(8,1):"Which d
rive for new file? 1" :: ACC
EPT AT(8,27)SIZE(-1)VALIDATE
(DIGIT):SD !176
180 DISPLAY AT(11,1):"Print
at Tab Position? 10" :: ACCE
PT AT(11,24)VALIDATE(DIGIT)S
IZE(-2):T :: IF T>78 THEN 18
0 !095
190 A$="DSK"&STR$(SD)&". "&NA
ME$&STR$(T)!101
200 NAME$="DSK"&STR$(FD)&". "
&NAME$&"_I"!1013
210 OPEN #1:NAME$,INPUT :: O
PEN #2:A$,OUTPUT !178
220 INPUT #1:X,Y !162
230 GOSUB 430 !255
240 IF X*Y>25 THEN DISPLAY A
T(20,4):"This may take awhile."
:: DISPLAY AT(21,4):"Ple
ase be patient..." !095
250 PRINT #2:E$&CHR$(108)&CH
R$(T):: DISPLAY AT(14,1):"R
OW:";Y;"COL:";X !211
260 PRINT #2:E$&CHR$(65)&CHR
$(8);ST$ !093
270 FOR K=1 TO Y :: PRINT #2
:K$;!135
280 FOR L=1 TO X :: INPUT #1
:C(7),C(6),C(5),C(4),C(3),C(
2),C(1),C(0)!162
290 IF L=INT(X/6)*6 THEN K$=
CHR$(27)&CHR$(75)&CHR$(Q*(X-
(See Page 22)
```

TIA2FW5G —

(Continued from Page 21)

```

L))&CHR$(0)!001
300 FOR I=7 TO 0 STEP -1 ::
A=C(I)!037
310 FOR J=7 TO 0 STEP -1 ::
IF 2^J>A THEN 340 !139
320 A=A-2^J :: B(J)=B(J)+2^I
:: IF B(J)=255 THEN B(J)=25
4 !249
330 IF B(J)=32 THEN B(J)=16
!002
340 NEXT J :: NEXT I !065
350 FOR I=7 TO 0 STEP -1 !17
1
360 PRINT #2:CHR$(B(I));:: D
ISPLAY AT(16,1):"ROW:";K;" C
OL:";L;"Char:";B(I):: B(I)=0
!021
370 IF ((L=6)OR(L=12)OR(L=18
)OR(L=24)OR(L=30))AND I=0 TH
EN PRINT #2 :: PRINT #2:ST$;
HT$;RF$;K$;:: GOSUB 430 :: W
=W+Q !185
380 NEXT I :: NEXT L :: IF X
>6 THEN PRINT #2:F$ ELSE PRI
NT #2:CHR$(13)!254
390 W=Q :: NEXT K :: PRINT #
2:E$&CHR$(108)&CHR$(0);!004
400 PRINT #2:CHR$(27)&CHR$
5)&CHR$(12)!023
410 CLOSE #1 :: CLOSE #2 ::
DISPLAY AT(23,3):"Another (Y
/N)?N" :: ACCEPT AT(23,17)VA
LIDATE("YNyn")SIZE(-1):Q$ ::
IF Q$="Y" OR Q$="y" THEN 10
0 !062
420 END !139
430 IF X<6 THEN K$=CHR$(27)&
CHR$(75)&CHR$(X*6)&CHR$(0)EL
SE K$=CHR$(27)&CHR$(75)&CHR$
(48)&CHR$(0)!161
440 RETURN !136

```

MY-BASIC

ModeFlag shows information about files

By JIM UZZELL

©1996 DDI Software

In assembly language for the Geneve, the XOP 8 routines are the I/O routines that access your peripherals.

So dig out your I/O library ASCII file and review the PAB (peripheral access block) layout. If you do not have it, it can be found in 9640 News, on BBSes, and user group libraries.

The program this month in MY-BASIC illustrates — by opening different types of files — the byte required for the mode flag (byte 1) of the PAB buffer.

This program requires you to place a blank, initialized disk in drive 1. You should re-initialize the disk after you are through with the demo. Also, don't change DSK1 to HDS1, because it will not work. There is a bug in MY-BASIC (not a real bug, just sloppy programming).

The program will display the type of file it is processing, then show the hex value of the mode flag byte. It will break down the hex value to bits and then show what the pertinent bits mean. The program has an option to print a hard copy.

MODEFLAGS

```

100 !THIS PROGRAM REQUIRES
110 !A BLANK, INITIALIZED
120 !DISK IN DRIVE #1
130 !RE-INITIALIZE DISK

```

```

140 !AFTER YOU ARE FINISHED
150 !DDI SOFTWARE
160 !COPYRIGHT 1996
170 CLS
180 DIM D$(12),E$(9),G$(16),
I$(12)
190 H1$="0123456789ABCDEF"
200 RESTORE 1180
210 FOR Z=1 TO 16 :: READ G$
(Z) :: NEXT Z
220 RESTORE
230 ON ERROR 770
240 CALL GRAPHICS(3,3)
250 FOR Z=1 TO 3 :: READ X,Y
,A$ :: DISPLAY AT(X,Y):A$ ::
NEXT Z
260 DATA 1,1,XOP 8 MODE FLAG
S

```

```

270 DATA 2,1, FOR USE WITH, 3,
1, OPEN READ WRITE CLOSE REST
ORE
280 FOR Z=1 TO 12 :: READ D$
(Z) :: DISPLAY AT(Z+9,1):D$(
Z) :: NEXT Z
290 FOR Z=1 TO 9 :: READ E$(
Z)
300 CALL TCOLOR(4,14) :: DIS
PLAY AT(6,1):E$(Z); :: CALL
TCOLOR(16,6)
310 IF Z=1 THEN 410
320 IF Z=2 THEN 430
330 IF Z=3 THEN 450
340 IF Z=4 THEN 470
350 IF Z=5 THEN 490
360 IF Z=6 THEN 510

```

(See Page 23)

MODEFLAGS —

(Continued from Page 22)

```

370 IF Z=7 THEN 530
380 IF Z=8 THEN 550
390 IF Z=9 THEN 570
400 NEXT Z :: GOTO 850
410 OPEN #1:"DSK1.MO1",OUTPU
T,DISPLAY ,VARIABLE
420 GOTO 590
430 OPEN #1:"DSK1.MO2",OUTPU
T,DISPLAY ,FIXED
440 GOTO 590
450 OPEN #1:"DSK1.MO3",OUTPU
T,INTERNAL,VARIABLE
460 GOTO 590
470 OPEN #1:"DSK1.MO4",OUTPU
T,INTERNAL,FIXED
480 GOTO 590
490 OPEN #1:"DSK1.MO1",INPUT
,DISPLAY ,VARIABLE
500 GOTO 590
510 OPEN #1:"DSK1.MO2",INPUT
,DISPLAY ,FIXED
520 GOTO 590
530 OPEN #1:"DSK1.MO3",INPUT
,INTERNAL,VARIABLE
540 GOTO 590
550 OPEN #1:"DSK1.MO4",INPUT
,INTERNAL,FIXED
560 GOTO 590
570 OPEN #1:"DSK1.",INPUT ,I
NTERNAL,RELATIVE
580 GOTO 590
590 CALL PEEK(-1039,A) :: A=
A-128 :: H$(Z)=SEG$(HEX$(A)
,3,2)
600 B=POS(H1$,SEG$(H$(Z),1,1)
),1) :: C=POS(H1$,SEG$(H$(Z)
,2,1),1)
610 I$(Z)=G$(B)&" "&G$(C) ::
CALL TCOLOR(4,14) :: DISPLA
Y AT(8,1):G$(B);" ";G$(C);"
";">";H$(Z);" HEX VALUE";
620 FOR U=15 TO 7 STEP -2
630 IF U=15 AND SEG$(I$(Z),U
,1)="0" THEN Y1=11 :: Y2,T=1
5 :: W=1 :: GOTO 760
640 IF U=15 AND SEG$(I$(Z),U
,1)="1" THEN Y1=12 :: Y2,T=1
5 :: W=1 :: GOTO 760
650 IF U=13 AND SEG$(I$(Z),U
-2,3)="0 0" THEN Y1=13 :: Y2
,T=11 :: W=3 :: GOTO 760660
IF U=13 AND SEG$(I$(Z),U-2,3)
)="0 1" THEN Y1=14 :: Y2,T=1
1 :: W=3 :: GOTO 760670 IF U
=13 AND SEG$(I$(Z),U-2,3)="1
0" THEN Y1=15 :: Y2,T=11 ::
W=3 :: GOTO 760
680 IF U=13 AND SEG$(I$(Z),U
-2,3)="1 1" THEN Y1=16 :: Y2
,T=11 :: W=3 :: GOTO 760690
IF U=9 AND SEG$(I$(Z),U,1)="
0" THEN Y1=17 :: Y2,T=9 :: W
=1 :: GOTO 760
700 IF U=9 AND SEG$(I$(Z),U,
1)="1" THEN Y1=18 :: Y2,T=9
:: W=1 :: GOTO 760
710 IF U=7 AND SEG$(I$(Z),U,
1)="0" THEN Y1=19 :: Y2,T=7
:: W=1 :: GOTO 760
720 IF U=7 AND SEG$(I$(Z),U,
1)="1" THEN Y1=20 :: Y2,T=7
:: W=1 :: GOTO 760
730 NEXT U
740 CLOSE #1 :: GOSUB 750 ::
GOTO 400
750 DISPLAY AT(23,10):" PRES
S ANY KEY "; :: CALL KEY(0,K
,S) :: IF S<1 THEN 750 :: GO
SUB 780 :: DISPLAY AT(6,1):"
" :: RETURN
760 CALL TCOLOR(4,14) :: DIS
PLAY AT(Y1,Y2):SEG$(I$(Z),T,
W); :: GOTO 730
770 CALL PEEK(-1039,A,B) ::
PRINT A;B :: GOTO 960
780 CALL TCOLOR(16,6)
790 FOR U=15 TO 7 STEP -2
800 IF U=15 THEN DISPLAY AT(
11,15):"+"; :: DISPLAY AT(12
,15):"+";
810 IF U=13 THEN DISPLAY AT(
13,11):"+ +"; :: DISPLAY AT(
14,11):"+ +"; :: DISPLAY AT(
15,11):"+ +"; :: DISPLAY AT(
16,11):"+ +";
820 IF U=9 THEN DISPLAY AT(1
7,9):"+"; :: DISPLAY AT(18,9
):"+";
830 IF U=7 THEN DISPLAY AT(1
9,7):"+"; :: DISPLAY AT(20,7
):"+";
840 NEXT U :: RETURN
850 CALL GRAPHICS(3,1)
860 DISPLAY AT(4,30):"I/O Li
brary---XOP 8"
870 DISPLAY AT(5,30):"MODE F
LAG Examples "
880 FOR Z=1 TO 9
890 DISPLAY AT(Z+7,18):I$(Z)
;" ";">";H$(Z);" ";E$(Z)
900 NEXT Z
910 DISPLAY AT(24,8):"Press
ESC, PRINT SCREEN, ESC for H
ARDCOPY or ANY OTHER KEY TO
EXIT"
920 CALL KEY(0,K,S) :: IF S<
1 THEN 920 :: IF K=155 THEN
930 ELSE END
930 DISPLAY AT(24,1):" "
940 DISPLAY AT(24,18):"(C)19
96 DDI SOFTWARE MICROpend
ium Article "
950 CALL KEY(0,K,S) :: IF S<
1 THEN 950
960 END
970 DATA 7 6 5 4 3 2 1 0 M
EANING
980 DATA | | | | | | +---0
=SEQUENTIAL FILE ACCESS
990 DATA | | | | | | +---1
=RELATIVE FILE ACCESS(fixed
only)
1000 DATA | | | | | + +-----
00=UPDATE MODE R/W ACCESS f
ixed files only
1010 DATA | | | | | + +-----
01=OUTPUT MODE WRITE ONLY e
rase old file
1020 DATA | | | | | + +-----
10=INPUT MODE READ ONLY
1030 DATA | | | | | + +-----
11=APPEND MODE WRITE ONLY TO
EOF (not for fixed)
1040 DATA | | | | +-----
0=DISPLAY FORMAT DATA
1050 DATA | | | | +-----
1=INTERNAL FORMAT DATA
1060 DATA | | | +-----
0=FIXED RECORD LENGTHS
1070 DATA | | | +-----
1=VARIABLE RECORD LENGTHS
1080 DATA +-+-----
NOT USED SET TO ZERO(ha)
1090 DATA OUTPUT DISPLAY VAR
IABLE
1100 DATA OUTPUT DISPLAY FIX
ED
1110 DATA OUTPUT INTERNAL VA
RIABLE
1120 DATA OUTPUT INTERNAL FI
XED
1130 DATA INPUT DISPLAY VARI
ABLE

```

(See Page 25)

Advice on using higher modem speeds

Software, cabling can make the difference

The following suggestions on using a TI with a modem were taken from a series of messages by Michael Maksimik on the Chicago BBS and was edited by William M. Lucid for use on the Hoosier Users Group BBS. We found it in the HUG newsletter.

If your computer is a TI99/4A, use Term80 (a new emulator which I am currently evaluating) or Telco or Mass Transfer. Telco has some nice windowing features, and it supports 80-column cards using the V9938/V9958 video processors. Mass Transfer, in all its inception, has some unique file transfer protocols for sending bunches of files to/from a BBS.

Term80 allows ANSI cursor emulation in 80 columns using a standard TI display. If you have a standard V.22 1200-baud modem, you should be able to connect to a BBS with no trouble. Bell 103 modems (300 baud) are also supported, but for your phone bill's sake, upgrade! V.22bis (2400 baud) will work with the TI, but it is really the limit that the TI can display easily unless you have some type of processor upgrade or hardware flow control (RTS/CTS signals from modem get controlled from the terminal program to prevent loss of data). I have tested Telco at 4800 baud and it is marginal. Super Mass Transfer, 80 columns and ANSI monochrome, is better suited to 4800 baud/9600 baud. Some 2400-baud modems have the data compression feature and this allows a terminal rate higher than the line rate.

Such a modem (2400 line rate, with compression and error correction) needs a higher host rate so it efficiently compresses/decompresses and corrects errors with

no overrun errors. On such a modem, make your terminal rate 9600 baud, which is four times the line rate. It is rare that the modem will generate long sequences of 9600-baud data, but the decompression can produce short bursts of 9600-baud packets, especially with text data which is highly compressible. Make sure you use ITU-T V.42/V.42bis (or LAP-M) protocols. Don't use MNP protocol unless you have to for maintaining a stable connection. Most phone lines now can handle higher baud rates, and since this BBS supports a maximum carrier of 14,400, you may want to invest in at least a modem of this type. Computer fairs are practically giving away V.22bis/V.42bis modems (2400-baud modem with compression).

THE TI AND 9600 BAUD

It is very difficult for the TI to keep up with 9600 baud, not that it is a slow computer, but because most terminal programs use the video circular buffer for receiving characters. When a character is sent through the RS232 port, the interrupt routine will grab the character and put it into the video RAM. This is the secret of how TE-II works.

TI is slow in this routine for a couple of reasons. First, there is only *one* IRQ line to receive interrupts from *all* peripherals. A second line was planned for the TI99/8, and an interrupt ID scheme was developed but never implemented, allowing faster detection of the interrupt. The problem occurs when an interrupt is detected; the TI does not know which peripheral generated it. It must then turn on each card and pass control to the card so that TI can check itself for a possible interrupt.

Some cards implement an interrupt routine consisting only of a return instruction, other cards actually check for a data byte. The RS232 card checks for interrupts on *every* port (serial and parallel ports) and if you have two RS232 cards, that means six ports are checked for an incoming character. If you have a DJIT video card, it also has an interrupt routine, and, generally, all cards are scanned.

Some cards (like the Myarc 512K card) do some type of bank switching on interrupts; the bottom line is that the computer is doing a lot of unnecessary searching for one little character, which takes a lot of processor time.

The problem is compounded when we actually get the character; we need to store it somewhere. Well, the TI wasn't made with any large amount of CPU RAM, so we must store it in slow VDP RAM.

VDP RAM access is byte-oriented, and it is pretty slow. Having a faster video (even if it is in 40-column mode) helps. A V9938/V9958 processor is a much better choice, because it can handle data faster from the CPU.

You can also do some other things to speed the system up a bit:

- 1) Get the Western Horizons Technology keyboard module, which includes an updated system ROM, containing a much better interrupt scanning routine. It is more efficient than the old console routine, and the new unit allows use of new PC keyboards (101/102-key keyboards) and it adds some usable system memory.

- 2) You can boost processor speed during terminal I/O by having a switchable 16-
(See Page 26)

MODEFLAGS —

(Continued from Page 23)

1140 DATA INPUT DISPLAY FIXE

1150 DATA INPUT INTERNAL VARIABLE

1160 DATA INPUT INTERNAL FIX

ED

1170 DATA INPUT INTERNAL RELATIVE

1180 DATA 0 0 0 0,0 0 0 1,0

0 1 0,0 0 1 1,0 1 0 0,0 1 0

1,0 1 1 0

1190 DATA 0 1 1 1,1 0 0 0,1

0 0 1,1 0 1 0,1 0 1 1,1 1 0

0,1 1 0 1

1200 DATA 1 1 1 0,1 1 1 1 1

MODEM —

(Continued from Page 25)

MHz crystal. The TI uses a 12- or 48-MHz crystal. The 48-MHz crystal is used with the TIM9904 chip. You can substitute a TIM9904A and use the 12-MHz crystal instead, and use a switch to "turbo" the system to 15 MHz. Be aware that this will screw up baud rates, so use Telco, which allows a custom-calculated baud rate taking into account the increase in system clock speed.

3) Use some flow control. Although no terminal programs are available which use flow control (Term80 may use it, I haven't found out yet), this allows a high line rate and controlled terminal rate so you don't use data, and it is easier to start/stop the flow of data.

On the Geneve, I have been able to use Super Mass Transfer in GPL mode, with much better results. In fact, if you combine this with TEXEC, which is EXEC modified to allow use of a single interrupt input from *one* RS232 port (serial port 1), then the only scanning done on interrupt (EXTINT) will occur to serial port 1. This devotes more processor time to useful scanning for characters, and you can actually connect at a rate of 9600 (true rate) with a line rate of 9600 if you like. I have tried higher rates, but TEXEC doesn't really keep up at higher than 12,000 bps, and many modems don't allow those terminal rates.

You have to understand that line rates (300, 1200, 2400, 4800, 7200, 9600, 12,000 and 14,400) are rates negotiated on the line itself, between the two modems. Your terminal must be one of the following: 300, 1200, 2400, 4800, 9600, 19,200, 38,400, 57,600 or 115,200.

If your modem connects at 14,400 bps, you must have a terminal rate of at least 19,200, to allow for software compression and error correction to work properly. Since at these rates, interrupts for programs like Telco, Mass80, SuperMass80 and GEN-TRI usually fail, you must keep the rate at 9600.

If you implement flow control on the modem, this forces the modem to buffer data while the computer is busy. On PCs, the buffer is usually built into the 16550AF UART, which has a 16-,32- or 64-byte buffer for receiving character

overruns when the CPU is busy doing something else, like drawing a screen. For our Geneve, we have no buffer and the CPU must read each character before the next one comes in, or we lose data.

Tim Tesch has made PORT work with the interrupt routine in native MDOS mode, using high-speed system memory to allow successful interrupt scanning and video (monochrome) update. (PORT is a new, high-speed terminal program for the Geneve. It is available through Cecure Electronics or from GENie, Delphi and other services. It is currently in beta.—Ed.) Color screens at that high speed require a generally slower video mode and a color interpreter. So you need to enable flow control and the modem must support this feature if it has a high-speed modem. Be sure your modem has *hardware flow control*, which uses the RS232 pins 4 and 5 to control the flow of data.

This will allow you to use PORT's enhanced color ANSI features and high-speed YMODEM-G file transfer routines, and also high baud rates, which most new modems use and require for successful data compression and error correction. I normally run PORT at 38,400 with full flow control using the "MIKE" cable design.

TI	modem
2.....	3
3.....	2
5.....	20
7.....	7
8.....	4
20.....	5

The pin 2 is data from RS232 card to modem; pin 3 is data from modem to RS232 card; pin 5 is used to control DTR signal on modem, for fast hang-up; pin 7 is ground on both modem and RS232 card; pin 8 or RS232 represents request to send flow control. Internally, the TI RS232 has one lead cut and jumper soldered. This allows PORT an additional control line to switch this wire on and off independently of whether or not we want to send data. This line is like a faucet which shuts off the modem from sending us data, and the modem can thereby tell the remote system to stop sending data in turn. Pin 20 of the TI is the inbound clear to send flow con-

trol. The modem uses it to stop the RS232 from sending data. If the modem encounters a line error, or if the distant modem stops flow, then this stops it from sending the data.

The distant modem may encounter errors or the modems may negotiate data packets or may be in the process of ranging. These situations must prevent either system from sending data so both clear to send lines on both ends are deactivated. These lines (RTS and CTS) are very important, because they allow a faster serial device to access a slower computer or host, and the flow lines prevent loss of data. They allow your computer to accept data as fast as it can receive and they allow your computer to send data as fast as the remote system can handle reception.

Jeff's cable design is similar to mine, but he uses pin 5 to activate the flow control, and pin 8 is used to handle DTR hang-up, or you just disable DTR hang-up in other programs which toggle that line during transmission.

In other words, if you use Telco and PORT, with Jeff's cable, you have to disable DTR hang-up in Telco and use the three plus character and ATH to hang up. My cable (Mike) does not require this change, and you can still use DTR hang-up in PORT, Mass Transfer and Telco with no changes.

Jeff's cable design is ideal for those who have a non-TI card, and who do not wish to make the mod to their RS232 card to add the extra CRU line.

Ramcharged to sell Texaments programs

Ron Markus of Ramcharged Computers says he has bought all the rights to programs for the TI99/4A formerly produced by Texaments.

For further information, contact Ramcharged Computers, P.O. Box 81532, Cleveland, OH 44181, (216) 243-1244.

MICRO-REVIEWS

Remind Me! Calendar, MBP Real Time Clock Card, Remind Me!

By CHARLES GOOD

The three products I am reviewing this month are closely related. If you use one of these products you should seriously consider obtaining the other two.

REMIND ME! CALENDAR by R.F.W. Enterprises

I only actually use a few TI products I review on a very regular basis. Remind Me! Calendar is one of them. It is a commercial supplement to Remind Me!. Remind Me! is a public domain program that is the best appointment calendar program for the 99/4A and Geneve.

The Calendar is a template of already entered daily Remind Me! notes and monthly notepads, a whole year's worth. Included are holidays, famous people's birthdays, highlights of United States history and other neat stuff. Each month's notepad includes the month's holidays (including some you may have never heard of), and the gemstone and flower typically associated with that month. On the day in which each state was admitted to the union you are given the year when this happened along with the state's bird, tree, and flower. At the lower right corner of each day is the astrological sign for that day. Scattered throughout is interesting information about all United States Presidents.

To use Calendar you boot Remind Me! which comes as a freebie on the Calendar disk. If you don't have a clock card you then manually input the current month. If you do have a clock card in your 99/4A or if you run Remind Me! on a Geneve then the current month and day are automatically selected. Once a month and day are selected Calendar notes for the entire month are then automatically loaded into memory and you see a display of the month's calendar with the cursor on the current day. Just press <enter> to see the day's notes and reminders (they are different for each day of the year) or press the space bar to see the monthly notepad,

which is the same for all the days of a particular month. Use the arrow keys to move the cursor to any other day of the month and see the notes for these other days. You can also back out of the current month and load in a calendar display and notes for any other month of any year. At any time you are free to add your own personal daily reminder and monthly notes to those presented to you by Calendar, if necessary overwriting Calendar's notes to make room for your own. From within Remind Me! you can save these changes back to disk easily.

The Calendar is set up for 1993, but since most of its information is not 1993-specific you can use it for any year. A famous person's birthday is on the same date in all years, not just in 1993. Just use the Calendar files as a template, renaming the 12 files from "1/1993" to "1/1996," etc., for each of the 12 months of the current year. Here are the Calendar's daily and monthly notepad for February 28, the day many of you will receive in the mail the issue of MICROpendium containing this review:

—Notes for February 28. Birthday: Bernadette Peters 1948. Note: Republican party founded 1854. Note: Indians attack Deerfield Mass. 1704, kill 40 carry off 100. Pisces.

—Monthly notes for February. Stone-Amethyst. Flower-Violet. Holiday: National Freedom Day 1st. Holiday: Australia Day 1st. Holiday: Boy Scouts Day 8th. Holiday: Lincoln's Birthday 12th. Holiday: St Valentine's Day 14th. Holiday: President's Day 15th. Holiday: Washington's Birthday 22nd. Holiday: Ash Wednesday 24th.

All of the above birthdays and notes are valid for any year. Some of the holidays, such as President's Day and Ash Wednesday, are not on the same days in February 1996 that they were in February 1993.

Remind Me! is public domain, but the Remind Me! Calendar files are commercial. They cost \$7 including postage from R.F.W. Enterprises. The Calendar files

come on a flippy SSSD disk complete with hard copy and on-disk documentation and the Remind Me! files.

MBP REAL TIME CLOCK CARD by Cecure Electronics

Modern personal computers have built-in battery-operated clocks. Now 99/4A owners can have this feature too. The MBP board is a public domain design that includes the potential capability of analog to digital conversion along with a real-time clock. Almost no software exists to take advantage of the MBP's analog-to-digital capability, but a number of 99/4A applications make use of a clock, if it exists. Cecure manufactured a bunch of MBP boards and originally sold them as kits. Now the company has built up the remaining boards as fully functional 99/4A computer clocks. Just add a button battery from Radio Shack, drop Cecure's MBP card in your Peripheral Expansion Box, and you have a very accurate and useful computer clock.

Most software that can utilize a Bud Mills Services' P-GRAM clock or a Cor-Comp triple tech clock will work with Cecure's MBP clock. In my opinion the most useful such software is Remind Me! and the Remind Me Calendar described above. Boot also recognizes these clocks and will display the time of day on the Boot start up if a clock is in the P-box. You can also access the MBP clock from either BASIC by using a series of CALL PEEKs and CALL LOADs. This is not as convenient as with a P-GRAM or Triple Tech clock, which can be accessed as device CLOCK. With these other cards you can OPEN #1:"CLOCK" and then INPUT #1 the time of day, day of the week and date. Software is provided with the Cecure MBP clock that allows you to set the clock, display the time and date in basic command mode, print disk catalogs and disk labels with time and date stamps and do some other

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MICRO-REVIEWS —

(Continued from Page 27)

potentially useful things. You also get some hard cover docs with the Cecure MBP card, but you can ignore most of them. The docs describe how to build the kit which Cecure has already built for you, and give suggestions for analog-to-digital hardware and software. I understand that such TI hardware and software exists, but I have never seen any of it. You can ask Cecure for details.

What you can't do with any 99/4A clock is automatically time and date stamp files as you create them. The Geneve and other PCs have this feature. The 99/4A doesn't. The inability to do this is due to basic limitations of the TI, Myarc, and CorComp disk controller's DOS. The DOS is in ROM and cannot be easily altered. With other clock cards that respond to device name CLOCK it is possible to manually time/date stamp all your text files, but you can't do this with the MBP clock. To do this with other types of clock cards, including the P-GRAM and Triple Tech clocks, from any version of TI Writer type LF (load file) and press <enter>. Specify 0 1 1 CLOCK for the file name (zero, space, one, space, one, space, "CLOCK"). This will put the current time and date in line #0 at the beginning of the document you already have in the word processor's edit buffer. When you save this document to disk the time/date notation is saved too as line No. 1 of the document.

If you don't already have a clock in your 99/4A I highly recommend one. Combined with the other software reviewed by me this month, a clock card can be very practical. Triple Tech cards are no longer in production. Only limited numbers of new P-GRAM cards remain unsold, and they are kind of expensive if all you want is a computer clock. Cecure sells its MBP clock for \$34.95 plus shipping.

REMIND ME!

by John Johnson

This software was reviewed many years ago in MICROpendium and I have partially described its operation in my review above of Remind Me! Calendar. I feel the urge to add additional comments. Remind Me! is one of the most useful practical day-

to-day applications ever written for the 99/4A or Geneve. Because of its speed and ease of use, it is, in my humble opinion, the best calendar and daily reminder software I have seen run on *any* type of computer.

The key to a good computer calendar and daily reminder program is speed. What you are competing against are notes stuck to the refrigerator with magnets or scribbled on a monthly calendar hanging on the wall, or handwritten entries in a calendar notebook carried in a purse or pocket. Speed is the key! How long does it take to boot up a computer calendar reminder program? If it is quicker and easier to make a written note of an upcoming event in one of these paper-and-pencil ways, or to find the location of a paper that contains written notes about what is supposed to be happening today, then you are not going to use a computer calendar reminder program.

My 386DX40 takes what seems to be an eternal amount of time to get to its first menu. When I turn on the PC it checks its memory, 3 times. Then it boots MS-DOS, loads its hi-mem memory manager and checks its memory yet again. Then it loads all its device drivers and sorts them out into obscure memory locations so they won't interfere with each other. These device drivers include the VGA video, mouse, sound card, CD-ROM and modem. This whole process takes 65 seconds just to get me to the first menu. It then takes an additional 10 seconds or so before my PC's calendar daily reminder program is loaded. It is much quicker to glance at a note stuck on the refrigerator.

On my 99/4A system I have a clock card and Remind Me! on a Horizon RAMdisk. From a cold boot takes me 15-18 seconds to turn on my 4A, load Funnelweb from the RAMdisk, load Remind Me! from a Funnelweb central menu, and pop up on screen the reminders for the current day of the current month. This can be done almost as fast from a cold boot by selecting Extended BASIC with Remind Me! and its monthly reminder files on a disk in DSK1. It takes 35 seconds this way, still much faster than it takes to fire up my 386. It is often said that the 99/4A is slow compared to modern computers. I guess it depends on how you define speed. The 4A's ability to quickly boot Remind Me! is a

major reason this software is so practical.

Remind Me! can be used without a clock card and without Remind Me! Calendar. However the three products together make a winning combination. Just as 80-column Funnelweb by itself justifies the hardware upgrade to an 80-column TI system, so Remind Me! and Calendar by themselves justify the purchase of a clock card for the PE box.

Remind Me! is public domain. If you don't already have it send me \$1 (for the disk and postage) and I will mail it to you on a SSSD disk complete with on-disk documentation.

ACCESS

R.F.W. Enterprises (for Remind Me! Calendar). 111 Oakridge St., Chicopee, MA 01020. Phone (413) 593-6951.

Cecure Electronics (for MBP clock card). P.O. Box 22, Muskego, WI 53150-0022. Order phone 800-959-9640. Info voice phone (414) 679-4343. Fax (414) 679-3736.

Charles Good. P.O. Box 647, Venedocia, OH 45894. Phone (419) 667-3131. Internet cgood@osulima1.lima.ohio-state.edu or good.6@osu.edu

**M.U.N.C.H. member
Anthony Falco dies**

Anthony N. Falco, 56, a member of M.U.N.C.H. (Massachusetts Users of the Ninety-nine Computer and Hobbyists), of Northboro, Massachusetts, died recently in Marlboro Hospital. He had battled brain cancer since May. He taught math and computer science at Framingham High School for 28 years. He graduated from Worcester State College in Massachusetts and held a master's in mathematics from Wesleyan University in Middletown, Connecticut.

He is survived by his wife, Jean; a son, Anthony M. Falco; two daughters, Laurie A. Falco and Lisa M. Falco; a sister, nephews and nieces. Memorial contributions may be made to St. Bernadette's Church Building Fund, P.O. Box 743, Northboro, MA 01532 or the Anthony N. Falco Scholarship Fund, c/o Joseph Hannigan, Framingham High School, 115 A St., Framingham, MA 01701.

USER NOTES

Mosquito correction

There was a small error in a small program that you probably figured out very quickly. In MOSQUITO, in last month's user notes, has a line with one too many commas in line 120. Here is the error:

```
1808,A,B, ) :: CALL MOTION(#1
```

Here is the correction:

```
1808,A,B) :: CALL MOTION(#1
```

Web page address corrected

A tilde got dropped from a WWW page listed in the January edition. Rich Polivka's TI home page is at <http://w3.gwis.com/~polivka/994apg.html>.

TI/Geneve archive site set for Internet

Steve Hayter is setting up a software archive for TI/Geneve software. According to a post on the TI Internet newsgroup, "I've got the server already configured and have about 150MB allocated for the TI. I'm just waiting for the connection to come in and for the assignment of my domain name to be finalized."

Hayter can be reached at shayter@spar.ca.

Transcription error

Woodrow A. Wilson of San Diego, California, reports a small problem with a user note published in January entitled "Using hex codes to modify fonts." Wilson was the author of the user note.

Unfortunately, a minor error in the transcription crept into the paragraph that starts, "Now that we have the value," The fifth sentence should read: "The next row will have column 1 and 2 filled in on the left half of our box and 8 and 4 on the right half."

When I wrote the article (for the *Computer Voice* newsletter), I had to eliminate some of the explanation because of lack of space. I would much prefer to have used a more descriptive term than "column," since it actually should be "the column with the value of 1," etc.

Printing line numbers with TI-Writer

When printing out TI-Writer documents, it is sometimes desirable to include the line numbers. If you are using a parallel printer, enter PF in the command line, and type L PIO and Enter. The line numbers will be included in the printout.

Multiplan works swimmingly with formulas

The following was written by Dennis Wood.

I had been using Multiplan to keep records of my son's swim times by entering his times in seconds and hundreds of seconds, such as 31.89. This allowed me to add a row that consisted for a formula that searched through his times for the minimum — MIN(rc:rc) — to automate a visual search for the lowest time. A major problem occurred, however, when he began swimming longer lengths and exceeded 59.99 seconds. One solution would have been to express all times in seconds, such as 61.99 seconds, instead of 1:01.99. This allows the MIN() formula to still work, but the time display does not look correct and requires conversion back and forth.

What I did was to convert all the times to text entries by entering them in the Alpha mode instead of the Value mode. The display of 59.99 or 1:01.99 now look correct and can be entered directly without conversion.

Then I wrote a series of formulas using Multiplan's ability to convert text to value, VALUE(), and value to text, FIXED(), functions. If the string had a length of more than five, then it was assumed to have a colon at the sixth position counting from the right.

Then two formulas, one for minutes and another for seconds were written. If the length was more than five, minutes were extracted and converted to a value. If the length was five or less, minutes was set to zero. Seconds were converted by taking the last five positions and converting them

to a value. One cell calculated minutes and a second calculated seconds. Then a third cell was used to combine the two values into seconds by multiplying minutes by 60 and adding seconds. I can now find the minimum by searching through a range of these converted values.

After finding the minimum, it is now necessary to display it as "min:sec." This is accomplished by using the integer function, INT(), to find minutes and the modulo function, MOD(), to find seconds, and converting them back into a text stream using the FIXED() function.

I printed the formula using a printer setup of DSK1.XX, giving me a TI-Writer file on disk. I then merged the file into this report, and added comments. Cell format is expected to be "MM:SS.HH" where MM is minutes, SS is seconds and HH is hundredths of seconds.

Text input

```
1 "1:01.99"
```

Formula to compute and convert minutes to a value:

```
2 IF((LEN(R[-1]C)<6),0,VALUE(MID(R[-1]C,1,LEN(R[-1]C)-6)))
```

Formula to compute and convert seconds to a value:

```
3 VALUE(MID(R[-2]C,LEN(R[-2]C)-4,R))
```

Formula to combine minutes plus seconds:

```
4 60*R[-2]C+R[-1]C
```

Formula to search several columns of converted times for minimum:

```
5 MIN(R[-1]C:R[-1]C[+4])
```

Formula to convert value back to text "min:sec," with seconds displayed to two decimals:

```
6 FIXED(IJNT(R[-1]C/60),0)&" : "&FIXED(MOD(R[-1]C,60),2)
```

I hope this short note has helped make the power of Multiplan more useful to you.

Scrunch your numbers

Scrunch is an Extended BASIC routine that compresses the appearance of numbers. The numbers are displayed small in (See Page 30)

USER NOTES

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all dimensions. They appear to be easily readable. The program was written by Jim Peterson.

SCRUNCH

```

100 CALL CLEAR !209
110 CALL SCREEN(8)!153
150 PRINT TAB(6);"SCRUNCHED
NUMBERS": : "          by Ji
m Peterson": : " This utili
ty routine will" !139
160 PRINT "compress numbers
into half the space, but th
ey may not be very legible
on your screen." : : : :
!085
170 PRINT "          Pres
s any key" !251
180 CALL KEY(0,K,ST)!015
190 IF ST=0 THEN 180 !015
200 CALL CLEAR !209
210 RANDOMIZE !149
    
```

```

220 DATA 75557,22222,25127,6
1216,55571,74616,74757,71222
,75257,75711 !018
230 FOR J=0 TO 9 !064
240 READ C$ !254
250 CH$(J)="00"&C$ !108
260 NEXT J !224
270 CH=91 !125
280 RX=INT(10000*RND+1000)!0
74
290 N$=STR$(RX)!034
300 IF LEN(N$)/2=INT(LEN(N$)
/2)THEN 320 !030
310 N$="0"&N$ !082
320 FOR J=1 TO LEN(N$)STEP 2
!160
330 P1=VAL(SEG$(N$,J,1))!231
340 P2=VAL(SEG$(N$,J+1,1))!1
63
350 FOR T=1 TO 7 !073
360 Z$=Z$&SEG$(CH$(P1),T,1)&
SEG$(CH$(P2),T,1)!087
370 NEXT T !234
    
```

```

380 CALL CHAR(CH,Z$)!176
390 Z$=" " !003
400 P$=P$&CHR$(CH)!044
410 CH=CH+1 !143
420 IF CH>159 THEN 480 !147
430 NEXT J !224
440 PRINT N$;" ";P$ !210
450 P$=" " !249
460 N$=" " !247
470 GOTO 280 !104
480 PRINT "NO MORE CHARACTER
S AVAILABLE" !016
490 END !139
    
```

Disk catalog routine works on hard disks, RAMdisks and floppies

The following subroutine was written by Jesse Slicer. It allows users to catalog (See Page 31)

MICROpendium disks, etc.

- Series 1995-1996 mailed monthly (April 1995-March 1996)..... \$40.00
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- Series 1989-1990 (Apr 1989-Mar 1991, 6 disks) ..\$25.00
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Check box for each item ordered and enter total amount here:

Check/MO Visa M/C
(Circle method of payment)

Credit Card # _____

Exp. Date _____

Signature _____

USER NOTES

(Continued from Page 30)

hard disks, RAMdisks and floppies from Extended BASIC programs. It can be merged into a program and CALLED at anytime. A simple way to use it, is to merge it into memory and enter the following line:

```
1 CALL CAT("DSK2.")
```

SUB CAT

```
32000 SUB CAT(A$):: DIM B$(7)
) :: B$(1)="DIS/FIX" :: B$(2)
="DIS/VAR" :: B$(3)="INT/FIX
" :: B$(4)="INT/VAR" :: B$(5)
)="PROGRAM" :: B$(6)="<DIR>
" :: B$(7)="EMULATE" !183
32010 CALL CLEAR :: OPEN #1:
A$, INPUT , INTERNAL, RELATIVE
:: INPUT #1:C$, B, B, C !158
32020 PRINT A$&" - DISKNAME=
"&C$ :: PRINT "AVAILABLE= "
&STR$(C)&" USED= "&STR$(B-C
):: PRINT !141
32030 PRINT "FILENAME      SIZ
E          TYPE          P" !05
32040 PRINT "-----
-- -----" ::
FOR D=1 TO 127 :: INPUT #1:C
$, E, B, C :: IF C$="" THEN 320
80 !088
32050 D$=C$&RPT$(" ", 10-LEN(
C$))&" " :: E$=STR$(B)&RPT
$(" ", 5-LEN(STR$(B)))&" " :
: F$=B$(ABS(E))&" "&STR$(C)&
RPT$(" ", 15-LEN(B$(ABS(E)))&"
"&STR$(C))&" " :: D$=D$&E
```

```
$&F$ !192
32060 IF E<1 THEN D$=D$&"Y"
ELSE D$=D$&"N" !118
32070 PRINT D$ :: NEXT D !09
6
32080 CLOSE #1 :: PRINT : "Pr
ess Any Key";!144
32090 CALL KEY(0,K,S):: IF S
=0 THEN 32090 !027
32100 SUBEND !168
```

Disk tips to keep you out of trouble

The following was written by Jim Swedlow and appeared in his TI-Bits column in the newsletter of the User Group of Orange County, California.

A while back a "Disk Doctor" attended one of our meetings. He had a number of interesting things to say. Here are a few of his comments:

- Do not clean your drives until you need to. Your system will tell you when it is time — you will have trouble reading disks.
- When you clean your drive, use any brand name commercial disk drive cleaner, and follow instructions.
- If this fails, you need to have your drive cleaned professionally. If you want to try it yourself, and you have a double-sided drive, be careful with the second read/write head. It is very easy to bend the bracket to the point that the head must be realigned.
- He has tested the amount of residue

left on heads with brand name disks and cheapies. He found no difference. This does not mean that they are of equal quality, only that the cheapies are not dirtier than the expensive disks.

- He opposes flippies for single-sided users. His point is that when you flip a disk and it runs backwards in its cover, dirt is loosened and spun into the drive.

Over the years I have mentioned the importance of backing up your disks. Simply put, disk drives eat disks. One weekend when the temperature was over 100 degrees F., I was working on some letters. I blew both my word processing disk and my data disk.

I had a backup of the word processor, but it was not configured. That night, after it cooled down a bit, it took me about 30 minutes to recreate a working disk. The data files were simply lost.

The moral? Keep two backups of your program disks — one of the disk as you received it (the master) and one of your configured working disk (backup working disk). Do not forget to backup your data disks every now and then. This will save you time and aggravation next time your drive gets hungry.

MICROpendium pays \$10 for items used in this column that are sent in by readers. Send User Notes to MICROpendium User Notes, P.O. Box 1343, Round Rock, TX 78680; email jkoloen@io.com.

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Smart One 2400X 2400baud modem with power supply (works with any TI modem cable), \$30; Volksmodem 1200 baud modem (needs TI cable), \$15; Signalman Mark XII 1200 baud modem (incl. TI cable, no docs), \$15; Signalman III-TI 300 baud modem (incl. TI cable, no docs), \$7.50; Commodore 1702 color composite monitor, incl. cables for TI99/4A (mea-

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