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MICROpendium

Covering The TI99/4A Home Computer And Compatibles

Volume 2 Number 7

August 1985

\$1.50



Lets talk games

(See Page 16)

\$11995

VERY LIMITED TIME OFFER!

AXIOM GP 100TI

DIRECT CONNECT PRINTER

INCLUDES SPECIAL PRINTER ADDENDUM FOR THE TI!

"JUST PLUG IT IN AND START PRINTING!"

A serious printer for the budget-minded TI user. For a very limited time only, we are offering this direct connect Seikosha GP 100TI dot matrix printer from Axiom Corporation at unheard-of savings.

Simplicity of operation and Seikosha's famous reliability together with the direct-connect feature makes the GP 100TI the perfect starter printer.

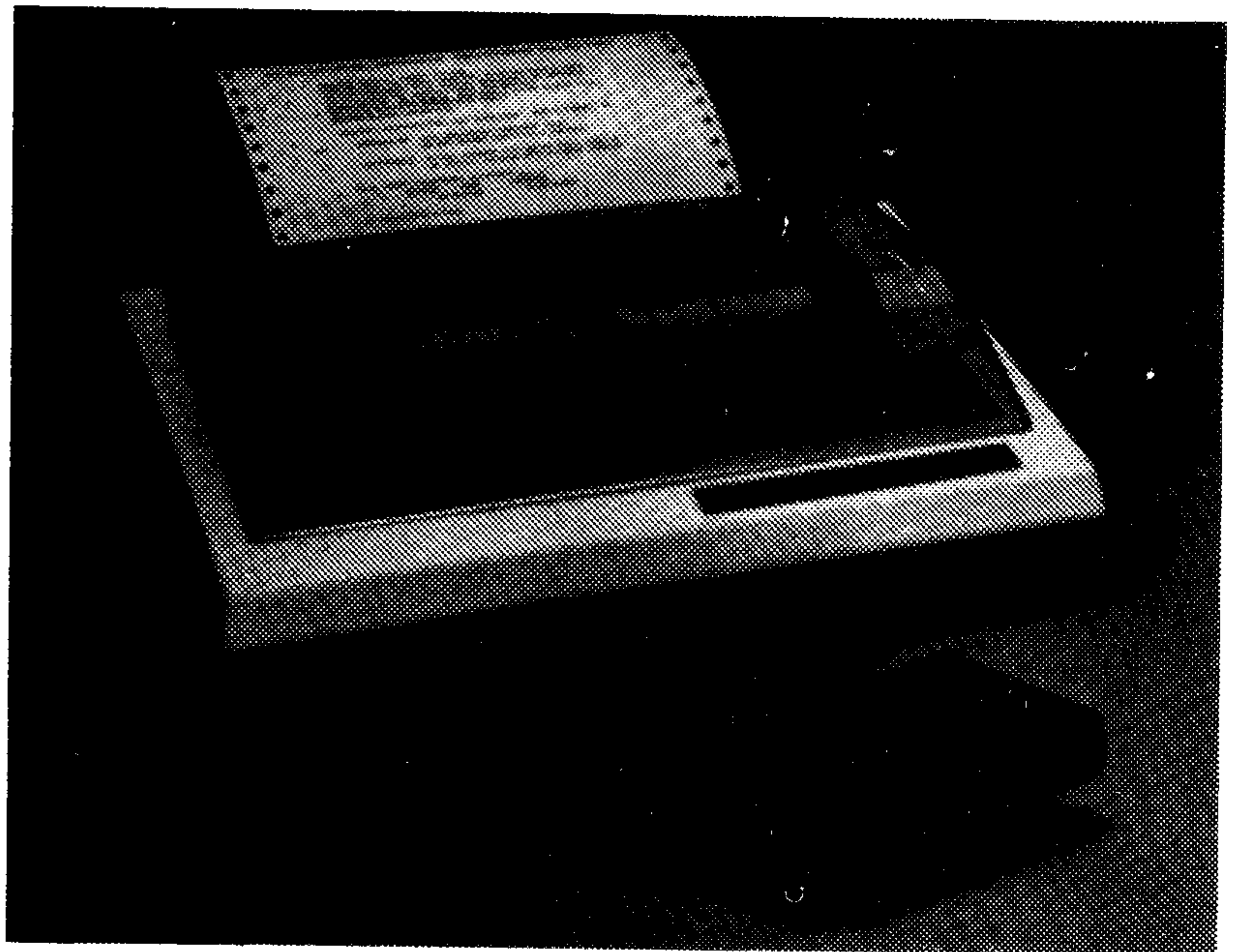
Multiple copies, adjustable tractors, and suprisingly good graphics add to the bargain. Another plus — you can daisy-chain other peripherals such as disk drives and cassette program players with complete compability. The GP 100TI allows user defined number of line feeds per line, line lengths, margins, and a self-test. Big printer features for an incredibly low price.

This dot-addressable printer also uses cartridge ribbons and standard fan-fold paper.

But hurry! This is a very limited time offer and quantities are limited.
AXI 104 \$119.95

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L->PQRSTUVWXYZ[\]^_`PQR
:789 : ; < = > ? @ F
_ > abcdefghij
- @ # $ % ^ & * P Q R S T U V W X Y
_ P Q R S T U V W X Y Z [\]^_`a b
L->PQRSTUVWXYZ[\]^_`PQR
:789 : ; < = > ? @ F
    
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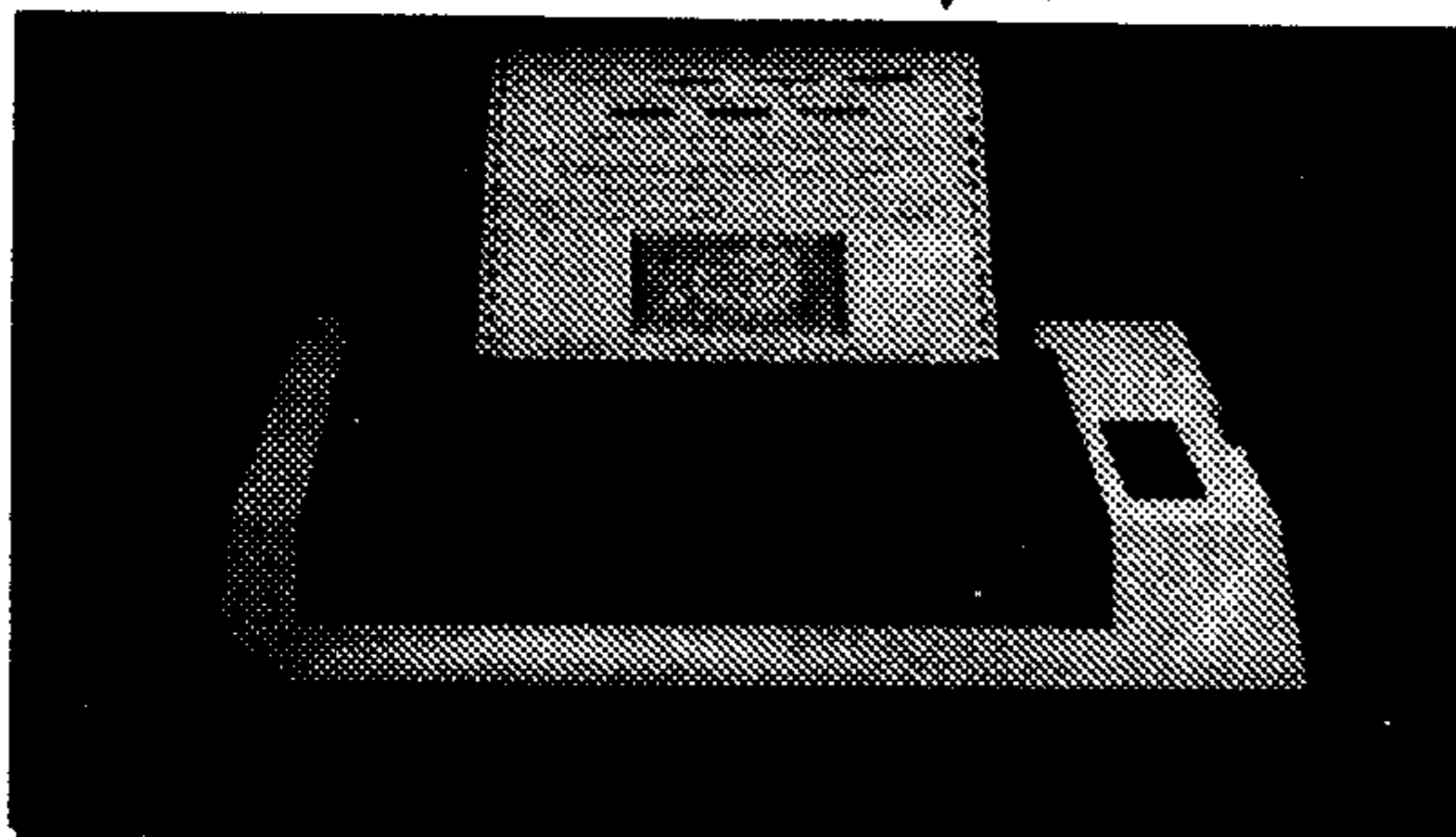
\$32995

READY TO PRINT!

AXIOM GP 700TI COLOR PRINTER!

"AN AFFORDABLE FULL-COLOR PRINTER

DIRECT CONNECT



Color Graphics Printer — GP-700TI

A 7-color printer that uses a unique 4-hammer printhead to implement its impact type of dot matrix printing.

Main features of the GP-700TI include:

- Printing speed is 50 chrs./sec. irrespective of the color.
- Tractor feed and friction feed
- Ink ribbon cassette has individual cartridges that can be replaced as a specific color is used up
- Standard characters, double-width characters and graphics can all be intermixed on the same line in any choice of colors.
- Colors can be specified in 3 ways
 1. Character units or 8-dot vertical graphic's columns
 2. Single dot units scanning horizontally corresponding to the the hammers in the print head

AXI 105 \$329.95

EXCELTEC LICENSED EXTENDED BASIC

\$4995

LOWEST PRICE EVER!

"Works exactly like the original!" K.R. Ft. Myers, FL

~~NOT \$6995~~

~~NOT \$7995~~

~~NOT \$7495~~

In conjunction with Exceltec, Inc., Unisource has gone to great lengths to bring you the lowest-cost, fully compatible, fully documented Extended BASIC module on the market today. Exceltec is licensed by Texas Instruments to manufacture its Extended BASIC module.

This module contains the same chip as the original Texas Instruments module at a tremendous savings!

The following feature enhancements are included: IF-THEN-ELSE statements, direct screen accessing, multi-line statements, output formatting with "using" clause, BASIC sub-programs with arguments and local variables, auto booting of disk programs, easy control of up to 28 sprites from BASIC, program chaining, merging of code-protected programs, ON ERROR statements, BOOLEAN functions such as AND, OR NOT, etc.

When 32k Memory Expansion is present in your system, this powerful software will provide access to the additional memory, and allows you to run the many third party programs written in Extended BASIC. Call now! **STA 113**

NOW \$4995



"THREE PRODUCTS ... ONE CARD!"
TRIPLE TECH



CLOCK/CALENDAR: Provides real time: YEAR, MONTH, DATE, DAY OF THE WEEK, HOURS, MINUTES AND SECONDS. The Clock/Calendar will feature a crystal controlled oscillator accurate to .002% and battery back-up so that the clock calendar will still operate for over six months even with power turned off.

The Clock/Calendar can easily be accessed through either TI BASIC or TI Extended BASIC. This makes the CorComp Clock/Calendar portion of TRIPLE TECH ideal for bulletin board systems, computerized time management and the computing of the hobbyist.

64K PRINTER BUFFER: The Buffer is virtually compatible with any printer and requires no user modification of software — it installs easily, in seconds.

FEATURES:

- 64k Memory
- Copy Function for immediate duplication of print-out
- Clear Function to empty buffer

SPEECH SYNTHESIZER CONNECTION: Now you can place your TI Speech Synthesizer board into your TI Peripheral Box. You simply remove the TI Speech Synthesizer board from its housing and plug on to TRIPLE TECH!

TRIPLE TECH will allow you normal use of your TI Speech Synthesizer while eliminating the need for the external box plugged into the side of your console.

COR 112 **\$129⁹⁵**

The CorComp Clock/Calendar Stand Alone provides a simple means of accessing in real time the: YEAR, MONTH, DATE, DAY OF THE WEEK, HOURS, MINUTES AND SECONDS. The Clock/Calendar will feature a crystal controlled oscillator accurate to .002% and battery back-up so that the clock calendar will still operate for over six months even with the power turned off.



The Clock/Calendar can easily be accessed through either TI BASIC or TI Extended BASIC. This makes the CorComp Clock/Calendar ideal for bulletin board systems, computerized time management and the hobbyist's programming.

The 9900 CorComp Clock/Calendar will be housed in a small black metal box 5"x2"x2 1/2" patterned after the CorComp 9900 Micro Expansion System. It plugs directly into the side of the 99/4A or it can daisy chain with the TI Speech Synthesizer and other CorComp stand alone products.

LOAD INTERRUPT SWITCH: As an additional feature 9900 Clock/Calendar Stand Alone will have a Load Interrupt Switch to allow use of the newest screen dump programs now available for the TI 99/4A.

COR 113 **\$79⁹⁵**

COMPLETE EXTERNAL DS/DD DRIVES - READY TO USE!

Nearly a MB of Storage with Two Slim Line Drives

These external disk drives are ideally suited for use with any disk controller card that can control one or more double sided, double density disk drives.

At long last, affordable disk drives are available for your TI 99/4A and are fully compatible with all storage devices — TI, CorComp, Myarc, etc.

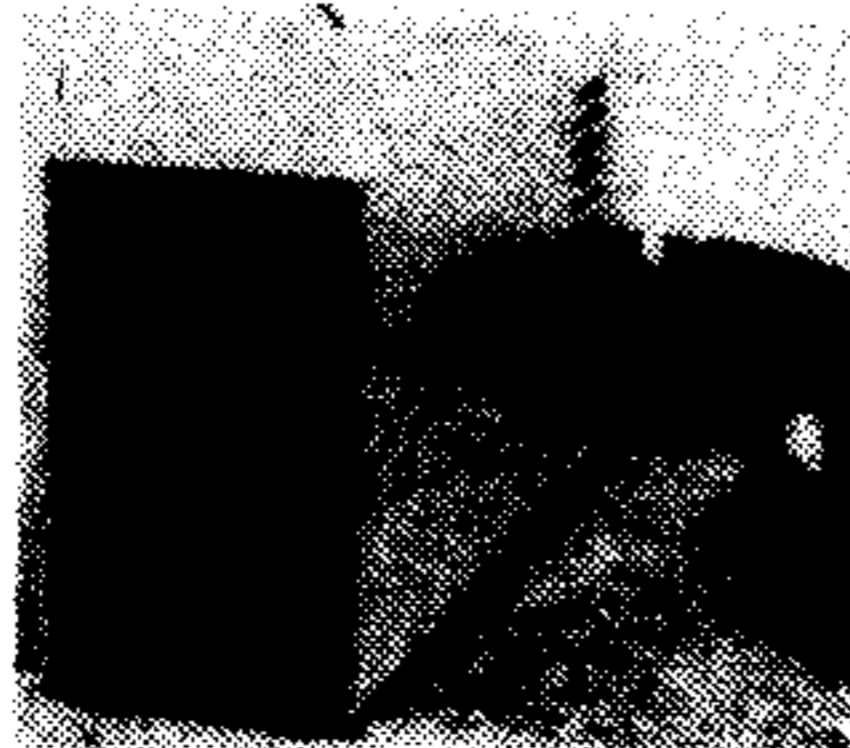
Either one or two of these slim disk drives has been installed in our power supply cabinet. Each of the drives are double sided, double density—that's 360 KB with one slim drive or nearly 1 MB of storage capacity with two slim line drives!

With computing power so readily available from these quality Teac manufactured drives, now is the time to buy.

Requires: Console, Disk Controller Card, 32k recommended

UNI 102X1 - One slim line DS/DD drive with power supply cabinet and cables **\$199⁹⁵**

UNI 102X2 - Two slim line DS/DD drives with power supply cabinet and cables **\$339⁹⁵**



DRIVES FOR THE PE BOX EXPANSION PERIPHERALS!

Disk Drives — All disk drives sold by Unisource are guaranteed to be 100 percent compatible with the 99/4A Home Computer. All of these drives are ideally suited for the Peripheral Expansion system as well. Drives may be purchased either as a single drive "bare"—ready for insertion into the PE box—in single sided, single density or double sided double density if your disk controller card will control DS/DD, or the drives may be purchased "slim line bare"—meaning two drives will fit into the same opening of the box. These slim line drives may also be purchased single sided, single density or double sided, double densi-

ty, again depending upon your disk controller card and do require an electrical conversion kit.

Requires disk controller, peripheral expansion box or disk drive power supply, cabinet and external drive cable

UNI 106 Single Sided Single Density (Full Height Drives) **\$169⁹⁵**
(Please specify if this is a second drive)

UNI 102 Double Sided Double Density (Slim Line Drives) **\$179⁹⁵**
(Please specify if this is a second drive)

ADDITIONAL PERIPHERALS FOR THE HOME COMPUTER

Disk Drive Power Supply Cabinet — This is a complete power supply and cabinet designed to house either one full height disk drive or two slim line drives. Requires: Disk drive, disk controller, external disk drive cable **UNI 196** **\$59⁹⁵**

Disk Controller Card — Manufactured by CorComp, this disk controller card will handle up to 4 double sided, double density disk drives and allows for multiple disk drive configurations. Requires: Peripheral expansion box, internal disk drive cable, 1-4 disk drives. **COR 102** **\$159⁹⁵**

32k Memory Card — Add 32k bytes of additional computing power to the console's 16k random access memory (RAM). This is a must for fully expanding the 99/4A's capabilities to run software like Extended BASIC, Mini Memory, Editor Assembler, TI-Writer and Microsoft Multiplan. Requires: Peripheral Expansion Box. **COR 104** **\$109⁹⁵**

Free Standing 32k device — Accesses those programs requiring additional 32k memory without having to purchase the expensive Peripheral Expansion Box! Manufacturer varies, but this device is always compatible, and plugs directly into the side port of the computer. **BOX 100** **\$129⁹⁵**

FACE PLATE **7.95**
CBL 100 **16.95**
CBL 101 **29.95**
CBL 103 **26.95**
CBL 104 **29.95**

Prices, specifications & availability are subject to change. Please call for current price information.



GEMINI 10X
\$219⁹⁵

(When you purchase any one of three interfaces described below)

List price on Star Micronics Gemini 10X is \$399.95. Unisource Electronics slashes retail prices to a never-before-heard-of price with purchase of any one of the three interfaces described below. This is the lowest price ever offered on the Gemini 10X printer.

Call today and reserve one of the best-selling printers and interfaces of all time. Quantities are large, but at this phenomenal price, orders will be accepted on a first-come-first-serve basis.

Look at the Big Features for the Gemini 10X:

- Tractor (pin) and friction feed
- Very fast 120 characters per second print speed
- Bi-directional and logic seeking
- High density 9 x 9 dot matrix pattern for near letter quality printing
- Eight distinctive character fonts
- Standard typewriter ribbon replacement (about \$3.00)
- Standard ASCII characters with special characters, block graphics characters, downloadable and even international characters.
- Centronics parallel

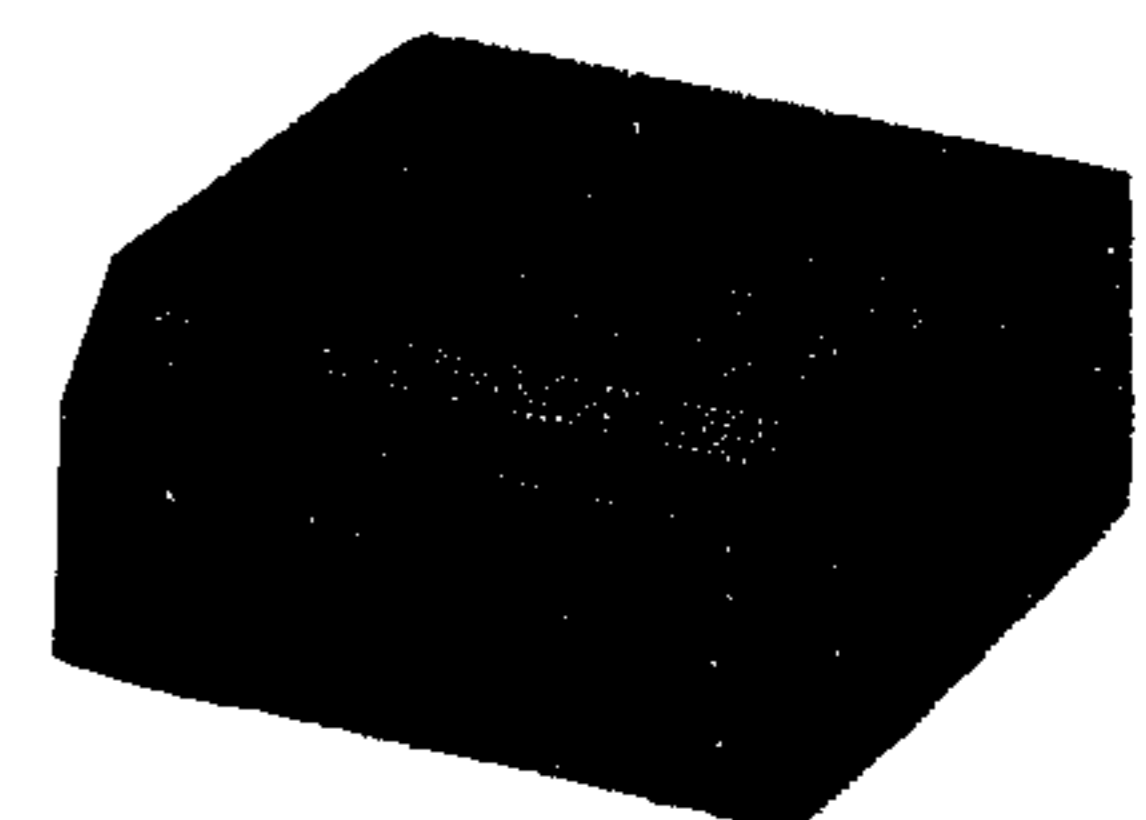
GEMINI 10X

purchased separately **UNI 142** **\$239.95**



PARALLAX INTERFACE

The Parallax interface allows for direct-connect communication between the computer and the printer... just plug the Parallax in and start printing! This is a low-cost printer interface for the TI 99/4A and is fully compatible with all of the printers featured in this flyer. The expensive peripheral expansion box is not required — nothing else is needed! The Parallax interface has a built-in printer cable **UNISOURCE PRICED (AXI 110)** **\$84.95**
(Specify AXI 100 when ordering Gemini 10X)



RS232 STAND-ALONE

This RS232 stand-alone device (COR 103) serves a dual purpose. It provides the necessary interface between your computer and the printer and also has a serial port for a modem hook-up for telecommunications. Once you've mastered the new world a printer brings to your 99/4A, you may want to get involved with the Source and "talk" to mainframe computers via a telecommunications link. This device has the modem serial port already built in. Telecommunications is a natural outgrowth of having a printer system!

Requires custom printer cable (UNI 110)
UNISOURCE PRICED (COR 103) **\$124.95**
CUSTOM PRINTER CABLE (UNI 110) **\$29.95**

RS232 CARD

The RS232 card (COR 101) provides all of the capabilities of the free-standing device listed above in a configuration that fits inside a TI Peripheral Expansion Box. It also provides a separate serial port.

Requires custom printer cable (UNI 110)
UNISOURCE PRICED (COR 101) **\$89.95**
CUSTOM PRINTER CABLE (UNI 110) **\$29.95**

LOWEST PRICE EVER!!

TI WRITER

PROFESSIONAL QUALITY

\$54⁹⁵

PHM 3111 Module & Disk

The TI Writer was designed to provide many of the features of larger, more complex word processing systems. Text editing and formatting features include inserting and deleting text and lines, automatic paragraph indentation, right margin justification, automatic word wrapping, overstriking and underlining, moving and copying text, and document reformatting. Users can create, edit, save, and print documents with the text editor option, in either word wrap or fixed mode (4A only). Required: Memory expansion, disk system, and printer system.

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Lubbock, TX 79464

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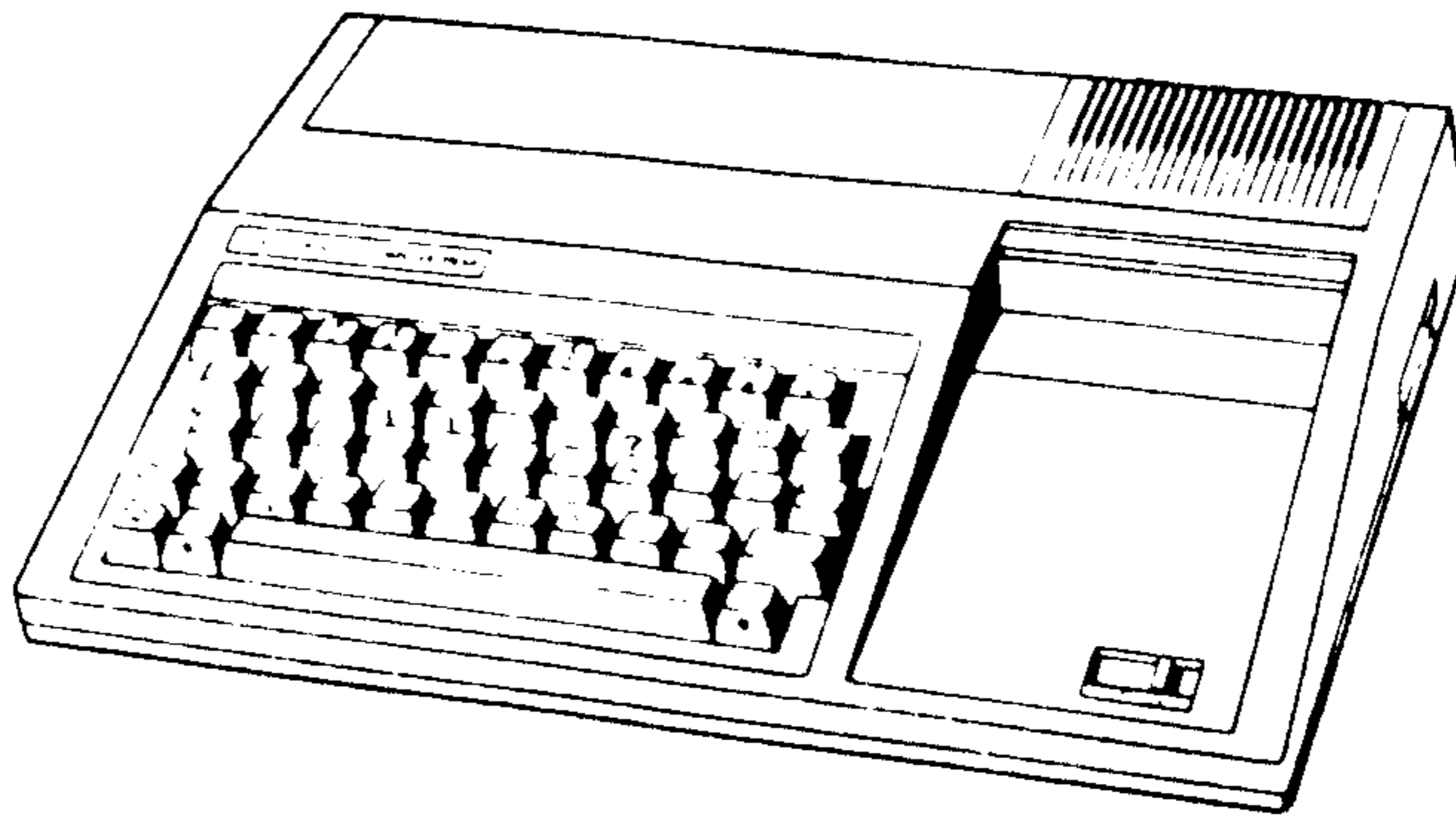
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**Get a great computer and a great deal.
Order software totaling \$99.95 or more
from our big selection and get a brand
new TI-99/4A Console for only**

\$47.95 (Reg. 79.95)

+ Ship/Ins/Hand. * Without software purchase

TEX-COMP, the world's largest supplier of TI-99/4A equipment, has obtained a special purchase on the TI-99/4A console and is passing the savings on to you.

You can protect your investment with a back-up console or introduce your friends and relatives to the finest home computer ever produced — at the lowest price ever!

To qualify for this unheard of price, all you have to do is purchase TI software from our selection in this ad in an amount of **\$99.95** or more and you can purchase the console at this low advertised price.

All consoles are **brand new** and packed with a power supply, RF modulator, user's reference manual and programming manual, as well as a 1-year TI factory warranty.

\$4.95

- PHM 3002 Early Learning Fun
- PHM 3003 Beginning Grammar
- PHM 3004 Number Magic
- PHM 3006 Home Financial Decisions
- PHM 3016 Tax Investment Rec. Keeping
- PHM 3013 Video Games
- PHM 3022 Personal Real Estate
- PHM 3023 Hunt the Wumpus
- PHM 3030 Amazing
- PHM 3031 Attack
- PHM 3032 Blasto
- PHM 3052 Tombstone City
- PHM 3053 Tl Invaders
- PHM 3054 Car Wars
- PHM 3056 Alpiner
- PHM 3057 Munchman
- PHM 3098 Number Readyness (Mill)
- PHM 3099 Laws of Arithmetic (Mill)
- PHM 3100 Equations (Mill)
- PHM 3101 Formulas (Mill)
- PHM 3112 Parsec

\$6.95

- PHM 3042 Tunnels of Doom (Cass. or Disk)
- PHM 3041 Adventure (Cass. or Disk)
- PHM 3114 Alligator Mix
- PHM 3034 Hustle
- PHM 3037 Hangman

TCS 995 Airline (Cass or Disk XBasic Req)

\$7.95

Games TI Plays (Book + 32 Cass progs)

\$19.95

- 99-Writer II (Disk)
- TE-IV + (Disk)

- PHD 5098 TI Forth (New Low Price—
Ed/Assembler Required)
Mini Writer I (Mini-Memory Req)
Bits & Bytes (Book + 50 cass
progs)
Basic Tips by Amlist
(Book + Cassette)

\$9.95

- PHM 3009 Football
- PHM 3010 Physical Fitness
- PHM 3015 Early Reading (Speech)
- PHM 3043 Reading Fun
- PHM 3046 Reading On
- PHM 3047 Reading Roundup
- PHM 3048 Reading Rally
- PHM 3082 Reading Flight
- PHM 3027 Addition & Subtraction 1
- PHM 3028 Addition & Subtraction 2
- PHM 3029 Multiplication 1
- PHM 3049 Division 1
- PHM 3050 Numeration 1
- PHM 3051 Numeration 2
- PHM 3088 Computer Math Games 6
- PHM 3059 Scholastic Spelling 3 (Speech)
- PHM 3060 Scholastic Spelling 4 (Speech)
- PHM 3061 Scholastic Spelling 5 (Speech)
- PHM 3062 Scholastic Spelling 6 (Speech)
- PHM 3091 Subtraction (Mill)
- PHM 3092 Multiplication (Mill)
- PHM 3093 Division (Mill)
- PHM 3094 Integers (Mill)
- PHM 3020 Music Maker
- PHM 3067 Othello
- PHM 3064 Typing Tutor
- PHM 3177 Facemaker
- PHM 3178 Story Machine
- PHM 3035 Terminal Emulator II
- PHM 3233 Burgertime

\$38.95

- PHM 3058 Mini Memory (w/Free Mini Writer I)
- PHM 3055 Editor/Assembler (w/Free "Widget")
- PHM 3109 Logo II (32K Req)

\$49.95

Complete Adventure series on disk or cassette (**Specify**)

SPECIAL

We have on hand a **limited** number of the Classic Black & Silver 99/4A consoles which you may purchase **with** this offer for \$67.95.

This model will run all 3rd party modules including Navarone, Atarisoft, Romox and Funware.

67⁹⁵

(Reg. 99.95) Without software purchase



* Shipping, Handling & Insurance on this special offer is \$10.00 (Continental U.S.) to any UPS deliverable address. HA., AL., Canada and APO slightly higher.



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NOTE Payment in full must accompany all orders. Credit Card Company Check or Money Order for immediate shipment. Personal checks require up to 4 weeks to clear. California orders add 6% sales tax.

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John Koloen Publisher
Laura Burns Editor

Coming Next Month

- Taking control of CTRLU
- The music of Stephen Foster
- Myarc's new 128K card

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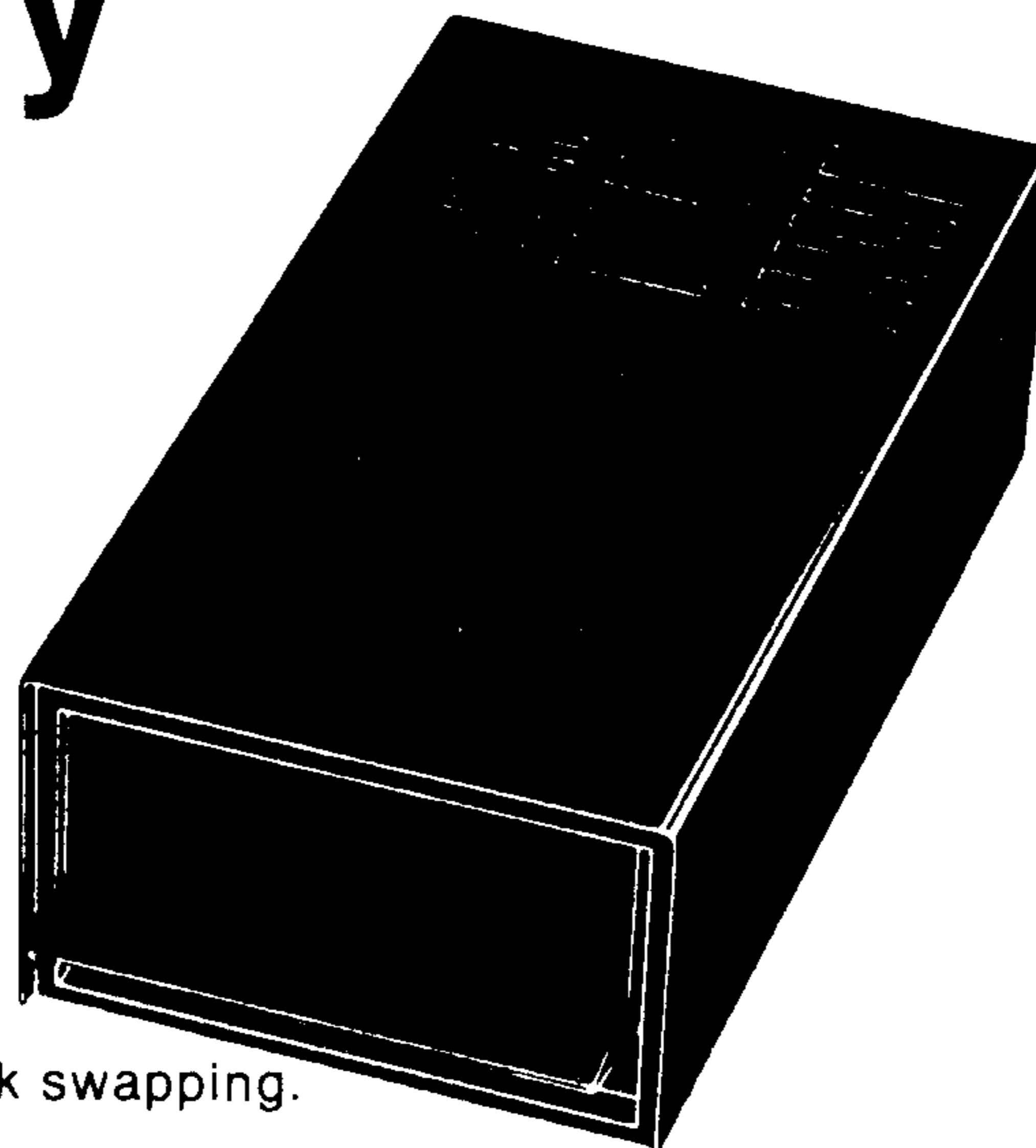
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Now get more out of your TI Home Computer — for less.

ADD A 2ND DISK DRIVE TO YOUR TI/99/4A SYSTEM FOR ONLY

Disk Memory Drive

TEX-COMP Special Purchase **\$129⁹⁵**
Plus S&H



TEX-COMP with its enormous buying power has purchased the entire stock of the same drive used in the TI P-Box and is passing the savings on to you. These units come complete with cable, ready to be installed as a number two or three disk drive.

By adding a second drive to your system you can free yourself from swapping program and data disks on many programs. You can also make backups without any disk swapping.

This is a limited offer subject to prior sale so act fast or you will miss the greatest value in a TI-99/99/4A disk drive that has ever been offered. These units are sold with a 90-day warranty.

EXTRA VALUE BONUS

With each disk drive ordered we are including a HEAD brand disk drive head cleaning kit which regularly sells for \$15.95 in the big TEX-COMP catalog.

Due to this outstanding value, we reserve the right to limit quantities.

SEND \$2.00 FOR OUR NEW 30-PAGE 99/4A CATALOG & BUYERS GUIDE WE INCLUDE A \$5 SAVING CERTIFICATE!



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NOTE: Payment in full must accompany all orders. Credit Card, Company Check or Money Order for immediate shipment. Personal checks require up to 4 weeks to clear. California orders add 6 1/2% sales tax.

Comments

Support needed to put co-processor cards to use

I have my Foundation Computing Z80A card working up to snuff, but am holding off on a review until I've received my 80-column card from Foundation. I think a lot of its utility will depend on the use of the 80-column card.

Meanwhile, let me say that the card operates flawlessly using Microsoft BASIC and Turbo Pascal. I've even got it running a non-TI version of Forth. It is very unusual to be running Pascal out of the old PEB. Look Ma, no p-code card.

That's more flippant than I want to be. On the down side, I also have run Word Star out of the Z80A and there is no hope for it in the 40-column mode. It is a Kaypro version and requires about 60 columns to make sense. (I don't like Word Star anyway. It is much more difficult to use than a word processor ought to be. I'll take TI-Writer and Companion any day.)

On a related note, companies offering co-processor cards and similar devices may do themselves and their buyers a favor by providing a reasonable amount of support. A card that uses a different operating system and CPU than comes with the standard issue TI places the user in the middle of nowhere. No longer does he have a TI. The new processor redefines the computer into something else, a Kaypro, an Osborne, whatever. Which puts the user at square one when it comes to using his new CPU. (Of course, the user has to be motivated to learn about a new system or why would he spend several hundred dollars for the CPU in the first place.)

I like what Foundation is doing with its Z80A card. Purchasers may send three disks to the company with a few bucks and Foundation will return the disks loaded with a number of CP/M programs. This at least gets a new user started. But down the line, a user will want to purchase Microsoft BASIC, for example, and may not be sure of what version will be compatible (Kaypro is). Perhaps a listing of compatible software with the various CPUs would be of benefit to purchasers without costing the manufacturer an arm and a leg. Too, there is the "sticker shock" that comes from finding out how much it costs for software for other machines. One can get Extended BASIC for the TI for less than \$80 while he can expect to spend up to \$395 for Microsoft BASIC, which does not offer as many features as XB. The cheapest price I could locate nearby for MS BASIC was \$100 from a Kaypro dealer who said it was left over inventory. He said that Microsoft BASIC normally costs him about \$200 wholesale. My recommendation is to shop around and get in touch with Kaypro dealers and ask about their excess inventory.

WHERE'S THE FREWARE PAGE?

Has MICROpendium sold out? That's a speculation being heard on some of the bulletin boards. The reason is that

we're not running our Freeware page(s) in every issue—only in alternate issues. As I noted last month, this is being done so that we can make room for more articles. We will continue to support the page and add items to it as we receive them. A number of items will be added in September's edition.

Some believe that MICROpendium is on the verge of cancelling the page. Let me assure you that we are not, although it is very time-consuming to fill orders for our freeware (for which we do not charge even a dime). We have considered assessing a service charge of a dollar or two to compensate us for the time we spend making copies of our freeware, but probably won't.

Even so, there are those who speculate that because I raised the issue of the impact that freeware may have on the marketplace that I am taking a position against it. (I wrote last month that the creation of freeware clones of software that was originally developed by others to be sold at a profit may discourage software authors from creating more programs.) I remain concerned about this because the profit motive is the only incentive for many software authors to be in the business.

CONTEST CONTINUES

There haven't been many entries submitted in our graphics contest. Prizes of \$50, \$25 and \$15 will go to the top three entrants. Each submission should include a title, the name of the program used to create the design, and the entrants name and address. Winning entries will be published in a future edition. Entries must be postmarked no later than Sept. 20, 1985. (For more details, refer to July's Comments column.) Entries should be sent to GRAPHICS, c/o MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

THE NEW COMPUTER

The outlook for a new TI-compatible computer remains bright. We have been following one manufacturer for months, and he is on the verge of announcing the machine. We have described most of its features in previous issues and won't repeat it here. We have also heard of another TI-compatible computer that is supposedly being developed by another manufacturer, though we have no confirmation on this. All we have been able to ascertain thus far is what a potential vendor for the machine has said. Namely, that it is not the machine we've been following all along. Who knows what will develop?

There have been rumors lately that the new machine (the one we have been following) will be displayed at this year's TI Faire in the Chicago area. The rumors are that it will be shipped to vendors in time for the Christmas season. Again, don't bet the farm on this information. We're just passing along what we hear from people who have been pretty reliable in the past.

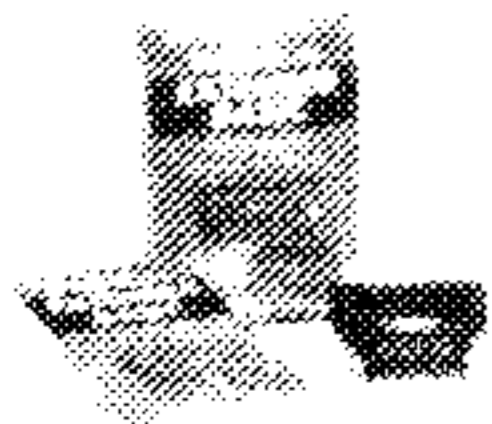
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OPERATES THE SAME AS TI EXTENDED BASIC

- Plug-in Cartridge
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Run the hundreds of programs that require Extended BASIC. Access the 32K memory expansion and auto-load disk based programs; utilize sprite graphics; add speech!!!

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32967 NEW LOW PRICE \$69.95!!
We meet any competitive price on Extended BASIC!

NEW **BMC BX-130 DOT MATRIX PRINTER** \$199

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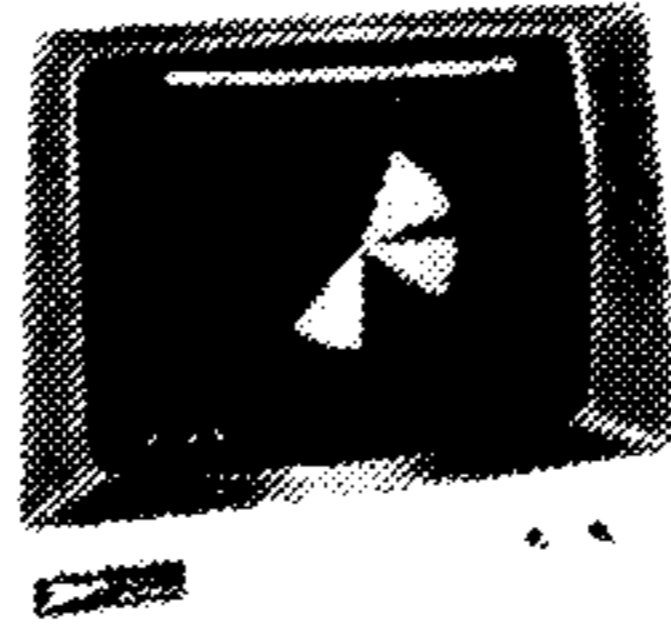
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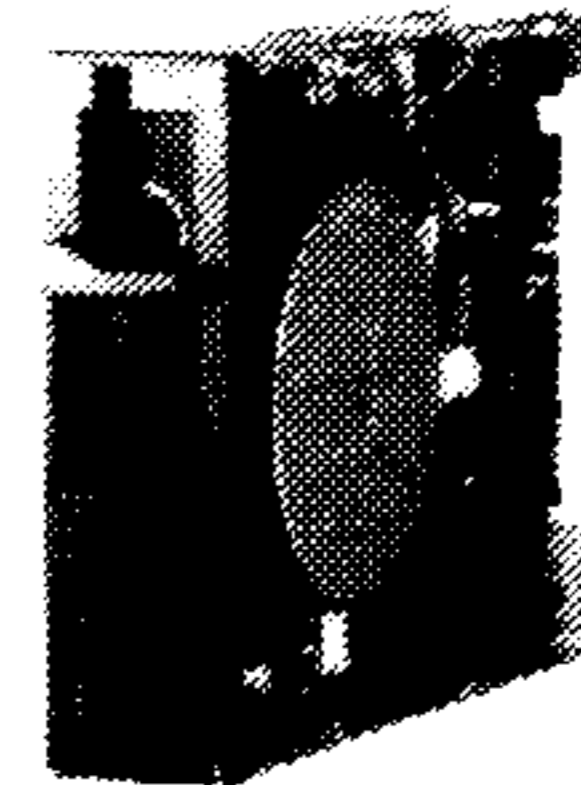


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Feedback

English notes

On one or two points in the April MICROpendium:

My Mini-Memory has been fitted with NiCad batteries. It cost me a mere US \$10, a lot less than TI are charging your readers, AND I need never worry about another new battery. This work was carried out for me by an English electronics engineer, but I am sure that somewhere in the USA there is somebody who can do the work! The NiCads are recharged whenever the module is used, but for continued operation it is advised that the module be left continually inserted for 14 hours twice a year.

To get more than 140 chars on an X BASIC line, use SMASH, a programming utility from Oak Tree Systems, sold by Tenex. It is a very useful little program which intelligently removes REMs (it won't remove a REM if there is a line transfer to it, only the text!), shortens variable names (cross reference list optional) and intelligently packs the program together, with as many commands on a line as is possible and is permitted by syntax and line transfers.

Try this one: enter NEW then 1 REM then a space, then hold down CTRL and U until the cursor reaches the end of the fourth line and produces a beep. OK? It looks like three lines of nothing, eh? Press ENTER. Now, lets take that REM out of there. Enter 1 then FCTN X to bring the line back to the screen. Use FCTN 1 to delete the letters REM and press enter. Now try to edit the line by again entering 1 and FCTN X.

One of Jim Peterson's Nuts and Bolts programs uses the retained graphics codes to store and return numbers in the graphics definitions, for transferring values between programs. I also have a games program which uses RUN "CS1" to permit a longer program than usual on tape by first defining the graphics and then loading the game with RUN "CS1". It works!

One of the later amendments to TI Forth was to the sprite routines. Take a look at the heading on Screen 59. If the date is 12JUL82, you have a bug in the definition of SPRITE. Ask around your friends—somebody should have the last issue, which contains the date 20OCT83 at the head of the screen. The previous screen is also flawed and was similarly corrected, with the same dates.

Stephen Shaw
Stockport, England

Upgrading to disk

Although our numbers are no doubt declining, there must be a FEW dedicated owners like me who, for one dumb reason or another, never did upgrade to disk. Instead, we avoided the PEB and added to our systems by daisy chain add-ons like Ultracomp's 32K memory expansion and the ParallaxTI printer interface.

At this late date I see the error of my ways. I'd like to explore TI-Writer, TI-Forth, Editor-Assembler, but I need advice on how to add disk capability without having to toss out my existing add-on memory expansion and printer interface.

James B. Johnson
San Antonio, Texas

We encourage readers to provide additional advice on this, but you may consider obtaining one of TI's stand-alone disk controllers, which were produced before the advent of the PEB. Check the Specialist In ad in last month's MICROpendium—Ed.

A correction

Re: Recharge, Feedback June 1985. Roland Chapman of Marina, California wrote: "Correct me if I am wrong, but it seems to me that simply recharging the battery would suffice" (this was in response to a question regarding the replacement of the lithium battery of the Mini-Memory cartridge).

Well, here is a correction for him:

Lithium batteries are relatively new to the market. While their potential was known for some time, development was slow because it was frequently accompanied by explosions resulting in injuries to the people who were testing them. At this time they probably exceed anything else on the market when it comes to storing a large amount of energy in a small package.

However, while the small "button" types are designed for providing a low output over a long period of time, unless they are specifically identified as rechargeable, this procedure is not recommended. Most likely they will begin to leak, but the danger of explosion is very real!

Simply connecting a 3V charger is not the answer. For any battery—lithium or not—the charging CURRENT is as important as the charging voltage.

Lutz Winkler
San Diego, California

GRAPHX response

Thank you for reviewing our product GRAPHX in your June issue. It is very encouraging to receive such recognition.

We would like, however to correct three minor inaccuracies which appeared in the review:

The user is not required to make his own function key overlay strip. A ready-made plasticised strip is supplied with each copy.

The "bug" referred to is in fact a feature of the program. Point (iv) on page 13 of the GRAPHX manual explains that in ZOOM mode the top left-hand and right-hand corners of the screen are used to display the current foreground and background colors. This enables the user to quickly check which colors are in use.

The remaining point we would like to clarify is that GRAPHX will operate with Editor/Assembler, Extended BASIC or Mini-Memory modules but a separate version exists for each. In order of preference they are as follows:

(Please turn to Page 12)

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The **SST EXPANDED BASIC COMPILER** contains all of the features of the **SST BASIC COMPILER**, plus most of the features of **EXTENDED BASIC**. It also includes many commands that are not available in **TI BASIC** or **TI EXTENDED BASIC**. A major feature of the **SST EXPANDED BASIC COMPILER** is the ability to add your own commands. If you have need of a command not commonly found in Basic, you can easily add it to our compiler (*Editor/Assembler* module only).

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A second benchmark program appeared in the November 1984 issue of the MICROpendium (page 22). This program took:

209.4 seconds in <i>TI BASIC</i>	7.2 seconds in <i>TI FORTH</i>
219.6 seconds in <i>TI EXTENDED BASIC</i>	4.9 seconds in <i>WYCOVE FORTH</i>
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Feedback

(Continued from Page 10)

1. Mini-Memory—6K clipboard, load time 63 seconds.
2. Editor/Assembler—4K clipboard, load time 65 seconds.
3. Extended BASIC—4K clipboard, load time 251 seconds.

Ron Davis
GRAPHX
Sydney, Australia

On SUPER CARtridge

I was very happy to see the construction article about a homebrew module in the June issue. The only thing missing is the value of C2.

I'd also like to add the following: The game modules that can be used must have contacts on both sides. Some are Tombstone City (you already have it on disk if you have the Editor/Assembler), Invaders, Munchman, Chess and TE-II. I suggest the first three. These cartridges use circuit board No. 1015921.

I was very reluctant to do this project for fear of damaging my Editor/Assembler cartridge, so I called the TI Parts Department at (806) 741-3064 and ordered a spare GROM chip No. CD 2204, TI No. 1015960-1204 for \$3.60 rather than risk any damage. Also, to minimize chances of harming the RAM chip I tried to use a low profile socket but the case will not close.

I am working on using the Chisholm Trail or Parsec cartridge which will allow the use of sockets.

I hope these suggestions encourage more readers to try this project.

Ken Gladyszewski
President, Northcoast 99ers
Euclid, Ohio

Tripping out

I don't know if somebody has come across this yet or not but I accidentally came across it while I was piddling. The question is: What is it? Why is it? or will it tear up my machine when you do the following routine and my good old TI trips out?

ROUTINE:

```
10 REM (in this space you depress the  
CONTROL key and the T key until the  
line is full to capacity)  
20 GOSUB 10
```

Now run this until it prints memory full. Now EDIT line 10 and it will start printing a certain word for a while. Let this continue 'til it stops and then depress the SPACE bar or really any key and just continue doing this and sit back and watch the scenery (I hope it's not hurting the computer). Also I recommended using the T key but each key stands for a different word when you EDIT it. I've asked TI about it and when I do they say, "Hold on, let me get somebody that knows something about this," and then they never get anybody so I'm back where I started.

Jimmy Creel
Mosspoint, Mississippi

Sorry, but all we can say is 'hold on.'
Readers are welcome to offer explanations for this, although we suspect it is just one of those things that happens when you fool around with a computer. Ed.

Joystick tester

Reference the joystick tester program by Carlo Angelico (June 1985).

For the program to run and operate as intended, the following changes must be made:

```
Line 150 = CALL KEY(1,K,S) must be  
changed to = CALL KEY(NO,K,S)  
Line 460 DOS—:AU AT  
(88,3):"JOYSTICK TESTER..." must  
be changed—there is no row 88. I used  
(8,3) and it looks OK.
```

In all other respects it is a neat program.

Thomas Washam
Lisbon, Ohio

Cool the gizmo

In answer to Stanley Page's TI-Writer problem, I had the same trouble. The problem was in the electronic gizmo at the end of the cable that con-

nects the expansion box to the computer.

I traded TI for a new one but figured the problem came about from overheating due to long hours of continuous use. To avoid this I placed a small blower behind that end of the computer. Now the gizmo and the entire cartridge area stays cool even after many hours of continuous use.

R. Rappe
Marion, Ohio

Prowriter graphics

My question is not about the 99/4A itself but rather my Prowriter 8510 that I am using with it. Why is it that no software is available to drive this particular printer? To date I have yet to see a program on the market that will take advantage of the printer's graphics capabilities and other special functions.

Even though I feel that the 8510 is a better quality printer than some of the others which are marketed for the TI, I am very limited in what I can do with it because of the software incompatibilities.

Does anyone know of a good screen dump program for the 8510? Also, I would really like to be able to dump drawings on such programs as "TI-Artist" and "Draw-A-Bit," which is impossible using the dumps provided with the programs.

Brad Harris
Louisville, Kentucky

DFX-PRINT by Data Flex Software (\$26.95, 4420E 100N, Marion, IN 46952) dumps screens using a Prowriter 8510, as well as Epson, Gemini, Okidata and a number of other printers. There are probably other programs that will work, too. As for dumping graphics from the programs you mention, the best bet is to contact the manufacturer and ask if he has any advice. Advice from readers is always welcome.

The Feedback column is for readers. It is a forum to communicate with other readers.



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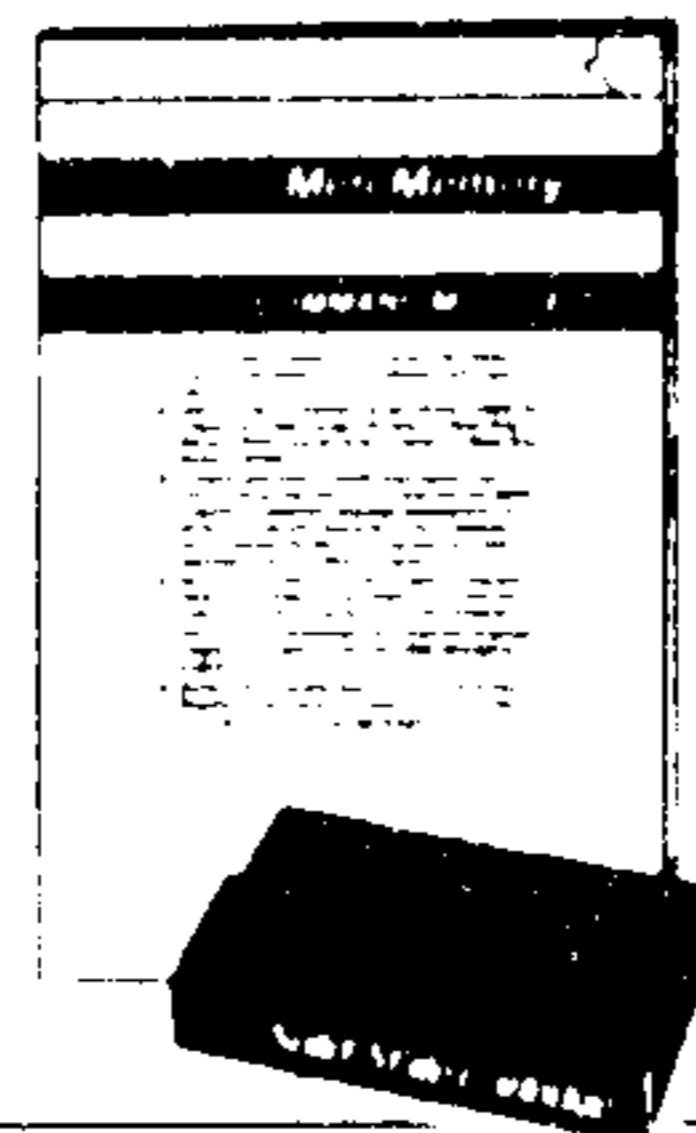
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PC PURSUIT, the new service, lets home computer users pay \$25 per month for any number of calls to databases and electronic bulletin boards in 12 major metropolitan areas. There is a one-time \$25 registration fee.

Anyone in the local calling range of the 12 cities can call a board in the local calling range of any of those same cities, Claudia Houston, manager of public affairs of GTE Telenet Communications Corp., explained. GTE Telenet Communications Corp. is the data communications subsidiary of GTE.

PC PURSUIT communications are available for Atlanta, Boston, Chicago, Dallas, Denver, Detroit, Houston, Los Angeles, New York Ci-

ty, Philadelphia, San Francisco and Washington, D.C.

The service is available from 6 p.m. through 7 a.m. Monday through Friday and from 6 p.m. Friday until 7 a.m. Monday, she said.

She said the service is available for 300 and 1200 baud and is adaptive to any commonly used personal computer and modem, including the TI99/4A. It is XMODEM-compatible for downloading, Houston said.

The service makes use of the excess capacity of GTE Telenet's data network which provides daytime commercial database access for business.

Houston says that anyone who wants more information "and wants to talk to a person" can call 1-800-368-4215 from 8 a.m. to 5 p.m. Eastern Standard Time Monday through Friday. Also, she said, an on line registration service, "In Pursuit of..." is available 24 hours a day at 1-800-835-3001.

Articles sought

MICROpendium welcomes and encourages submissions from freelance writers. We cannot take responsibility for returning unused manuscripts nor can we respond. Always keep the originals of anything submitted to us, providing us with copies only.

We encourage writers to submit articles on disk. We prefer Dis/Var 80 files, such as those created by TI-Writer, but can convert other file types if need be. Hard-copy submissions should be double-space, using a 60-character line.

Avoid overly technical articles that use jargon. Articles should be written in a straightforward style, using plain English, and geared toward serious users of the TI99/4A.

We encourage writers to submit illustrations with their stories, particularly with reviews. These may be good photocopies, if photographs or other artwork is not available.

When submitting an article, include your name, address and telephone number in a cover letter. We encourage queries before submitting reviews or stories.

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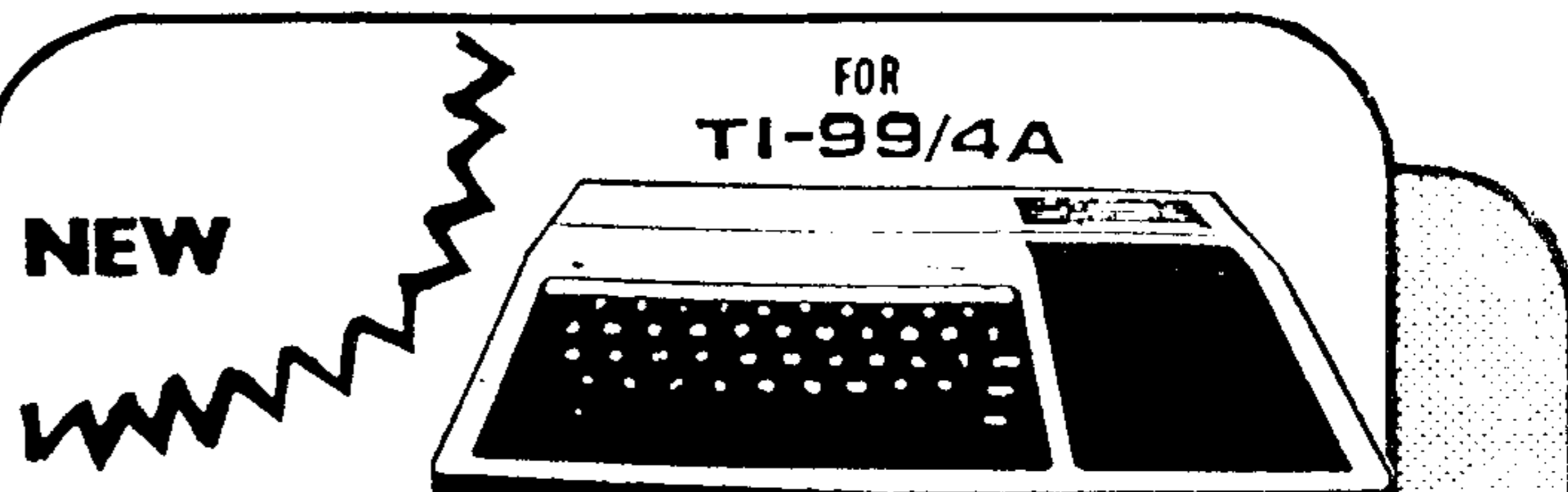
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All work and no play makes TI99/4A a dull machine lately?

By LAURA BURNS

Users of the TI99/4A may well be dazzled at the plethora of excellent graphics programs, data bases, terminal emulators—name the program and it seems like a new, improved one is being announced every day.

Yet few game programs are being announced for the TI. Tenex's summer 1985 *Everything Book for the TI Home Computer* does not list any new games.

The summer *Everything Book* is "a special issue" according to Roger Dooley of Tenex. However, he agrees, "I think the game market is currently quite depressed."

He says that "the video game fad has passed," but notes that another factor is low-priced TI cartridge games which are still on the market.

"It's difficult for a company wanting to sell a game to compete with that pricing," he notes. A cassette cannot be produced in the \$5 range at which some TI cartridges are available and some users find disk or cassette games inconvenient, he says.

New games are on the horizon for Tenex, however, Dooley says.

"We're reviewing several for inclusion at a later date," he says. "The major area we see in which some development could be done is with disk-based assembly language games. There's not much use for games in BASIC and Extended BASIC."

Dooley says that Tenex is "certainly still interest in high-quality entertainment software. The vast majority of products we review don't meet our rather stringent standards. We are looking for exciting new products that offer the consumer entertainment value."

Such products would include adventure games, "high quality" arcade games and "a well done flight simulator."

Bryan O'Neal, marketing manager for Unisource, notes that the "softness" of the game market is true not only for the TI but for the entire market.

"We see a resurgence in serious applications, for the small business owner, or the person interested in his computer," he says.

Unisource is concentrating on business, professional and utility applications, he says.

"While we are not abandoning the entertainment market, we are not relying on it to be our mainstay," he notes.

O'Neal calls the TI an "engineer-based computer. It will perform mathematical computations which are outstanding even by today's standards."

Persons still using the computer are interested in business and personal development applications, he says.

"It is a serious computer that was designed to do serious things," he says.

"If there is a game market it is in the quality end and not in the bang-bang, shoot-'em-up type arcade programs," he says, citing assembly language games which allow for better movement and graphics and Infocom's interactive fiction games.

Jerry Price of Tex-Comp agrees that the arcade-type games have declined in popularity, not only for the TI but for other computers.

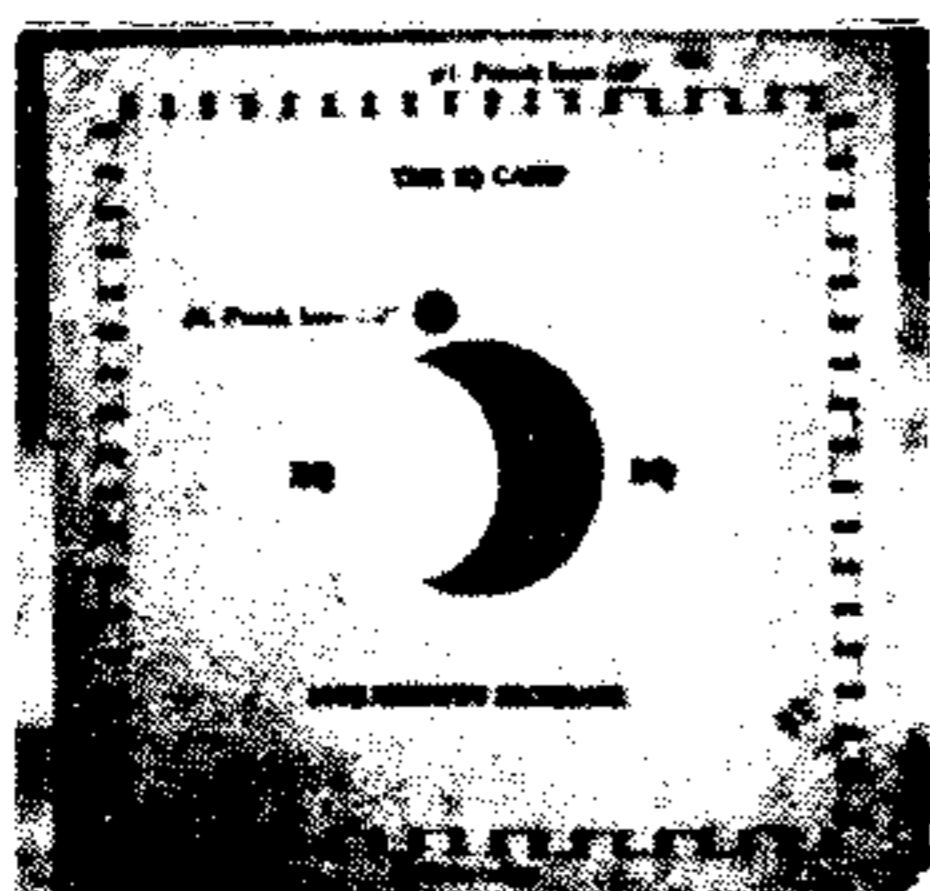
"How many different versions of Pac-Man do you want?" he says.

He also says that "the really creative people" who are writing for the TI, such as Craig Miller of Miller's Graphics, usually seem less interested in games than in other types of programs.

Games TI developed, such as Star Trek and Microsurgeon, show the possibilities of the machine, he notes, and says that there would be a market for a flight simulator game for TI "comparable to that available for other machines."

Price sees a continuing market for adventure games and

(Please turn to Page 18)



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NEW ADVENTURE GAMES—

(Continued from Page 16)

for more sophisticated action games, such as Love Tennis.

He notes that Tex-Comp is marketing four new games for the TI.

Price said that Tex-Comp has contracted with Scott Adams, creator of the TI Adventure Series, for four new adventure game titles.

They are the Incredible Hulk, Spiderman, the Adventures of Buckaroo Banzai (based on the recent film) and the Sorcerer of Claymorgue Castle.

The games sell for \$19.95 each, he said and require the Adventure Module and cassette recorder or disk. Price said that Tex-Comp has negotiated with TI to buy "large amounts" of the Adventure Module, and that these are available for \$6.95.

Gene Harter, general partner of Not-Polyoptics, a company which produces games, agrees that games have become less popular applications.

People don't buy computers "on the spur of the moment like they used to," he says. "It's a more serious purchase and they tend to want more serious applications."

As a result, he says, Not-Polyoptics is "looking at other applications. We have an application for the home we think is pretty nifty."

This application will keep a directory of up to 48 persons. The computer will dial the phone and keep a record of the time of the call.

"Another key saves the time in a format that's like a telephone bill," Harter says.

The company's military tower program, NORAD, has recently been released, he notes.

"We're not aimed at games as much any more, but anything that looks good, we'll publish it," he says.

Jill Romano of Symbiotech, a company which publishes adventure games for the TI, notes that TI leaving the market affected game sales and that "pirating is quite fluent. It makes developers question whether they are going to spend the time creating more games."

Symbiotech continues, she says, because "we have good games and we want to develop new games for the TI market."

Game development is an investment of time, effort and money, she says. Citing a letter to MICROpendium, "that said pirating is OK," she notes that the writer "obviously has not put in that kind of effort."

CorComp ships C/C

CorComp began shipping its new stand-alone clock/calendar units the week of Aug. 6, with shipments of its Triple Tech card scheduled for the following week, according to Jackirae Sagouspe, CorComp president.

The Triple Tech card for the Peripheral Expansion Box provides a clock/calendar, 64-kilobyte printer buffer and a location on which to attach a TI Speech Synthesizer board, eliminating the need to connect the speech synthesizer box directly to the console. The user removes the board from the synthesizer, plugs it into Triple Tech and plugs the card into the PEB. Triple Tech has a suggested retail price of \$130.

The stand-alone 9900 Clock/Calendar plugs into the side of the 99/4A console and includes a load interrupt switch that can be used with some third-party screen dump programs. Suggested retail price is \$81.

The clock/calendar displays year, month, date, day of the week, hours, minutes and seconds. It features a crystal controlled oscillator that is accurate to .002 percent, according to the company. It is battery-backed and will operate for more than six months with power turned off. It is accessed through BASIC or Extended BASIC.

CorComp says the 64K printer buffer is "virtually compatible with any printer." It includes 64K of memory, a copy function for immediate duplication of printouts and a clear function to empty the buffer.





NEW

Schedule Manager

TI BASIC subset of the program featured on cover of HCM.

Software that truly meets the needs of a productive worker (businessperson, office employee, homemaker, student, etc.) is as scarce as proverbial hen's teeth for the TI-99/4A user. The category of software that lets the user perform a task on a computer easier than by hand is almost nonexistent, with the exception of a few word-processors, spreadsheets, data-base programs, and utilities. That's why we at Asgard Software are particularly proud to introduce to you the newest addition to this very short list, SCHEDULE MANAGER. SCHEDULE MANAGER'S capabilities are impressive. It sports three major functions, that of a large appointment book, a useful calendar, and a handy notebook. All are integrated to a degree never before seen in TI-99/4A programs. For example, data from one function can be passed to the others with a single command. Such power is not otherwise available on programs costing less than \$250. Power isn't everything...If a program is too difficult to use, it doesn't matter how powerful it is. That's why we made SCHEDULE MANAGER about the easiest to use TI-99/4A program in existence. It features complete pull-down menus and interactive windows straight from a certain well-known Apple computer, a powerful and extensive "HELP" utility for whenever you need help with any of the terms used in the program, numerous prompts presented in ENGLISH which mean what they say, and of course, much, much more. Asgard Software didn't leave out usefulness either. The program has over 16 different menu options for easily using and maintaining your information, ample storage space for most needs, a full-screen editor for entering data quickly and easily, multiple appointment book capability, complete print options, and assembly language speed. Overall, SCHEDULE MANAGER is excellent for keeping a weekly, monthly or quarterly schedule, keeping lists of names and phone numbers (among other things), and even maintaining a log of expenses. It's a worthwhile and affordable investment for any user. It requires Extended BASIC, a 32K memory expansion unit, and a single disk drive. A printer is purely optional. SCHEDULE MANAGER can be obtained directly from us, or from your local Asgard Software dealer. Oh yes, it's unprotected too...

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The following pages may be of interest to Forth and assembly language users. The information was compiled by Tom Freeman and may be reproduced anywhere as long as he is credited as the author. Ed.

By TOM FREEMAN

CORRECTIONS TO THE FORTH SYSTEM DISK

I have found the following errors in the system disk as I received it (even the version with screens 58-59 dated OCT83).

The first is simple. Line 1 in screens 53, 54, and 55 contains the word VDPSET2. This should be SETVDP2.

Second, lines 9 and 10 in screen 58 should be switched, and the new line 9 should read:

```
VDPMDE @ 4 < IF SMTN 80 0 VFILL 300 ' SATR ! ENDIF
```

If (INIT ALL SPRITES) is on this line, it may be deleted as it is not compiled anyway. Note the ' before SATR not !, which was in the "corrected" version labelled 20OCT83 LAO on line 0. You may add 1NOV84 TSF to this if you wish.

Third, in line 9, screen 59, between >R and SP@ should read:
8 SLA SWAP 00FE AND OR

Line 0 on this screen should read 20OCT83 LCT).

CORRECTIONS TO DOUBLE FORTH

Thanks to Jim Vincent for publishing the Double-Sided Forth information, and to others for reprinting it.

Unfortunately the disk with screens only on it does not in fact copy with the TI Disk Manager. The problem is in bytes 15-17 (the sector access chain) and possibly in byte 10, which contains the total number of records, in this case twice the number of sectors.

Thus in screen 40 make the following changes/additions to Jim's note:

line 11 change CA02 to 9A05 for 180 SCR, 3A0B for 360 SCR

line 12 change 2250 to 22D0 for 180 SCR and 360 SCR

line 13 change 1403 to 2A03 for 180 SCR, 5703 for 360 SCR (retain previous change)

For DD-Forth make the following addition between DUP E etc. and DUP 1C etc:

```
DUP 12 + j SWAP ! ( j=4005 for 180 SCR, E00A for 360 SCR)
```

And the following changes:

```
DUP 1E etc. ( h=5505 for 360 SCR)
```

```
20 + etc. ( i=F056 for 360 SCR)
```

I do not own a double-density card, so I could not test these changes, but I am reasonably sure they work. I also decided to retain the original word DISK-HEAD and made a new one as follows:

```
: 2DISK-HEAD DISK-HEAD 0 BLOCK DUP A + 2D0 SWAP ! DUP 10 + 2028
```

```
SWAP ! DUP 12 + 201 SWAP ! 200 + DUP E + 2CD SWAP ! DUP 12 +
```

```
9A05 SWAP ! DUP 1C + 22D0 SWAP ! DUP 1E + 2A03 SWAP ! 20 + C02C
```

```
SWAP ! UPDATE FLUSH ;
```

These values are for DSSD drives. You can substitute the appropriate values for SDDD or DSDD.

For what it's worth, NONE of these is really necessary if you use Forth itself to copy the disks (or any mass copier) since it doesn't make use of the disk map. But it's nice to be complete! And you might give a disk to a friend who doesn't have Forth set up yet.

ADDITIONS AND MODIFICATIONS TO FORTH SYSTEM DISK

I have found these useful on my system disk, in addition to those such as PAGE or SIZE which have been published elsewhere. For instance, how do you tell which base you are in? BASE @ . will always give you 10 since that is the value in the current base! The following will give the answer in decimal without changing the base:

```
: BASEINDEC BASE @ BASE->R DECIMAL . R->BASE ;
```

Those of you dumping information to a printer frequently may find typing

(Please turn to Page 22)

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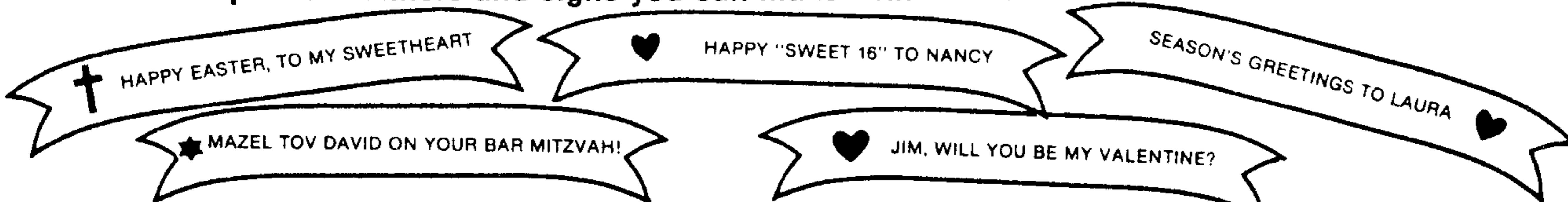
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COLOR CHANGES IN FORTH—

(Continued from Page 20)

SWCH and UNSWCH annoying. The following will make it easier:
(PRINTER WORDS TSF 3DEC84)

```
BASE->R      HEX
: PINDEX SWCH INDEX CR UNSWCH ;
: PLIST SWCH LIST CR UNSWCH ;
: PCR SWCH CR UNSWCH ;
: PVLIST SWCH VLIST CR UNSWCH ;
: P" 22 WORD HERE COUNT SWCH TYPE UNSWCH ;
R->BASE
```

The first three are obvious, but they do save typing time. PVLIST is a problem because it only uses 40 columns. This is probably OK since you won't use it often, but if you wish to change it, find the definition of VLIST on screen 43, copy it using PVLIST in place of VLIST and 4E in place of 25 near the end of the second line.

P" which of course replaces ." was a bit more complicated because of the way in which ." is used. I had to go back to the original definition to figure out where to put the SWCH and UNSWCH.

PDUMP to replace DUMP doesn't appear above because I felt it important to use the full 80 columns of the printer. The following will construct PDUMP: (apologies to Peter Geltner of Los Angeles, who gave it to me but has never published it)

- 1) make a new word DUMP10 exactly like DUMP8 except 37 in place of 1F in screen 42, line 7.
- 2) PDUMP is then exactly like DUMP except replace 8 with 10 in scr 43, line 3 and DUMP8 with DUMP10 in line 4.
- 3) Memory can be saved by defining the parts that are the same as new words, and using these in DUMP8, DUMP10, DUMP, and PDUMP before and after changes.

The Forth editors always give the screen number in decimal. I prefer to have it also in HEX if I'm using HEX. For the 64-column editor the following will do it: on screen 26, in the definition of SCRNO, between BASE->R and R->BASE replace what is there by DUP . BASE @ DECIMAL 16 = IF ." HEX...decimal = " . ELSE DROP ENDIF

For the 40-column editor go to LISTA on screen 34, replace DECIMAL with BASE->R, AFTER SCR # " insert the same code as in the last paragraph, then R->BASE after LOOP.

COLOR CHANGES IN FORTH

You may wish to change the foreground and background colors in text, graphics, multi, and split modes. I wish to use white on transparent, for instance, since I have a monochrome monitor, with the text area below the 64-column editor a contrasting black on white. The following information will tell you where to do it. XY will always refer to a foreground color of X and a background of Y (both in HEX, see your E/A manual).

- 1) TEXT mode—screen 51, line 9, where you see 0F4 7 VWTR change F4 to XY
- 2) text in GRAPHICS mode—screen 52, lines 6 and 10, where you see F4, use XY
- 3) screen text in 64-column editor—screen 54, line 6, 0F0 VFILL, 0F0->0XY (I left this unchanged, but 17 looks better on a color TV or monitor)
- 4) text in SPLIT mode—screen 55, line 6, 0F4 VFILL, 0F4->0XY
- 5) text in SPLIT2 mode—screen 55, line 11, 0F4 VFILL, 0F4->0XY
- 6) cursor in 64-column editor—screen 23, line 5 SPCHAR 0 F, F->X (F, the default is white, but it must contrast with the background of SPLIT)

BINARY SAVE OF YOUR SYSTEM DISK

Various people have given suggestions for this, starting with Craig Miller. The

(Please turn to Page 24)

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SPECIFY DISK OR CASSETTE VERSION

FORTH CORRECTIONS—

(Continued from Page 22)

following may make it easier.

First, of course, decide which editor you want to use, then use it to make the changes above. Then change the definition of MENU on screen 20 to read 272 256 DO etc. This will give you garbage at the top of the screen when you first load everything, but will be useful later, as all of screen 20 can be used as the menu.

Next set up a blank screen that will load all your options in the order you wish. Here is mine:

```
( ORDER OF LOADING FOR BSAVE) BASE->R DECIMAL FORGET
-SYNONYMS
: TOM1 ; 51 LOAD 6 LOAD ( -SYNONYMS -TEXT -NEWWORDS)
: TOM2 ; 57 LOAD 52 LOAD ( -GRAPH -GRAPH1)
: TOM3 ; 54 LOAD ( -GRAPH2)
: TOM4 ; 55 LOAD ( -SPLIT)
: TOM5 ; 45 LOAD ( -FLOAT)
: TOM6 ; 53 LOAD ( -MULTI)
: TOM7 ; 42 LOAD 39 LOAD 72 LOAD 89 LOAD
      ( -DUMP -COPY -PRINT -PWORDS)
: TOM8 ; 22 LOAD ( -64SUPPORT EDITOR)
: TOM9 ; ( BORDER FOR PROGRAMS WITHOUT OPTIONS)
: TOM10 ; 83 LOAD ( -BSAVE)
R->BASE
```

Notice how often my name appears (I like it). These are dummy defining words that provide borders so that I can FORGET just as much as I want. Notice that I also FORGET -SYNONYMS at the top so that words won't be duplicated. This also necessitated using xx LOAD directly, rather than the defined words. Now, once you have FLUSH'd everything, type COLD and when it is done, x LOAD, where x is the screen you used for the above, then insert a *copy* of the disk and type, in DECIMAL, ' TASK 21 BSAVE . (Include the last period.) This will print out the next available screen, and leave much of the disk for other things. Note that your original disk retains the order of loading, so that if anything happens to the BSAVE'd disk, it is easy to reconstruct. You can now edit screen 20 to take full advantage of your new MENU. My version is below, and includes other options that I placed after the BSAVE portion.

```
ALREADY LOADED: [FORGET BACK TO (XXX)]
(TOM1) -SYNONYMS -TEXT -NEWWORDS
(TOM2) -GRAPH -GRAPH1 (TOM3) -GRAPH2
(TOM4) -SPLIT (TOM5) -FLOAT
(TOM6) -MULTI (TOM7) -DUMP -COPY -PRINT
(TOM8) -64SUPPORT (TOM9) options
(TOM10) free, re-enter if forgotten
```

New words: forget with TOM1

BASEINDEC EB PAGE SIZE NEW BYE-flushes 2FORMAT-DISK

Printer words: loaded with -PRINT

P'' PCR PLIST PVLIST PDUMP PINDEX

Available options:

```
-ASSEMBLER -CRU -BSAVE -TRACE -TESTHEAD -FORTHTRAN
-DOUBLECOPY (clears all memory first) -DECOMPILE
-SEARCH -2FORTHCOPY
```

Note that I indicate how to FORGET each section. Also, anything beyond the 40th character on a line will be printed on a new line on your screen, so arrange this screen carefully.

Now all you need to do is edit screen 3 to BLOAD what you have. Here is mine:
(WELCOME SCREEN) BASE->R HEX F0 7 8 SYSTEM 10 SYSTEM
0 0 GOTOXY .' Loading...TI FORTH'' 10 83C2 C! DECIMAL 21 BLOAD

(Please turn to Page 26)

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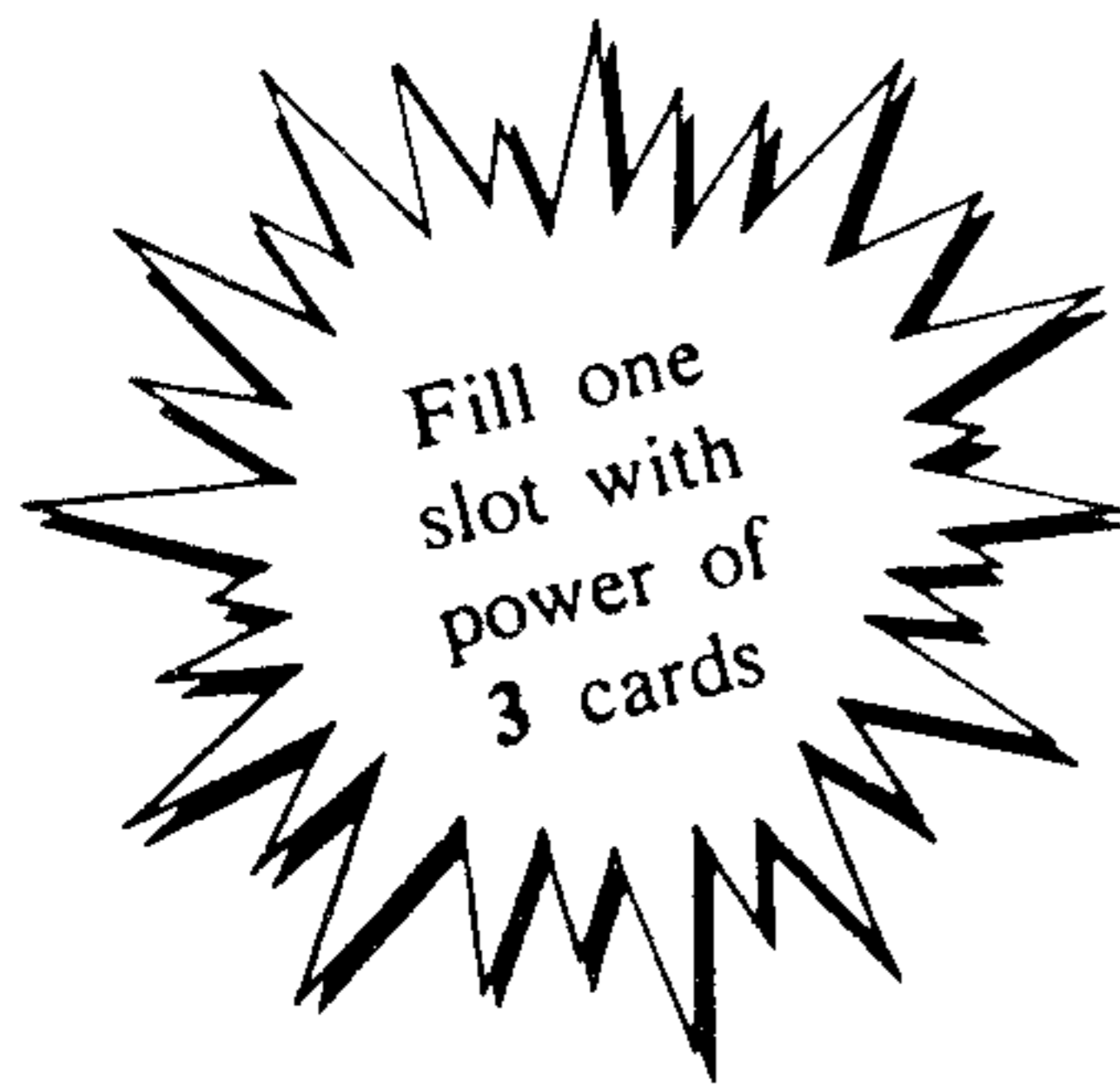
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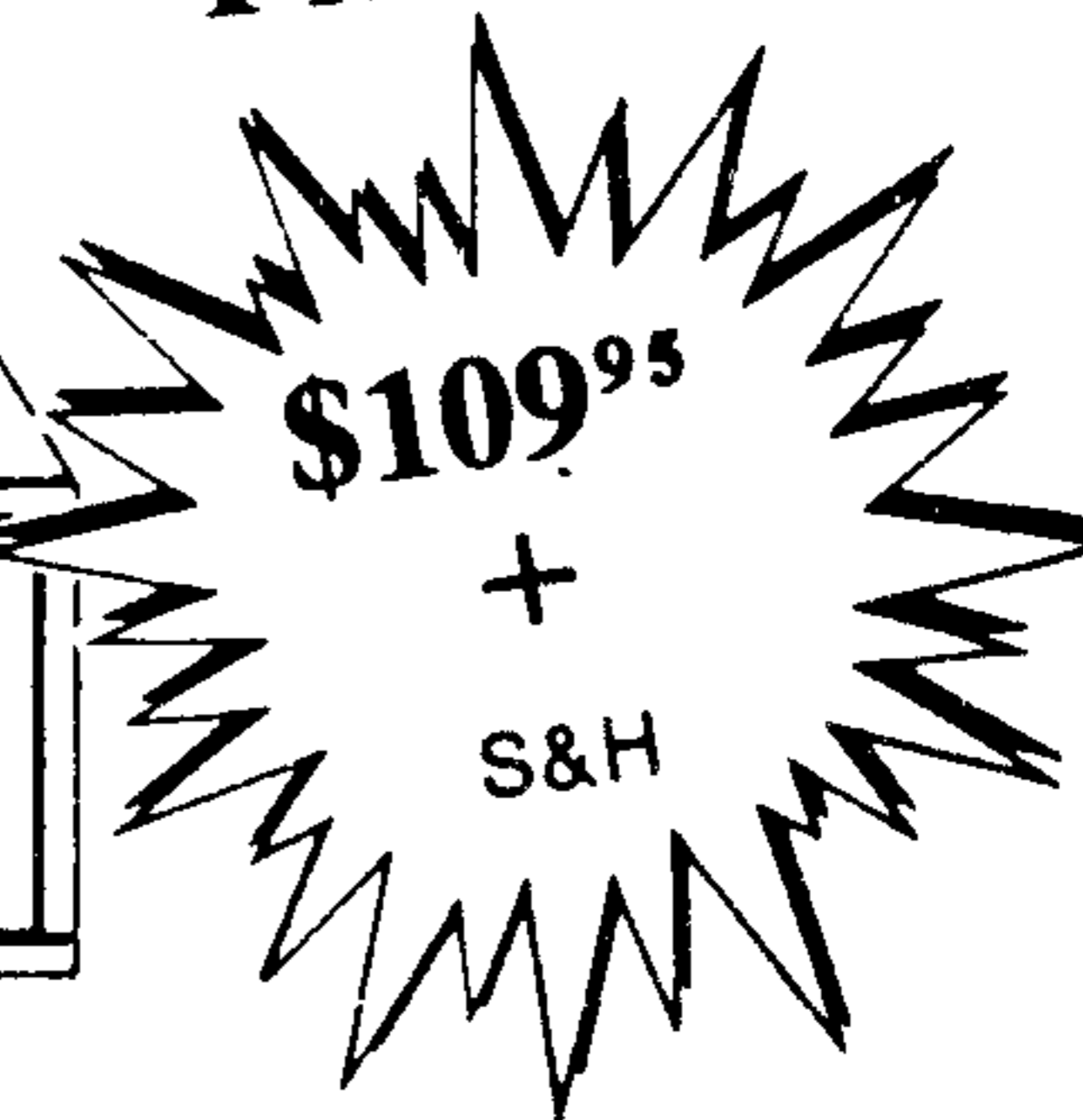
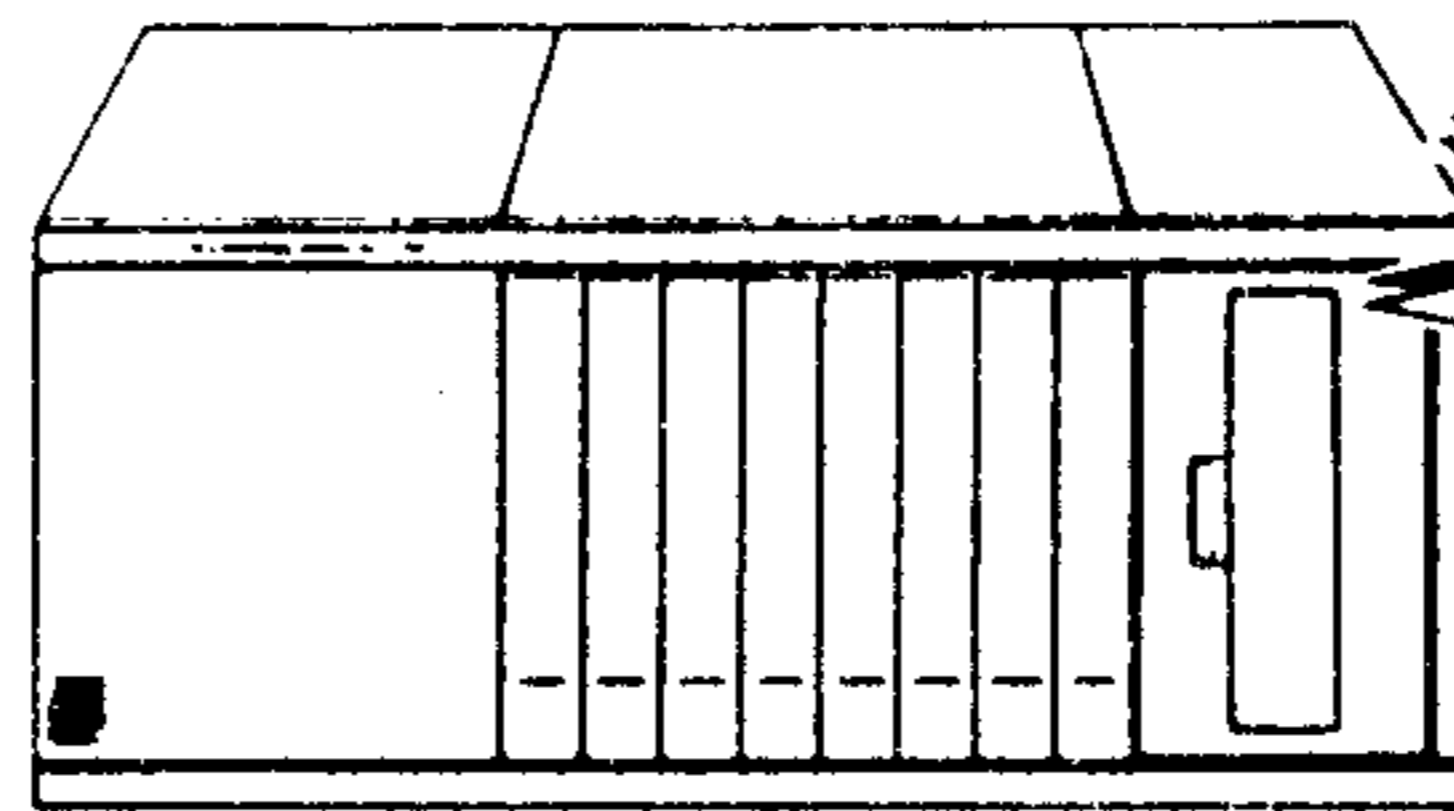
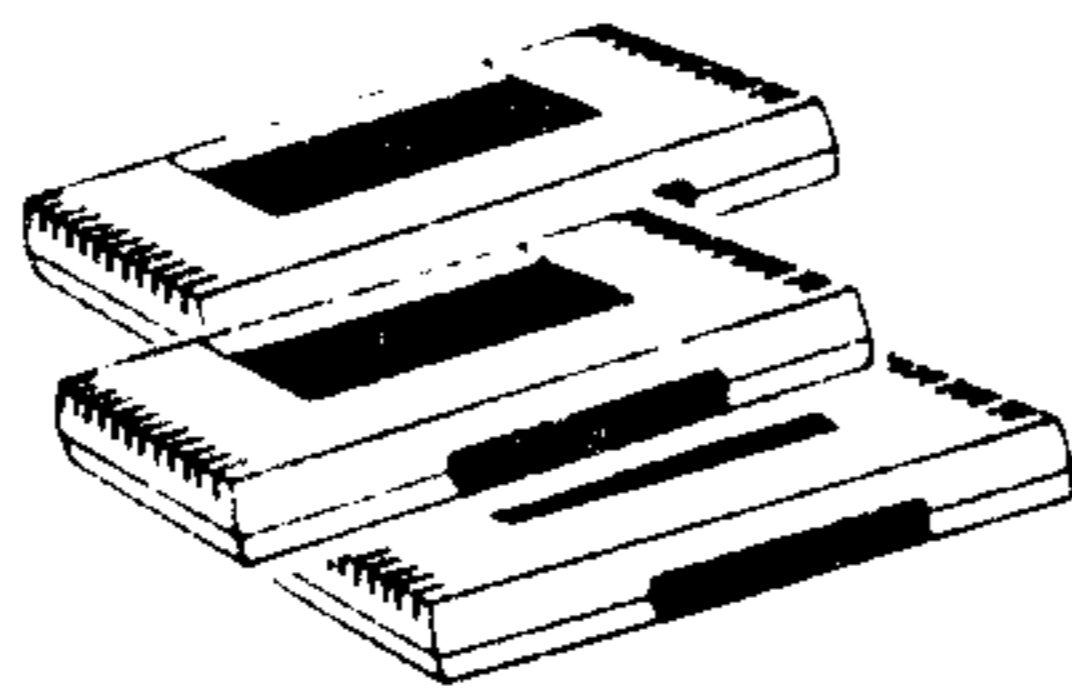
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FORTH CORRECTIONS—

(Continued from Page 24)

```
FORGET TOM10 ( eliminate BSAVE)
: -ASSEMBLER 34 LOAD ; : -TRACE 50 LOAD ; : -CRU 42 LOAD ;
: -FORTHTRAN 46 LOAD ; : -TESTHEAD 44 LOAD ; : -BSAVE 43 LOAD ;
: -DOUBLECOPY 48 LOAD ; : -DECOMPILE 51 LOAD ;
: -SEARCH 55 LOAD ; : -2FORTHCOPY 33 LOAD ;
1 VDPMD ! 0 DISK_LO ! 180 DISK_SIZE ! 540 DISK_HI !
PAGE MENU : TOM10 ; ( BORDER PRESERVING OPTIONS)
R->BASE
```

Now FLUSH again and you are ready. If you type COLD, you should get the whole thing back, with a nice neat menu on the whole screen.

SHORT FORTHTRAN

Here is the shortest FORTHTRAN I know (mainly because all comments are eliminated). Apologies to Mike Amundsen for this one, but it is modified to allow multiple screen transfers at once. When it is loaded the first time brief instructions are written on the screen. Note that in order to use quotes on screen I had to make a new word, appropriately called ' ', since this can't be put inside of ' '.

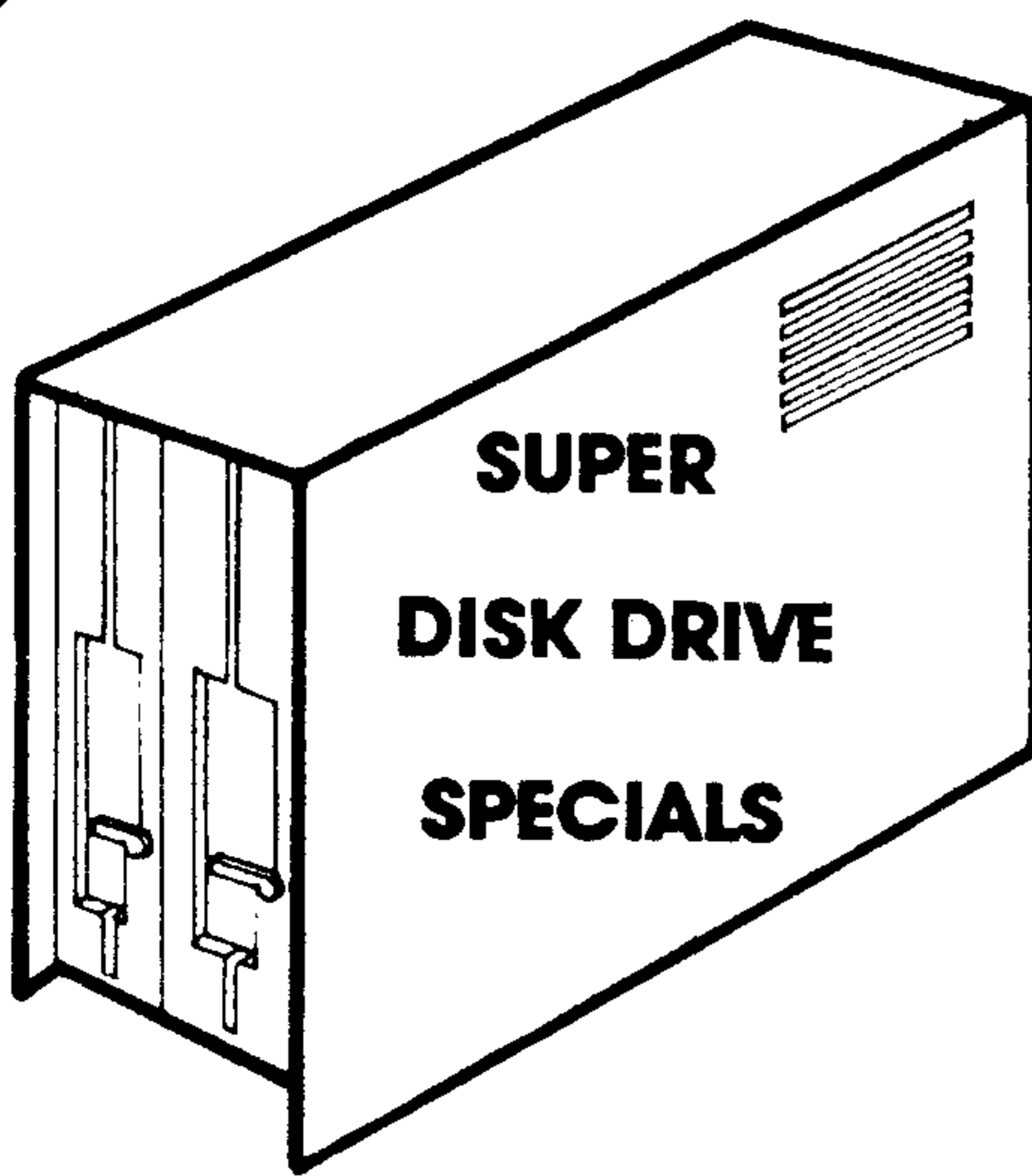
```
( SHORT FORTHTRAN 1DEC84 TSF) BASE->R DECIMAL
: " 34 EMIT ; : INS1 CLS 0 9 GOTOXY ." ENTER
FIRST SCREEN #, NUMBER OF SCREENS TO MOVE, THEN:" CR CR ." DSK
-SCR OR SCR-DSK" ; HEX : INS2 ." TYPE INS1 TO REPEAT OR FORGET "
" ; 0 VARIABLE FILBUF 50 ALLOT PABS 7 A + FILBUF 1900 FILE FILT
RAN : SETFILE FILTRAN SET-PAB SONTL DSPLY VRBL 50 REC-LEN ;
DECIMAL : PUTFILE OUTPT FILTRAN OPN OVER + SWAP DO I
BLOCK CR CR ." FILE TRANSFER IN PROGRESS..
" CR CR 16 0 DO DUP FILBUF 64 CMOVE I REC-NO 64 WRT 64 + LOOP
DROP LOOP CLSE BEEP ." DISK FILE COMPLETED. " CR CR INS2 QUIT ;
: GETFILE INPT FILTRAN OPN OVER + SWAP DO I DUP BLOCK
CR CR ." FILE TRANSFER IN PROGRESS..."
CR CR 16 0 DO FILBUF 64 BLANKS
I REC-NO RD DROP DUP FILBUF SWAP 64 CMOVE 64 +
LOOP DROP BLOCK DROP UPDATE LOOP CLSE FLUSH BEEP
." SCREEN COMPLETED" CR CR INS2 QUIT ; R->BASE --)
( SHORT FORTHTRAN, P.2) BASE->R
: INS ." ENTER FILE DESCRIPTOR WORD-USE THE FORM" CR
." F-D" " ." DSKx.XXX" " CR CR ." THEN TYPE " ;
: SCR-DSK CLS 9 3 GOTOXY ." SCREEN TO DISK TRANSFER" 9 4
GOTOXY ." ====="
CR CR CR CR CR SETFILE BEEP INS " ." PUTFILE" " CR QUIT ;
: DSK-SCR CLS 9 3 GOTOXY ." DISK TO SCREEN TRANSFER" 9 4
GOTOXY ." ====="
CR CR CR CR CR SETFILE BEEP INS " ." GETFILE" " CR QUIT ;
INS1 R->BASE
```

COLOR CHANGES IN ZORK

The following are programs that will run in Extended BASIC to change the screen colors in ZORK. The first is for the Extended BASIC ZORK loader (BOOT) and the second is for the Editor/Assembler ZORK loader (BOOT1). Please make sure you are doing this to a copy, in case something goes wrong.

```
100 OPEN #1:"DSK1.BOOT",DISPLAY,FIXED 80,RELATIVE
110 LINPUT #1,REC X:AS :: PRINT X :: P = POS(AS,"07F4",1):: IF P THEN
PRINT "THIS IS IT";AS :: GOTO 120 ELSE X=X+1 :: GOTO 110
120 AS=SEGS(AS,1,P+1)&"F0"&SEGS(AS,P+4,80):: Q=POS(AS," ",P)::
AS=SEGS(AS,1,Q-7)&"8"&SEGS(AS,Q-5,80):: PRINT #1,REC X:AS
130 CLOSE #1
```

(Please turn to Page 28)



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FORTH CORRECTIONS—

(Continued from Page 26)

```
100 OPEN #1:"DSK1.BOOT1",DISPLAY ,FIXED 80,RELATIVE
110 LINPUT #1,REC X:A$ :: PRINT X ::
P = POS(A$,CHR$(7)&CHR$(244),1):: IF P THEN PRINT "THIS IS IT";A$ ::
GOTO 120 ELSE X = X + 1 :: GOTO 110
120 A$ = SEG$(A$,1,P)&CHR$(240)&SEG$(A$,P + 2,80):: PRINT #1,REC
X:A$
130 CLOSE #1
```

You can substitute colors of your choice in line 120 of either program. "F0" in the Extended BASIC version indicates white on transparent. CHR\$(240) in the second, is the decimal equivalent of F0.

While we're at it, if you would like to have an automatic start from Load And Run in the Editor/Assembler, instead of typing "START", run the following program:

```
100 OPEN #1:"DSK1.BOOT1",RELATIVE,FIXED :: X = 170
110 LINPUT #1,REC X:A$ :: IF ASC(A$)<>54 THEN X = X + 1 :: GOTO 110
120 LINPUT #1,REC X + 1:B$ :: PRINT #1,REC X:"1"&SEG$(A$,2,2)&"F"
:: PRINT #1:A$ :: PRINT #1:B$ :: CLOSE #1 :: PRINT X
```

COLOR CHANGES IN THE EDITOR/ASSEMBLER

The essential problem in trying to change the screen or character color in the EDIT program is that absolutely every byte of memory except that actually used by the program itself may be used to store data that has been written. The sub-program needed is actually rather short and simple—but where to put it?

It turns out that TI always puts a line of visible ASCII characters near the beginning of its programs that declare the copyright, etc. These bytes are never actually used, and therefore can be replaced. There are 42 bytes available (16 words of memory)—that's it! The unassembled version follows (you'll never actually use it) and is basically a VWTR to change VDP register 7.

```
AORG >22B2 TWO WORDS TO BE REPLACED, TO BRANCH OUT OF PROGRAM
BL @@>2020 THE WORDS REPLACED ARE >C020,>FFD8
AORG >201E
MOV 0,@@>201E TO SAVE REGISTER 0 WHICH NEEDS TO BE USED
LI 0,>8717 FIRST NYBBLE MUST BE 8, 2ND IS THE REGISTER TO BE CHANGED
*** 3RD IS FOREGROUND COLOR,4TH IS BACKGROUND(BLACK ON CYAN)
SWPB 0 NEED TO WRITE LSB FIRST
MOVB 0,@@>8C02 VDP WRITE ADDRESS(AUTO INCREMENTS)
SWPB 0
MOVB 0,@@>8C02 THIS COMPLETES CHANGING VDP REGISTER 7
MOV @@>201E,0 PRESERVES THE PREVIOUS WS REGISTER 0
MOV @@>FFD8,0 THESE ARE THE BYTES REPLACED BY THE BL INSTRUCTION
RT RETURN TO THE ORIGINAL PROGRAM
```

The following instructions apply to using TI-Forth or Disk Fixer to change the necessary bytes. First make a copy of the EDIT1 program onto an empty disk. This is necessary so that you will know exactly where the program is located, namely starting in sector >22 (SCR #8 in Forth). Now get the FORTH DUMP routine into memory and EMPTY-BUFFERS. Type HEX 9 BLOCK and 20CA 4 DUMP. You should see 22B2 C020. (In Disk Fixer this is Sector >24, address 00B8.) Replace these two words with 06A0 2020.

In Forth use the following method: first, type in the replacement words in reverse order, remembering the spaces in between, then press enter (there is room for 16 per entry). Second type SP@ addr bytes CMOVE, where addr is the first address the words are to be moved to, and bytes is twice the number of words.

(Please turn to Page 30)

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FORTH—

(Continued from Page 28)

Third, check your results with DUMP. Then UPDATE FLUSH. Now check Sector >22 in Disk Fixer, address 0024-0043 (EMPTY-BUFFERS 8 BLOCK 2236 20 DUMP in Forth). You should see 2843 2920 434F 5059 etc. These 16 words should be replaced by:

```
2020 C800 201E 0200 8717 06C0 D800 8C02
06C0 D800 8C02 C020 201E C020 FFD8 045B
```

When you have finished this, type UPDATE FLUSH (in Forth) and you are done! Note that you can of course choose any other colors besides black on cyan by changing the LSB of the word at 223E above (002C in Disk Fixer) to the colors of your choice. See your manual for codes.

Be sure you have a backup copy, which you should anyway. I don't want to be responsible if you lose your only one.

Datax remains in TI market

Datax Company of Ridgewood, New York, says that an announcement that it was placing its programs in the public domain "was a mistake." The June MICROpendium carried an item stating that Datax "all our 99/4A products are now available as public domain, while quantities last." This information was provided by Mike Bergen, who is associated with Datax' marketing staff.

However, according to Achim, "we do not have any problem with our software, and not all our products were public domain, only those that were to be replaced by our new packages that will soon be released. We never intended to leave the TI market, and probably we will still be around as long as there is interest in this great computer."

According to Achim, the company is preparing an integrated package with windowing capabilities that is compatible with TI-Writer.

'Techie' BBS is dream come true

By MIKE CHRISTIANSON

Everyone has a few secret dreams. Mine was running a TI bulletin board.

I finally realized that dream, thanks in part to a Freeware program called the "Techie." Written by an electrical engineering student at the University of Wisconsin at Madison, the Techie is a full-featured and amazingly user-friendly program that must be seen to be appreciated. It has a versatile and unique message base that has categories for all the most popular TI programming languages, as well as an "Other" or miscellaneous category for messages that don't fit in the others. The Techie features a user "Delete" feature as well as auto reply in this very readable format.

Other features of the Techie include Sysop Chat and Feedback; Check for mail; ability to change password, text and screen color selection; listing of all other users; a toggle for expert mode; user verification of status; message scanning; user-readable files for system information and user group info; and an on-line text adventure game. In addition, there is a listing of other Techie BBS systems. Monty Schmidt, the author of Techie, promises more features to come, including true TE2 file transfer.

I am delighted with my BBS, and have often heard the comment that Techie was the most user friendly BBS around. It's no dog on speed either! The program runs in Extended BASIC, but has a wealth of assembly support routines. Even after using the program for nearly two months, I am still amazed that something of this quality is being given away as freeware! Other TI BBS programs sell in excess of \$100. I conducted a telephone interview with Monty in May to find out a little more about him and the program. This interview follows.

Mike: Monty, why did you write the BBS program in the first place?

Monty: I wanted to run a BBS myself. I also wanted to make a pro-

gram, as good as any, and make it available for free. I feel that anyone wanting to run a BBS should be able to do it.

Mike: The BBS adventure was a nice touch. Do you plan on more adventures?

Monty: Yes, at some point. I'm pretty busy with my "You Asked for It" software line. It's also freeware. I have an uncompresser nearly finished. It will change compressed code to uncompressed, so you can use it from Extended BASIC. I also am working on a new screen dump utility. It will save an Extended BASIC screen to disk in VAR-80 format, so you can transfer it via TE2.

Mike: You sound pretty busy. Why bother with the TI at all? Isn't it a "dead" machine?

Monty: Well, I like it. I got my first TI at 17. I think it has the best assembler there is, at least as far as micros go. I am familiar and comfortable with it.

Mike: Will you continue to perfect the BBS with new refinements?

Monty: Yes, as time permits. I have my studies and some semblance of a social life to consider. I spend a lot of time helping other TI owners also.

Mike: What do you like better about the Techie?

Monty: It's more user-friendly, has a better message base and updates and changes are easy to implement. Also, I am available to help. Easily available.

Mike: Why give the program away when others are selling (and selling well) in the \$100+ range?

Monty: I don't want the hassle of having to deal with selling it. And I guess I'm a nice guy! Besides, I'm really proud that people think enough of it to want to use it.

Mike: What advice can you give to others wanting to write a BBS program?

Monty: Well, it's a big project. The first version took three weeks and I'm embarrassed to show that one to

anybody. The present version has taken more than four months. I would advise writing your own I/O routines in assembly. Or better yet, get a copy of Techie and use anything you can. Why start from scratch?

Mike: What improvements do you see in Techie's future?

Monty: The two- and three-way conferencing, TE2 file transfers, ASCII downloads of my freeware and other good public domain assembly stuff, 1200/300 baud operation, a RAM disk and much more that I will keep secret for now.

Mike: How can someone interested in the Techie obtain one?

Monty: They can write me or contact a Techie sysop. They are authorized and encouraged to duplicate the program. [Note: Information on the program will appear on the Freeware page published in alternate issues of MICROpendium.—Ed.]

Mike: Can any user design a new adventure game for Techie? And if so, how do they get their ideas to you?

Monty: Sure they can. Again, contact me or a sysop. They can look over the original game and change the text to compose the new game if they wish.

Mike: What do you need from them to add their game to the BBS as a program?

Monty: Ideally, a running program in Extended BASIC. Or descriptions of the rooms, choices of input and what happens. Or hard copy listing from their micro. It doesn't even have to be a TI.

Mike: How do you feel about "machine exclusive" boards?

Monty: The Techie was one at first. But I think they're kind of snooty. I realize that there can be a lot of great ideas and input from others, regardless of machine. I wouldn't like to be excluded from a BBS because of the micro I use.

Mike: Can anyone help with the Techie right now?

(Please turn to Page 34)

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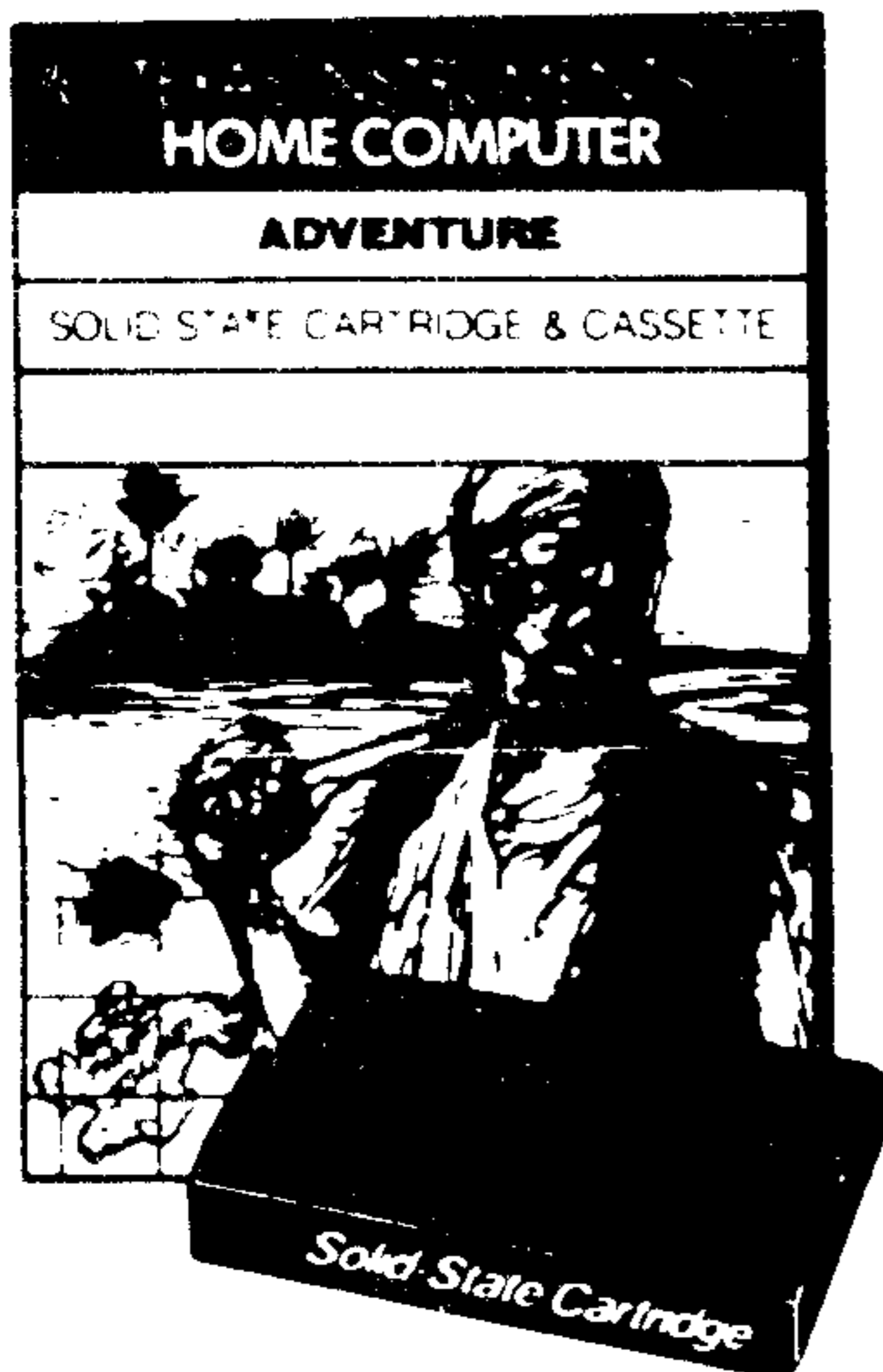
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The program is written for 'Mini-Memory' or 'Editor-Assembler' command modules (cassette or disk) and offers a full screen editor and a special easy-to-use, mnemonic language called A.P.L. (Adventure Programming Language), and comes with a complete and detailed 75-page manual. TEX-COMP is also organizing a new TI Adventuring Users Group which will allow low-cost exchange of user-written adventures between members

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SPECIFY DISK OR CASSETTE VERSION

Lubbock gets its own BBS

By LAURA BURNS

Lubbock, Texas, the birthplace of the TI99/4A, now has its own TI bulletin board.

The board is the Panhandler BBS, at (806) 792-5831.

The board is run on the TI-SUB system, programmed by Erik Olson of Lubbock. SUB stands for Secret Underground Bulletin Board.

"We wanted Lubbock, Texas to have a TI bulletin board," the 14-year-old Olson explains. "There is a big TI plant here, and it seems like everyone is beating up on TI."

Specifically, he says, the Apple and Commodore bulletin boards in Lubbock are the ones.

"The Apple board treats us like dirt," he says.

So this was the main motivation for Olson, whose father works for TI.

The board is 24 hours (but is sometimes down for repairs, etc.) and runs in 300 baud. Plans for 1200 baud are in the works, according to Matt Storm, sysop for the board. Storm, also 14, and Olson are classmates who will enter the ninth grade this fall at the J.P. Hutchinson Junior High School in Lubbock, where they take accelerated math and science courses.

"A lot of the program is in machine language, so it's really fast," Olson says. "We've redefined a whole bunch of control keys for the sysop."

Included, he says, is a key to hang callers up.

"That comes in handy," he comments.

Text files are the only files currently on the board, he says. He notes that, through the message base, the sysop can set up from one to 18 message levels and can change access levels for the first 10 (for instance, giving a Read Only access level).

The board gives a caller half an hour at a time before it hangs up on him. However, Olson notes that the real-time clock which is built in doesn't run when a user is accessing the disk so it "gets off quite a bit."

The board is operating from a Hayes Smartmodem 300. Olson and Storm are awaiting a new modem and repair of a second disk drive by TI to upgrade the board.

He says that individuals who call the board will be kept posted on when and how to obtain the software to run a TI-SUB board of their own, which he anticipates making available to persons who send him a disk and \$3.

TECHIE—

(Continued from Page 31)

Monty: Yes! With the TE2 transfers. But they must be willing to do it free and put the method in the public domain.

Mike: Has any hardware incompatibility surfaced yet?

Monty: Not yet. Possibly with a non-TI RS232 card.

Mike: Describe yourself.

Monty: Well, I'm 21 and have been programming the TI since I was 17. I'm an electrical engineering student at the University of Wisconsin at Madison. I spend a LOT of time on the TI and with others working out problems they have. I'm on the CompuServe TI Forum a lot. And I'd love to do beta testing for any TI hardware or software. I try to fit studies and a social life in also!

Mike: Any other thoughts?

Monty: Well, I'd like to have more time available. I also have no plans of marketing stuff, only releasing it as freeware. Everyone knows how well off we college students are! Seriously, I will accept a donation if you like and can afford it, but I emphasize that my stuff is freeware. Watch for my new releases! One other thing. My own BBS is presently down because of modifications I am trying out.

Mike: Thanks, Monty. I for one will be watching for your new freeware.

Monty: Thank you!

Monty Schmidt may be written to at 525 Wingra St., Madison WI 53714 (after Aug. 15).

Company seeks input from users

The SVC Computer Company is seeking input from TI99/4A users as to what products they would like to see come out for the TI.

Jeff Meyer, president of the company, said that users will receive a free catalog on request if they include their name and address.

For further information, contact the SVC Computer Company, P.O. Box 817, Round Rock, TX 78680.

Comp-u-ware phone woes over

Phone problems for several weeks in July may have kept customers from being able to call in orders to Comp-U-Ware of Lubbock.

However, Brent Butler of Comp-U-Ware says these problems have been corrected, and that he wants customers to know that the company is still in business and may be phoned at (806) 792-6184.

Techie BBS's told

Mike Christianson, Pekin, IL (309) 353-9161, 24-hour, seven days a week
Robert Brown, Cranston, RI (401) 785-0697, 10 p.m.-6 a.m. EST (DS-DD version)

Jim Reiss, Old Bridge, NJ (201) 679-0549, 9 p.m.-3 p.m. EST (single drive version)

Dale Creekmur, Urbana, IL (217) 384-8173, 24-hour

Jim Lewis, Champaign, IL (217) 356-3431, 24-hour

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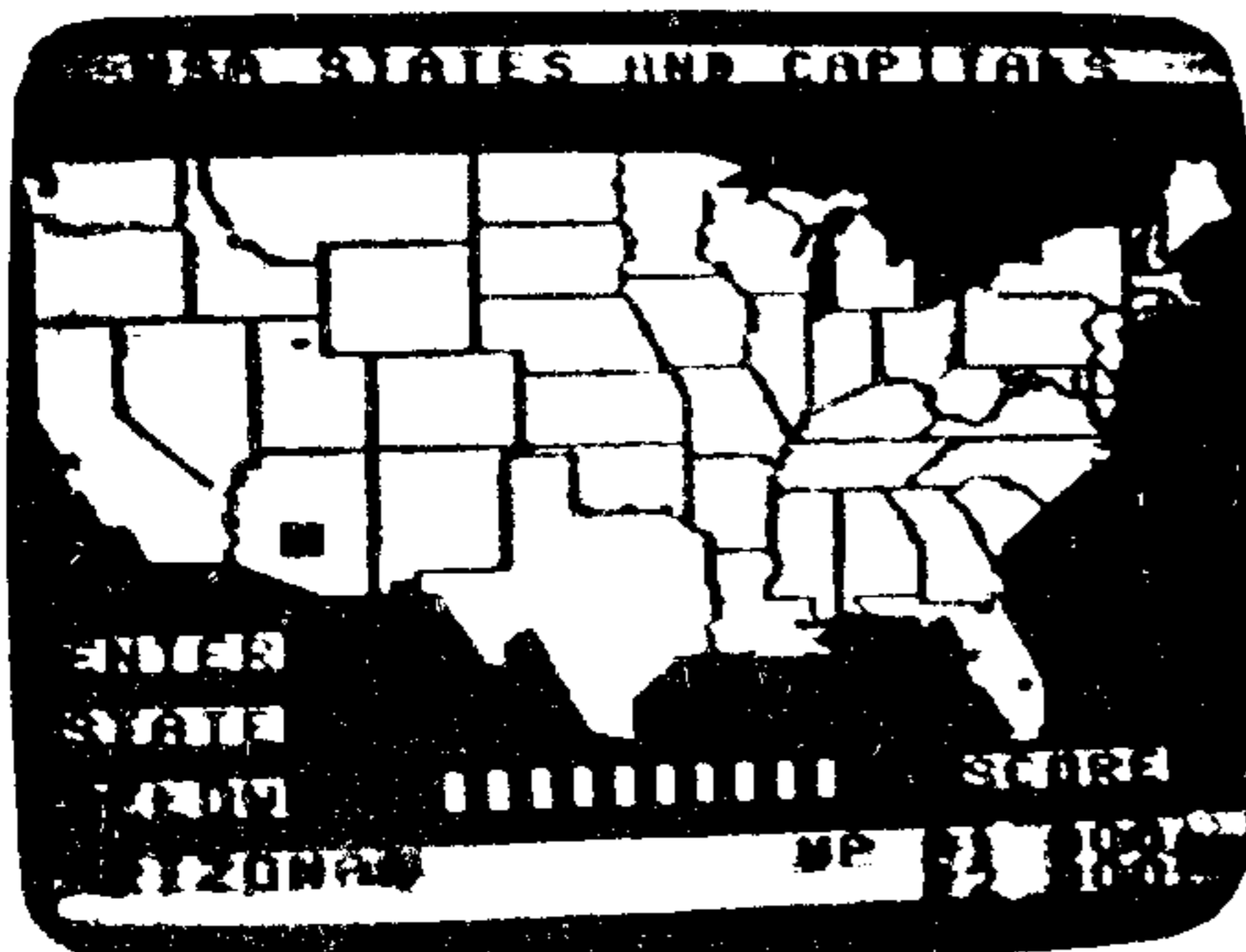
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BBS list being prepared

A California TI99/4A user is attempting to compile the definitive list of TI bulletin boards for the English-speaking world.

Mike Salmen says he is trying to compile a comprehensive list including every BBS in English-speaking countries that supports the TI, whether TI exclusively or in conjunction with other makes of computer.

Contributors to the list will be informed when the "master list is ready," he says.

He began the project, he says, because he has "just gotten obsessed with bulletin boards. He says that he has also noticed that boards which have other boards listed often have inaccuracies—"maybe somebody making a mistake in typing"—and that many boards are not known about other than locally.

He says he will "probably ask a couple of bucks to help pay my phone bills" from persons receiving the listing from him.

"I'm going to wind up calling Australia," Salmen says.

He was anticipating having his first listing complete by the end of August.

D² Programs offers DOS 1.0 for sale

D² Programs of Cedar Park, Texas, has released its DOS Version 1.0. According to company president, Darren Davis, the program is a disk-based manager program that includes such functions as disk cataloging, disk initialization, disk testing, and renaming files and disks. It also includes a disk block editor.

The program functions are accessed through Function and Control keys. The program requires a disk system, expansion memory and Extended BASIC or Editor/Assembler. The company is working on a routine that allows the user to initialize the p-System from DOS. Cost of the program was not available at presstime. For more information, contact the company at P.O. Box 1782, Cedar Park, TX 78613.

and says that he anticipates updating the list every 30 days, but that "depends on how often I have to change it.

Salmen says he is leaving messages on bulletin boards and contacting user groups in an attempt to get the most comprehensive list possible. Persons wishing to provide or receive information regarding the list may write Salmen at 512 Rosemont Street, La Jolla, CA 92037 or leave a message on the BBS of the Southern California Computer Group. (619) 282-3525.

Reviewed in MICROpendium

1984

February: B-1 Nuclear Bomber, Tandon TM-100 Disk Drive, Void, Beansstalk Adventure, Microsurgeon, On Gaming, Database 500

March: Star Trek, Escape From Balthazar, Garkon's Getaway, Sky Diver, Mail-Call, Pro-writer 8510 Printer

April: Monthly Budget\$ Master, Budget Master, Home Budget, Thief, Donkey Kong, Khe Sanh

May: Companion Word Processor, Q*Bert, Mad-Dog I & II, Programs for the TI Home Computer

June: Creative Expressions Accounts Receivable/Accounts Payable, CDC 9409 Disk Drive, Starship Concord, Lost Treasure of the Aztec, ASW Tactics II

July: Theon Raiders, Introduction to Assembly Language for the TI Home Computer, Game of Wit, Pole Position

August: TE-1200, Tower, Galactic Battle, Galaxy

September: Wycove Forth, 99/4 Auto Spell-Check, QUICK-COPYer, Wizard's Dominion, Anchor Automation Mk XII Modem

October: Killer Caterpillar, ZORK I, Defender

November: 9900 Disk Controller Card/Manager, Super Bugger, Transtar 120S printer, Floppy-Copy, Data Base-X

December: Gravity Master, Data Base Manager System, Learning 99/4A Assembly Language Programming

1985

January: Super Sketch, Foundation Computing 128K Card, PTERM-99, TI-Runner

February: Super Extended BASIC, Beginning Assembly Language For the TI ZORK II

March: Morning Star Software CP/M Card, WDS/100 Winchester Disk Drive, Sketch Mate, BMC Color Monitor

April: 9900 Micro Expansion System, Disk + Aid, Gemini 10X 15X

May: Character Sets and Graphics Design, Draw 'N Plot

June: GRAPHX, DATA BASE I

July: Acorn 99, Advanced Diagnostics

Model Dow-4 Gazelle

Simulator for flying high with TI

By JOHN KOLOEN

The Model Dow-4 Gazelle has been around some three years and remains as one of only flight simulator programs available for the TI. The other is *Winging It* by Not-Polyoptics. Both of these programs run out of console BASIC.

The Model Dow-4 is an entertaining and challenging simulation for adults and teens. It is far too complex for children.

To be perfectly honest, I did not expect a great deal from the program, considering it is programmed to run with no more than a TI console, and am surprised by how well it maintained my interest.

This is not to say that the program is as good as it can get. I am even more surprised that Mr. Dow hasn't written an Extended BASIC, disk-based version that takes better advantage of what the TI has to offer. I will have more to say about this later.

Performance: The Dow-4 Gazelle is a four-place, single engine airplane. The craft has a maximum speed of 200 miles per hour, a service ceiling of 16,400 feet and a panel of 15 instruments that report everything from airspeed to the position of the flaps. Each is updated about once every second, providing an array of constantly changing displays.

Input is based on the joystick and the keyboard. The joystick serves as the yoke and gives the user an easy-to-grasp feel for how the plane behaves. Keyboard input is used to control the throttle, fuel tanks, flaps, instrument navigation, pitch, joystick pitch effectiveness and automatic wing leveling. There is also a stall warning indicator and a pause key, both of which come in very handy.

Modes of operation include: Take Off, In Flight, Landing, Short Field Landing and ILS (Instrument Landing System) approach. While selecting the mode, the user also determines the ex-

Review

Report Card

Performance	A
Ease of Use	B
Documentation	B+
Value	B+
Final Grade	B+

Cost: \$29.95 (cassette)

Manufacturer: John T. Dow, 6560 Rosemoor, Pittsburgh, PA 15217

Requirements: Console, monitor or television, cassette recorder and cable, joysticks

tent of wind and turbulence to be encountered.

The Take Off mode is self-explanatory while the In Flight mode allows the user to specify the starting velocity, the starting altitude and the ground level. The Landing mode places the user in the landing pattern at an altitude of 1,000 feet and a velocity of

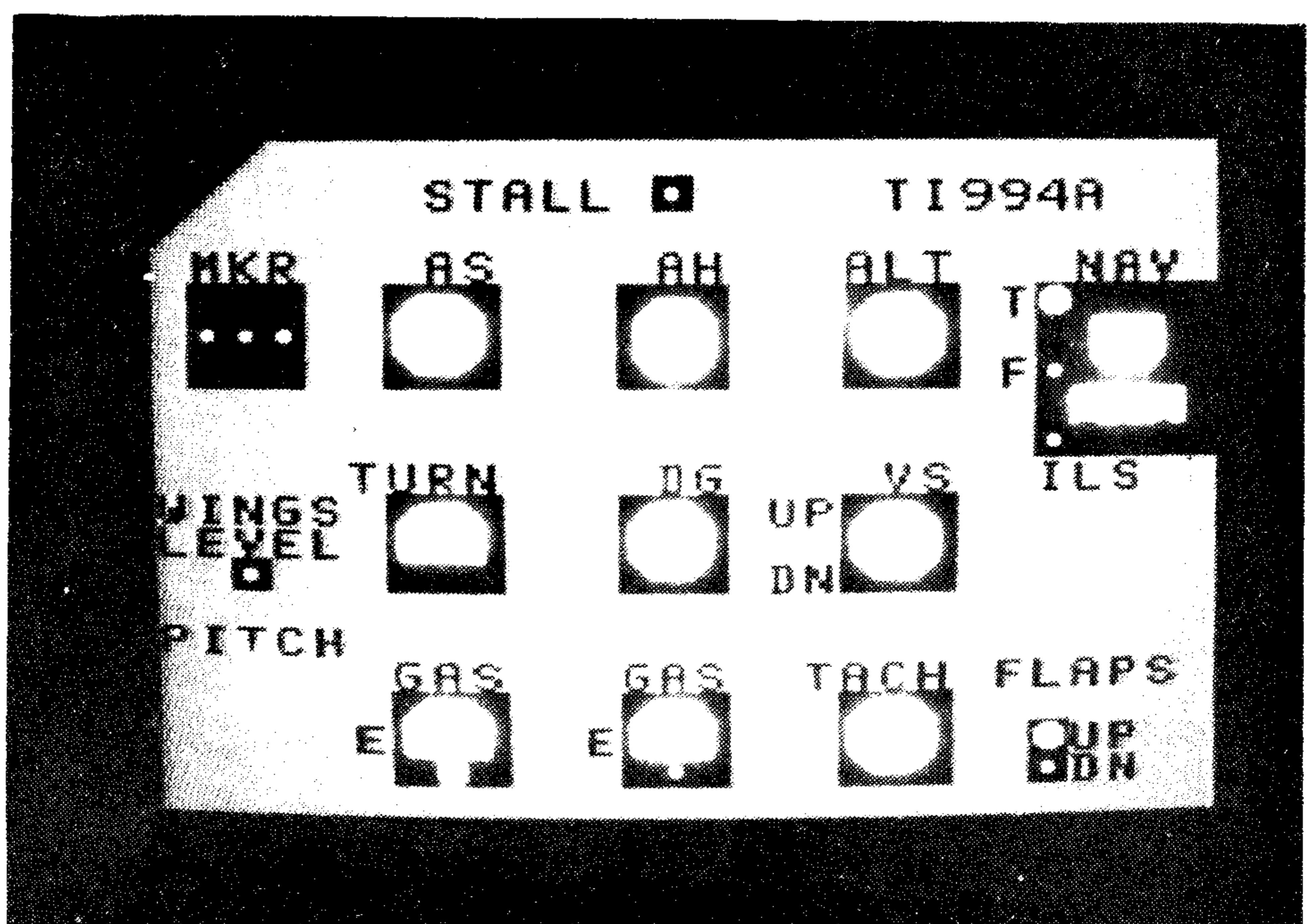
130 mph. The Short Field Landing is similar to the Landing mode except that the field is shorter and there is a 400-foot high ridge one-half mile east of the runway. (Not being able to see the ridge increases the difficulty of this maneuver. The ILS Approach is exceedingly difficult and requires a great deal of attention to detail to be successful at it.

I found the instruments and controls to perform in a realistic manner. Everything works in synchronicity. The pitch, position of the yoke, amount of power, position of the flaps all contribute to the realism of the simulation.

The instrument panel itself is realistic, though some instruments are difficult to read, most of which is due to the fact that the instruments themselves are relatively small, allowing considerable amount of space between each. The instruments could easily have been made larger, and thus easier to read.

Although there is only one airport, with landings made from approaches at 90 or 270 degrees, I found the act of

(Please turn to Page 41)



TI-Artist

Package for high-tech Picassos

By MACK McCORMICK

This program provides full features for drawing in the bit map mode using the TI99/4A.

Performance: TI-Artist has to be the best all round graphics program on the market. Even though GRAPHX, Master Painter 99, Draw A Bit, Draw and Plot and Super Sketch each offer certain unique features, TI-Artist offers the best features in a single package.

It is an extremely easy program to use and is completely menu driven from a picture title screen. Simply move your cursor to the picture of the desired action or press the corresponding letter on the keyboard and, presto! You are in that mode. Some of the unique features are continuous lines from point to point, rays, fills with user-selected patterns, frame, box, circle, disc, perfectly horizontal or vertical lines, alphanumeric lettering in 81 possible sizes determined by the user, multiple brush sizes/styles and optional density, magnification and line spacing printouts on EPSON-compatible (i.e., most), Okidata or Seikosha GP-100 printers. You can store or load from disk, zoom the picture size 4X for detailed drawing, mirror your drawing in four quadrants, input your drawings using the keyboard, joystick, Super Sketch, trackball or a mouse and index pictures previously saved on a disk. One option which I particularly like is the ability to load drawings previously drawn with Draw A Bit, Draw A Bit II and Draw and Plot and convert them to drawings which may be used with TI-Artist.

I feel that several features which could be easily added would enhance the program. First, on printing out the pictures, the user should be able to redefine his printer specifications permanently instead of entering them each time, abort the printout and define shades of print densities corresponding to screen colors. Second, a provision

Review

Report Card

Performance.....	B
Ease of Use.....	A
Documentation.....	A
Value.....	A
Final Grade.....	A

Cost: \$19.95 on floppy disk.

Manufacturer: INSCEBOT INC. Software, P.O. Box 260, Arnold, MD 21012

Requirements: Console, monitor or TV, disk system, expansion memory and one of the following: Extended BASIC, Mini-Memory, Editor/Assembler, TI-Writer, Cor-Comp or Myarc disk controller card (in short, an assembly object code loader); joystick, Super Sketch, mouse and track ball all optional.

for pre-drawn ICONS for the inclusion in drawings would have been nice.

Ease of Use: From the moment I loaded the program I was able to begin

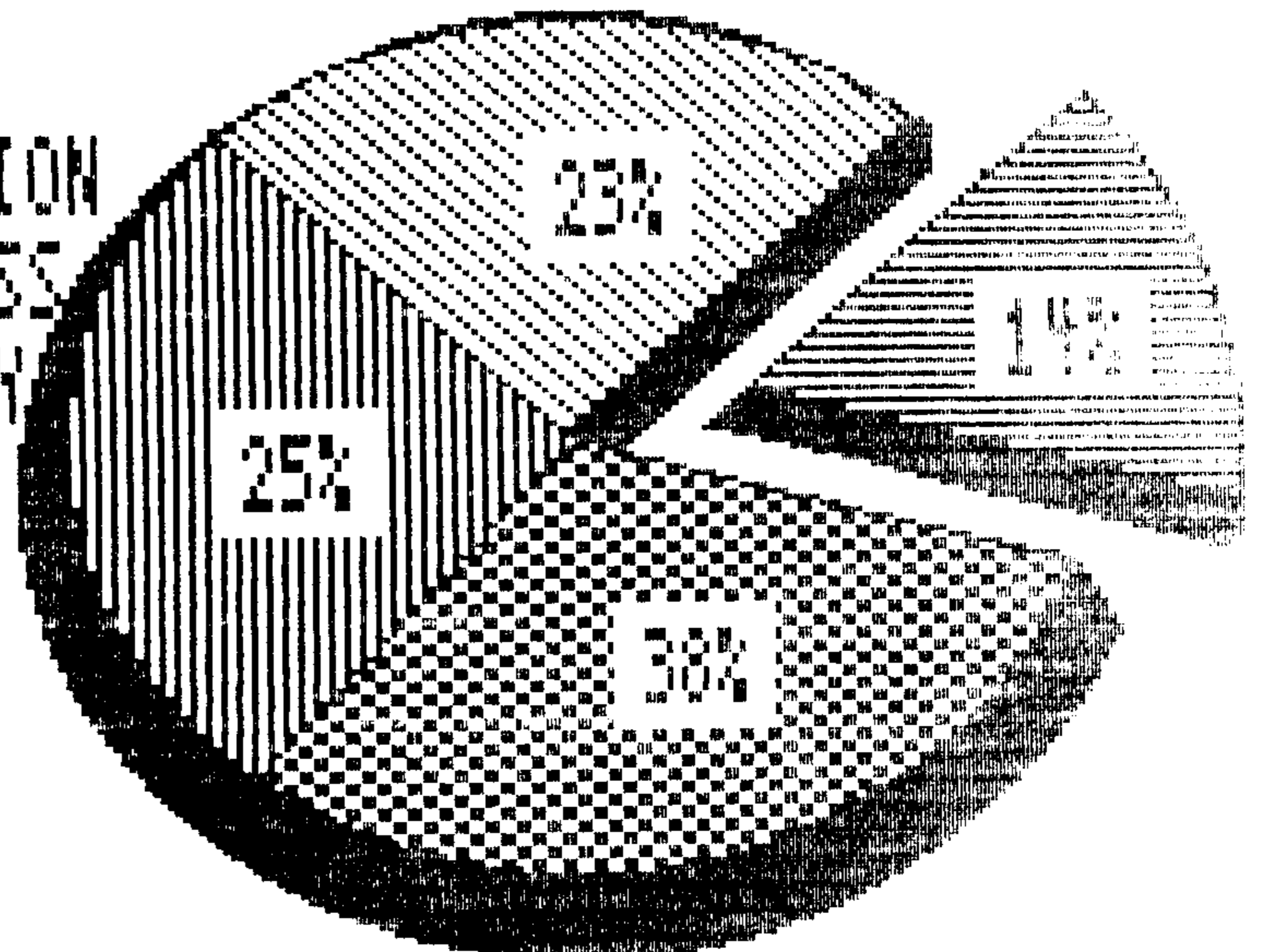
drawing with minimal reference to the instructions. Even the inexperienced user should be able to master all facets of the program quickly. This program is also well-suited for children as an introduction to drawing on the computer. I found a small administrative procedure when you first run the program very interesting. You are asked for your name which is permanently placed on the disk. From then on each time you load the program you must enter your name as a protection against piracy.

Documentation: The documents are contained on the disk in files which may be printed out. Minimal documentation is required to use the program but the author (Chris Faherty) covers all aspects in sufficient detail. For the advanced programmer he provides the information required to interface an input device (for example a sketch pad) which is not standard in the program. He also describes how to use TI-Artist with Super Sketch or a mouse. Several example drawings provided are very educational. For exam-

(Please turn to Page 41)

SOFTWARE

- ☒ GAMES
- ▨ EDUCATION
- ▩ BUSINESS
- ▧ UTILITY



CREATED WITH TI-ARTIST

PC Keys

Functions at a single stroke

By **RON ALBRIGHT**

How many times have you thought to yourself "...if only I had a nickel for every time I have typed in 'SAVE.DSK1.MYFILE' or 'LIST PIO' I'd be rich!"

And it's true. The repetition of the same keystrokes over and over is the tedium of programming. Also, having to re-boot a disk cataloger to see what is on a disk or a screen dump to check a graphics pattern can be cumbersome. It has been a cross programmers have had to bear. Until now.

Originally appearing at the Chicago TI FAIRE of last year as PF KEYS (and selling for \$15), PC KEYS has been renamed more appropriately and refined by Jim Kryzak. PC KEYS ("programable control keys") is an AL program loaded through XB and allows several special "CALL KEYS" to reside in LOW memory (thus not using any memory space available to XB programs) and called up by an interrupt routine. Once loaded, the active keys are as follows:

CTRL 1—"RUN"
 CTRL 2—"LIST"
 CTRL 3—"NUMBER"
 CTRL 4—"RESEQUENCE"
 CTRL 5—"RUN DSK1.LOAD"
 CTRL 6—"OLD"
 CTRL 7—"SAVE DSK1."
 CTRL 8—"CALL LINK("ON")"
 (TURNS ON KEY-SCAN FOR CAT AND SCREEN DUMP)
 CTRL 9—LIST "PIO"

Once loaded, PCKEYS allows the user to use a single key-stroke to initiate any of the above functions. For example, if you have programmed a segment of code and are ready to save to disk, hit CTRL 7 and SAVE DSK1. will appear with the cursor positioned after the period. Type in the program name and hit enter and out to disk your program goes. Then, you might want to run your program. Instead of typing "RUN", hit CTRL 1. RUN will appear and hitting ENTER will initiate

Review

Report Card

Performance A
 Ease of use.....A
 Documentation B+
 Value.....B
 Final Grade.....A-

Cost: \$22.50

Manufacturer: TECHNI-GRAPHICS, 443 Perrie Drive #302, Elk Grove Village, Il. 60007

Requirements: Console, monitor or television, memory expansion, Extended BASIC, Disk System, Printer optional.

the command. Want to RESequence? Hit CTRL 4, then ENTER and you've started. LIST and all the other commands work the same.

The program also loads a resident SCREEN DUMP program and a resident DISK CATALOG routine. To be able to call these up, you must type CALL LINK("SETPRT",DEVS) to set your specific printer description. For example, one would type CALL LINK ("SETPRT", "RS232.BA=4800.DA=8") for my printer (if your printer is PIO, you need not use this routine). Then, either type CALL LINK("ON") or use CTRL 8 to turn on the KSCAN routine (not always in use as it slows keyboard response for program entry), and then hit CTRL 0 for the SCREEN DUMP or CTRL = for the CATALOG. You can then type CALL LINK("OFF") to turn off the KSCAN. NOTE: The screen dump and catalog routines are TRUE software interrupts! This means that you do not have to put a new line of code in a graphics program LINK-ing the dump. Just run your program and, when you want the screen

dumped, hit CTRL 0. The program execution will be interrupted (NOT BROKEN!), the screen will be dumped, and then, PROGRAM EXECUTION WILL RESUME, right where you interrupted it!

I did it with two music programs. It was neat to hear execution stop on a note, the note being held while the screen is dumped, and then the music resume without missing a note! I have never seen this software interrupt function in any other commercial program. The catalog routine function in exactly the same way—hit CTRL =, catalog to screen or printer, and then the program will resume, exactly where you interrupted it. An incredible function!

You are not restricted to the above pre-set commands. You are able to "re-program" any or all of the CTRL number keys to ANY 140 character command. To do this, you follow this procedure:

[1] Unless you want to run the command immediately, precede it with a "!"...for example, in the immediate mode, type ! RUN "DSK1.MYPROGRAM".

[2] Hit ENTER

[3] Press FCTN 0—you will then enter the SAVE utility and see the message "SAVE AS PC #(1-9), 0-EXIT:"

[4] Enter a number from 1 to 9. The new command has replaced the old command and can be tested by hitting CTRL X (where X is the number given for the new command). RUN "DSK1.MYPROGRAM" should pop up. It is conceivable to program rather complex commands this way. You are restricted only to the 140 character limit.

PC KEYS also provides for several other useful commands available in the immediate mode. CALL LINK("COLOR",F,B) - allows you to change the screen and character colors in run-

(Please turn to Page 41)

Not-Polyoptics Bankroll

A game for Monopoly fans

By JOHN KOLOEN

Not-Polyoptics Bankroll, subtitled The Investment Game, is an interesting diversion for two to four players who would like to play the stock market but lack the funds to do so. (It is not sophisticated enough to be a learning tool for those who invest in securities.)

Bankroll, written by Arthur P. Jacoby, was first distributed in 1982 under Not-Polyoptic's author co-op program.

Performance: Bankroll uses up most of the available memory in a TI99/4A console and lacks sophisticated graphic or sound effects. In fact, sound is not used at all, which is unfortunate. Except for a rather spare introductory screen, no use of graphics is made, though none is required since this is a strategy not an arcade game.

The object of the game is to make as much money in the stock market as you can. After the number of players (1-4) is entered, each player enters his name. Then the program prompts for the amount of money it will take to declare a winner. The amount may be anything up to \$999,999 (sorry, you cannot become a millionaire).

The entry screen is the same for each player, except that the screen is a different color for each player. Each player's name also appears when it is his turn. Each round consists of each player buying and selling securities. At the end of each round, a tally screen appears listing the results of the "year's" trading (a round is equal to one year) for each player. The next round then begins when any key is pressed.

The data entry screen provides a listing of the 10 investments, the current price and the previous price. The screen also displays the dividend value and the tax shelter value of each investment. Also displayed on the screen are the current interest rate for funds that are not invested, total assets of the player, the amount of capital gain that

Review

Report Card

Performance A
 Ease of Use.....B
 Documentation B
 Value.....B+
 Final Grade.....B+

Cost: \$18 (cassette)

Manufacturer: Not-Polyoptics, 13721 Lynn St., Woodbridge, VA 22191

Requirements: Console, monitor or television, Extended BASIC and cassette recorder and cable or disk system

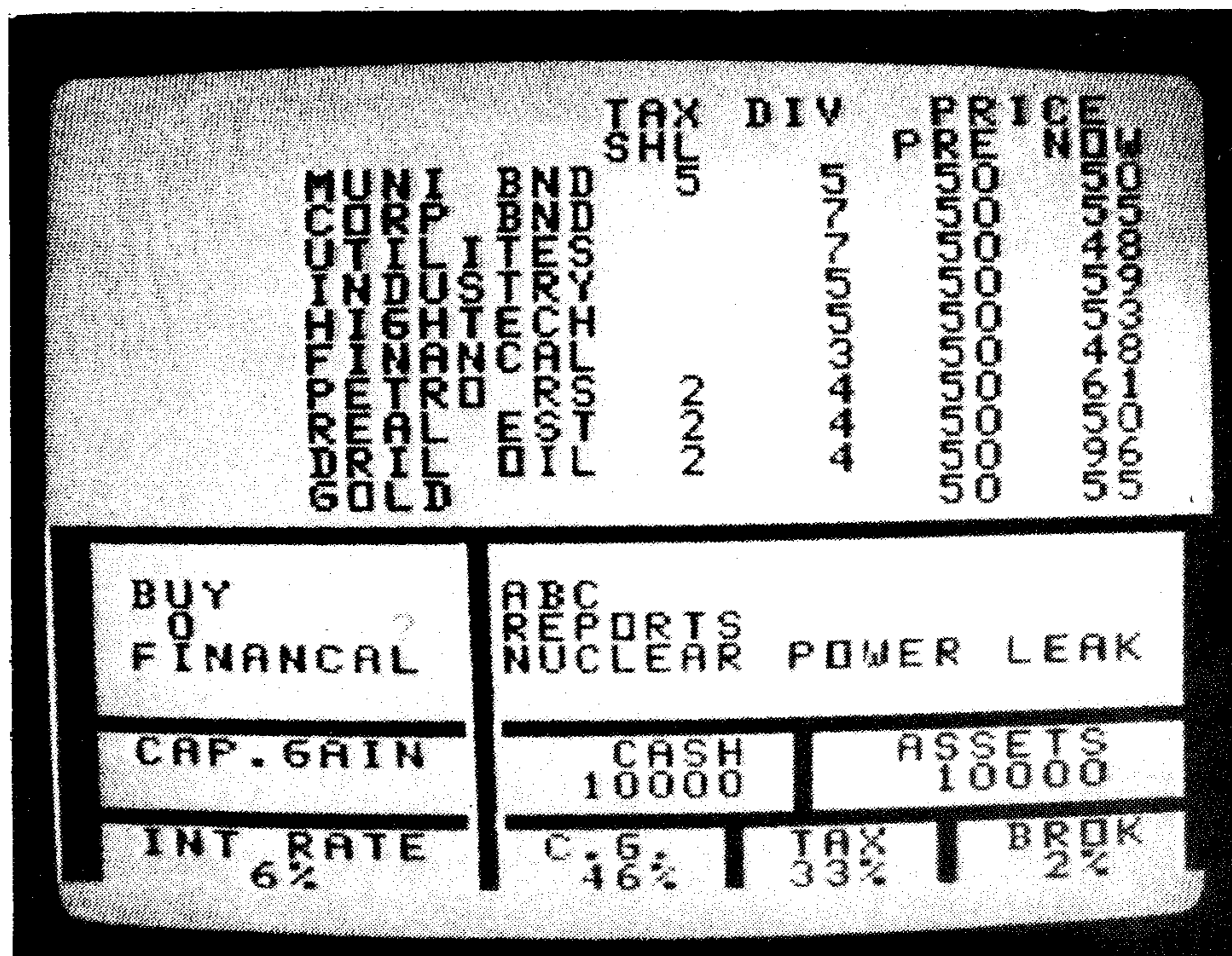
goes to taxes when investments are sold, the amount of income tax that will be taken, the amount of cash on hand and the brokerage commission, which is equal to one percent or more of the price of any buy or sell order.

A typical round would involve each player buying and selling any number of investments. To buy, a player first

presses the "B" key. (The "S" key is used to sell securities.) Then he presses the first initial of the investment he wants to buy. Then he enters the number of units he wants to buy. The minimum number of units that can be bought or sold is 10. The player can purchase as many units as he wants, up to 1,000 at a time. The player may alternate buying or selling and may make as many investment decisions as he wants during his turn. When he has finished, he presses the space bar and another player makes his investments. When all players have finished the round, the program displays the annual tally screen. The following information is displayed for each player: capital gains, interest income, dividends, tax shelter value, untaxable gains, taxable income, amount of tax, cash on hand and total value of assets.

To make the game more than just a head-to-head competition between players, the game provides a link to real world conditions that affect investments. Through the appearance of "headlines," players must factor into

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DOW-4 GAZELLE—

(Continued from Page 37)

flying and landing the Dow-4 Gazelle to remain a challenge. Timing is everything in this simulation and it is easy to over- or underestimate approach velocity and angle of descent.

Sound effects play an important part in the simulation. The sound of the engine is well done, changing based on the based of RPM. Sound is much more effectively used in the Dow-4 Gazelle than in Flight Simulator II.

My only criticism has to do with the feeling on my part that this simulation has not been carried as far as it could have been, particularly in view of the fact that it has been marketed since 1982. A disk-based, Extended BASIC version, using expansion memory, could add new dimensions in the performance of the simulation. The addition of overlays on disk that can be read into the computer as needed could create the ability to fly from one airport to another. It isn't necessary to be able to see out of the cockpit ala Flight Simulator II (even with FSII the user is primarily watching instruments). But it would add to the realism of the simulation to be able to fly from point to point without running out of fuel and to land at a variety of airports each of which has its own characteristics and challenges.

Ease of Use: It takes a while to master this program. Each flight is different, and the addition of turbulence and strong winds can make even the most routine flight a challenge. It took me several hours to be able to successfully land, but once I did I felt I had accomplished something. Following unsuccessful landings the user is treated to the sound of a siren that is followed with a display that notes the wind direction and speed, rate of descent, cloud ceiling, G force, speed, altitude above sea level and the heading. This information is also displayed following a successful landing but without the siren. Also, the simulation reports the causes of any crashes, ranging from missing the run-

way to losing the plane's wings as the result of pulling excessive Gs.

Documentation: The Dow-4 Gazelle comes with a 38-page manual. It includes a table of contents and glossary and background information about flying. There are also several drawings, depicting the instrument panel with explanations of each instrument and two examples of approaches to an airport with hints about how to land successfully.

Value: This program is well done as far as it goes, but the fact that it is done in console BASIC and is available only on cassette limits its potential in the mature TI marketplace. The use of sprite graphics could do a great deal to enhance the readability and appearance of the control panel. The use of memory expansion would have allowed a fuller development of the simulation. The reliance on instrumentation is not a handicap.

Overall, this program remains a challenge, and is worth the price. I only wish that there was a Dow-4 Gazelle II available that really takes advantage of the TI (in Extended BASIC with 32K).

TI ARTIST—

(Continued from Page 38)

ple, there are drawings showing the wiring diagram for a Centronics PIO cable and attaching a mouse to your Super Sketch for use with TI-Artist.

Value: TI-Artist at \$19.95 has to be the best buy on the market. When one considers the effort required to write this tremendous program plus the cost of materials, postage and handling, it would be impossible to find a better deal.

TI-Artist certainly deserves the top grade. I found the program a joy to use and I am certain it will not become another useless program sitting on the shelf. I assure you this will be one of the best buys you'll find all year.

PC KEYS—

(Continued from Page 39)

command mode. F = foreground color,

B = background color. CALL LINK("NORMAL")—returns to normal black on cyan colors. CALL LINK("SPEED",S)—changes number of keyboards interrupts per second. S can = 1 to 60. The default is 7; 1 is fastest, 60 is slowest.

Criticisms: If you REALLY want to get picky, you could ask for a more flexible screen dump (PCKEYS has only single size/single-density dumps to the left border), but that is about all I could think of complaining about.

Documentation: The documentation provided with the program consists of a 4-page printout which, though sparse, completely outlines the commands clearly and completely.

Summary: I think the PC KEYS is an excellent set of routines for any XB programmer who spends a lot of time encoding. Not having to re-type the same commands over and over (like the ad says!), is of value to anyone working on long XB programs. The resident screen dump and catalog themselves are almost worth the cost of the program. It is well done, functional and performs as advertised.

Value: I feel (though I am cheap!) that \$22.50 may be a bit steep for pricing...perhaps \$15-17.50 would have been more realistic (after all, PC KEYS costs more than MG's DIAGNOSTICS!). I like the program and have made a keyboard overlay to help me remember the commands. I think if you do program A LOT, PC KEYS may be a good investment, depending on how fast you type!

BANKROLL—

(Continued from Page 40)

their investment decisions such occurrences as war, assassinations, etc. These headlines appear randomly, and not at every round. Players may increase the frequency the headlines appear by pressing the "M" key or decrease the frequency by pressing the "F" key. This feature adds a dimension to the game that enhances the competition going on between players. It introduces a measure of randomness

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Newsbytes

T&C offers games

T&C Actionware is offering two games for TI-compatible computers, Minefield and Kangaroy.

In Minefield by Ted Peterson, players maneuver tanks through mazes of mines, watching for Supermines and Mineblocks, as they pick up scattered bonuses while trying to reach safety before time runs out.

In Kangaroy, a multiple-screen arcade-style game by Chris Bader, players guide Kangaroy the Kangaroo through a treacherous factory made of 10 different graphics-filled screens, traversing conveyor belts, ladders, platforms and water-filled pits while jumping for bonus fruits in search of the exit, where a graphics award awaits.

Minefield, written in TI-BASIC, is also compatible in Extended BASIC. Kangaroy comes as three separate 16K programs in which passwords enable the player to progress to the successive programs. The four programs together sell for only \$14.95.

According to Peterson, who is vice president of T&C Actionware, the company plans to announce several other games in the fall, including a 48K one-program version of Kangaroy, Crabber, Isle of Riches, Jingles and Big Top. The company plans to announce several utilities as well, he says.

For further information, contact T&C Actionware, 2434 S.W. 170 Street, Seattle, WA 98166 or (206) 249-2434.

Winchesters to order

Model Masters of California will build Winchester hard disk systems to order for customers.

Bill Moseid of Model Masters says that a five-megabyte system is available for \$795 and a 10-megabyte system for \$995.

The system includes the Myarc Personality Card, Western Digital Controller Card, case, cabling and power supply, he says. Included are the new Winchester utilities, he says. Extended

BASIC is required to use the Myarc utilities, he notes.

He says that Model Masters has "eliminated a few bugs" and that, except for the load directory which takes a little longer, response time is about two seconds for most functions.

The system is formatted, with DSK1 set up on it with utilities, Moseid says.

According to a column by Edgar Dohmann in the newsletter of the Johnson Space Center Users Group of League City, Texas, Model Masters does not keep any complete units in stock but will obtain components and assemble them as orders arrive.

Moseid says orders are payable by cashier's check, money order or COD. Persons paying by personal check will have to wait an additional period, probably two weeks, for their checks to clear, he says.

For further information, contact Model Masters, 22411 Mountain Laurel Way, Diamond Bar, CA 91765 or (714) 861-8146.

Auto-Type III

Auto-Type III is a 32-column word processor that automatically formats text with the TI99/4A.

The program is said to have true lower case letters and a cursor speed of 30 characters per second.

According to the manufacturer, users can right justify text. The entire program is resident in memory. Keyword and file names do not require special codes or DSK prefixes.

Joseph G. Puchalski, president of Technologies Support Group Inc., which produces Auto-Type III, says the program is fully compatible with the 128K Foundation memory expansion card and handles up to four disk drives in any format configuration. He says the user can use it as a typewriter and type direct, or issue special printer commands or terminal emulator commands to a modem such as the Hayes Smart Series.

Also, Auto-Type III is said to permit disk file management for viewing or deleting unwanted files and to handle

any file type with variable length records. It accommodates the TI-Writer, Editor/Assembler or executable merge program files. It permits control characters which have been assigned graphic symbols for easy identification to be included in text, according to the manufacturer, and features a five-character screen ruler.

A feature called Edit/Pause allows him the user to stop the printer at any point so that he may do editing and then return to printing a file where it left off at the stroke of a single key, according to the manufacturer. Auto-Type III outputs to serial or parallel printers or modems at up to 9600 baud.

According to the manufacturer, the program displays margin, line, character and record count plus file names and allows full text editing during or after text entry, review or right justifying. Foreground, background and screen color may be set in any color combination desired, and the program contains more than 40 error and advisory messages.

Of the more than 150 sectors of program code, two-thirds are written in Extended BASIC, unprotected to allow customizing. The balance is written in assembly language. Auto-Type III comes with a 10-page manual and telephone help for registered owners.

Price is \$65 from Technologies Support Group Inc., Kingsbury Road, Box 222, Spencer MA 01562 or (617) 885-6425.

Newsbytes is a column of general information for TI99/4A users. It includes product announcements and other items of interest. The publisher does not necessarily endorse products listed in this column. Vendors and others are encouraged to submit items for consideration. Items submitted will be verified by the staff before inclusion and edited to fit the Newsbytes format. Mail items to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

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User Notes

Joystick improved

Dwight Klettke of Summit Park, Utah, points out a problem in last month's joystick tester program and offers a suggestion to improve it.

The errors he points out are in lines 150 and 190. The CALL KEY command in line 150 was published as CALL KEY(NO,K,S) and should be CALL KEY(1,K,S).

Line 190 has two typographical errors. This is how it should look:

```
190 DISPLAY AT(10,4):"!"' :
: DISPLAY AT(12,2):"-'" :I
DISPLAY AT(12,4):"*'" : DI
SPLAY AT(14,4):"!"'<
```

Now, onto the improvements.

In addition to providing five program lines, Klettke writes: "The additional lines (271-275, see below) do provide definite improvement on the graphics display, permitting visual confirmation of diagonal moves. After the common software problem of not releasing the Alpha Lock, the most frequent hardware problem in the TI joysticks involves diagonal moves. It requires relatively equal force on two contacts, which are separated by 90 degrees on a circle, to indicate diagonal motion. The construction of the joystick (for those who like to take things apart) reveals that this movement is more likely to encounter problems than the horizontal and vertical movements. Although the digital readouts are present to verify diagonals, some people (like me) may not notice those at first. And as long as a visual display is available, why not use it fully?"

Here are Klettke's improvements:

```
271 IF Z=0 AND Y=0 THEN CALL
SPRITE(#1,33,7,88,40) :: X2
=X :: Y2=Y :: SUBEXIT
272 IF X=4 AND Y=4 THEN CALL
SPRITE(#1,33,7,80,48) :: X2=
X :: Y2=Y :: SUBEXIT
273 IF X=4 AND Y=-4 THEN CAL
L SPRITE(#1,33,7,95,48) :: X
2=X :: Y2=Y :: SUBEXIT
274 IF X=-4 AND Y=-4 THEN CA
```

```
LL SPRITE(#1,33,7,96,32) ::
X2=X :: Y2=Y :: SUBEXIT
275 IF X=-4 AND Y=4 THEN CAL
L SPRITE(#1,33,7,80,32) :: X
2=X :: Y2=Y :: SUBEXIT
```

Save designs

Here's another tip from Dwight Klettke that will be of use to those who are using George Wentzel's Designer program from the May issue. Klettke's submission allows Designer users to save and load their new character sets.

Klettke writes: "Reload previously defined files and add, or immediately (P)rint to set up your printer with its new character set. Multiple character files may be stored in this manner for future use."

```
50 R,C=1 :: DISPLAY AT(22,1)
:"^~E <~S >~D v~X ~. o
~0": : " Finished Load"
65 IF K=76 THEN 190
140 DISPLAY AT(24,2):"Alter
Next Print Quit Save" :: CAL
L KEY(0,K,S) :: IF S<1 THEN
140 :: IF K=81 THEN STOP
141 IF K=83 THEN 190
190 !ROUTINES FOR DISK
OPERATIONS
200 IF K=83 THEN 210 ELSE 2
30
210 DISPLAY AT(19,1):RPT$("
",168) :: DISPLAY AT(22,1):"
FILE NAME?: DSK1." :: ACCEPT
AT(22,18):FN$ :: OPEN #1:"D
SK1."&FN$,INTERNAL,VARIABLE
254,OUTPUT
220 PRINT #1:NH :: FOR I=1 T
O NH :: PRINT #1:P$(I),D$(I)
, :: NEXT I :: CLOSE #1 ::
DISPLAY AT(19,1):RPT$(" ",16
8) :: GOTO 140
230 DISPLAY AT(19,1):RPT$("
",16 8) :: DISPLAY AT(22,1):
"FILE NAME?:DSK1." :: ACCEPT
AT(22,18):FN$
235 ON ERROR 250 :: OPEN #1:
"DSK1."&FN$,INTERNAL,VARIABL
E, 254,INPUT
240 INPUT #1:NH :: H=NH-1 ::
FOR I=1 TO NH :: INPUT #1:P
$(I),D$(I), :: NEXT I :: CLO
SE #1 :: DISPLAY AT(19,1):RP
```

```
T$(" ",168) :: GOTO 140
250 DISPLAY AT(22,1):"ERROR
IN LOADING FILE!!": "(PRESS E
NTER TO CONTINUE)"
260 CALL KEY(0,KE,ST) :: IF
KE<>13 THEN 260 ELSE 20
```

Acceptable

John N. Marx, of Lubbock, Texas, writes: "George Zinmeister's letter (June issue) asks for a command or routine to ACCEPT a full-length string in Extended BASIC. I know of no such command, and would be most happy to learn of one if it exists. In the meantime, I submit the following routine, which does what he wants."

"Simple concatenation (line 18) will work, but the user must supply the correct spacing. The improved version does this, except at the end of sentences. The real problem arises in editing such strings. My longish sequence does this. It takes less than a second to run. If the first lines are left almost empty, extra spaces are generated in A\$, though they can be edited out. When used with normal typing, this sequence should solve the problem."

The routine follows:

```
10 REM SEQUENCE FOR EXPANSIO
N OF 'ACCEPT AT' TO GIVE A S
TRING OF 80 CHARACTERS
12 REM SIMPLE CONCATENATION
VERSION. USER PROVIDES SPAC
ES AT THE BEGINNING OF LINES
.
14 CALL CLEAR :: DISPLAY AT(
1,1):"INPUT DATA. TYPE TO T
HE END OF EACH LINE. USE A
LEADING SPACE ON THE NEXT LI
NE"
16 DISPLAY AT(4,1):"IF AT TH
E END OF A WORD AND TWO IF A
T THE END OF A SENTENCE."
18 ACCEPT AT(8,1):B$ :: ACCE
PT AT(9,1):C$ :: ACCEPT AT(1
0,1)SIZE(22):D$ :: AS=B$&C$&
D$
20 REM IMPROVED CONCATENATIO
N VERSION
```

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```

22 REM IF THE END OF A SENTENCE COMES AT THE END OF A LINE, INSERT A LEADING SPACE ON THE NEXT LINE TO PROVIDE THE USUAL TWO SPACES.
24 CALL CLEAR :: DISPLAY AT(1,1):"ENTER DATA. USE ONLY COMPLETE WORDS ON ANY LINE."
26 ACCEPT AT(4,1):B$ :: ACCEPT AT(5,1):C$ :: ACCEPT AT(6,1)SIZE(22):D$ :: A$=B$&" "&C$&" "&D$
28 REM EDIT THE STRING A$
30 IF SEG$(A$,27-K,1)=" " THEN 32 :: K=K+1 :: GOTO 30
32 B$=SEG$(A$,1,27-K)
34 IF SEG$(A$,55-K-L,1)=" " THEN 36 :: L=L+1 :: GOTO 34
36 C$=SEG$(A$,28-K,28-L)
38 IF SEG$(A$,83-K-L-M,1)=" " THEN 40 :: M=M+1 :: GOTO 38
40 D$=SEG$(A$,56-K-L,28-M)
42 E$=SEG$(A$,84-K-L-M,28)
44 DISPLAY AT(8,1):B$:C$:D$:E$
46 ACCEPT AT(8,1)SIZE(-28):B$ :: ACCEPT AT(9,1)SIZE(-28):C$ :: ACCEPT AT(10,1)SIZE(-28):D$
48 ACCEPT AT(11,1)SIZE(-28):E$ :: A$=B$&" "&C$&" "&D$&" "&E$
50 DISPLAY AT(13,1):A$ :: ACCEPT AT(24,28):YT$ :: K=0 :: L=0 :: M=0 :: END

```

Printer routine

George Venzke, of Streamwood, Illinois, writes: "This little program makes it rather easy to set the print commands for my Gemini 10X. It can also be used as a poor man's word processor. All you have to be careful about is not running over three lines on the screen. I find it useful for writing short letters, such as orders or notes."

"Paragraph indentions can be set by placing a period then moving the cursor the number of spaces that you want. When I start out I just auto number, starting at 100. The next time

I use the program I just type over the old lines."

"One thing that you have to remember is to start each line of text with a data statement. Print type is changed in Line 8. I also set the end statement at 1000 so as to leave enough room for a long letter."

This program can probably be adopted to other printers without much trouble. It is listed below:

```

1 OPEN #1:"PI0"
2 ESC$=CHR$(27) :: STANDS$=ESC$&"5" :: ITALIC$=ESC$&"4" :: PICA$=ESC$&"B"&CHR$(1):: COMP$=ESC$&"B"&CHR$(3) :: WIDE$=CHR$(14) :: RESET$=ESC$&"G" :: CDBLS$=ESC$&"H" :: ELITE$=ESC$&"B"&CHR$(2)
3 EMPH$=ESC$&"E" :: CEMPH$=ESC$&"F" :: DBLS$=ESC$&"G" :: CDBLS$=ESC$&"H" :: ELITE$=ESC$&"B"&CHR$(2)
4 N=100
5 FOR I=1 TO N
6 READ L$
7 IF L$="END" THEN 12
8 PRINT #1:ITALIC$:L$
9 NEXT I
10 PRINT #1:RESET$
11 CLOSE #1
12 STOP

```

Lower case letters

Edwin E. Chernosky II of Littleton, Massachusetts, writes:

Type in and run the following program. When the cursor appears, type: Small.

```

100 INPUT A$
110 CALL KEY(3,K,S)
129 INPUT A$

```

You will notice that the letters appearing on the screen all appear as upper case in the second input statement. Adding:

```

130 CALL KEY(0,K,S)
140 INPUT A$

```

still has not returned the letters to lower case. Change:

```

130 CALL KEY(5,K,S)

```

Now the letters appear as they should.

Clarification

Paul Degner, of the Winnipeg 99/4 User Group, Manitoba, writes: "Under your June User Notes column, you stated that T.L. Atkinson writes for the Winnipeg 99/4 User Group. In fact, T.L. Atkinson writes for the T.I.N.S. (Texas Instruments users of Nova Scotia) newsletter, which is located several thousand miles away from the province of Manitoba. We have an exchange agreement with their group that lets us use their newsletter articles without prior consent, but we must acknowledge the author in the reprint."

Static Problems

C. Paul Stehling, of Santa Fe, New Mexico, writes: "Those of you having static problems because you have your console located in a carpeted room should try this cheap fix. Pour half a cup of Downey fabric softener into a spray bottle with water and lightly spray your carpet. The static problem will cease to exist and each application will only cost you a fraction of a cent."

Nutmeg group starts

A users group, the Nutmeg Ninety Niners, has been started for TI99/4A users in Connecticut.

Interested persons may contact the group's president, David Gallagher, 139 Grassy Hill Road, Waterbury, CT 06704.

TI-Writer solutions

Gary Cox, of Memphis, Tennessee, responds to two problems encountered by TI-Writer users: "In answer to William J. Bullock's question (June) about stopping the automatic form feed of TI-Writer, he may run the following program before using his TI-Writer and it will stop the form feed that TI-Writer sends. This will continue to work as long as he does not
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User Notes

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turn off the printer, in which case it will lose its memory of the command.

10 OPEN #1:"PIO"

20 PRINT #1:CHR\$(27);CHR\$(67);CHR\$(1)

30 CLOSE #1

"Run this program with the printer on and then insert TI-Writer and work as you normally would." (There is also a software update available through MICROpendium Freeware that solves this problem.)

"Also, in answer to Bob Linberg's problem of TI-Writer not printing extra spaces inserted after a period, etc., all you need to do is type up your docu-

ment exactly as you want it printed, with spaces, etc. When you are ready to save it, hit CTRL 0 and then save it. This is a command that tells TI-Writer to print a document exactly as it is written. You may notice that after hitting CTRL 0 the auto wrap feature (when typing a document) is turned off. Simply hit CTRL 0 again to turn it on. Also, to document may be printed while in the text editor by by the (P)rint (F)ile command and is printed exactly as it is displayed on the screen."

Cooling fans

A couple of readers have reported

that they have not received merchandise or any response after ordering PEB cooling fans from the WCN BBS, as announced in the May 1985 MICROpendium.

When contacted, Douglas Davis, operator of the BBS, said he had had to back-order fans, but was catching up on orders.

User Notes is a column of tips and ideas designed to help readers put their home computers to better use. The information provided here comes from many sources, including TI home computer user group newsletters. MICROpendium will pay \$10 for any item sent in by readers that appears in this column. Mail tips to: MICROpendium, P.O. Box 1343, Round Rock TX 78680.

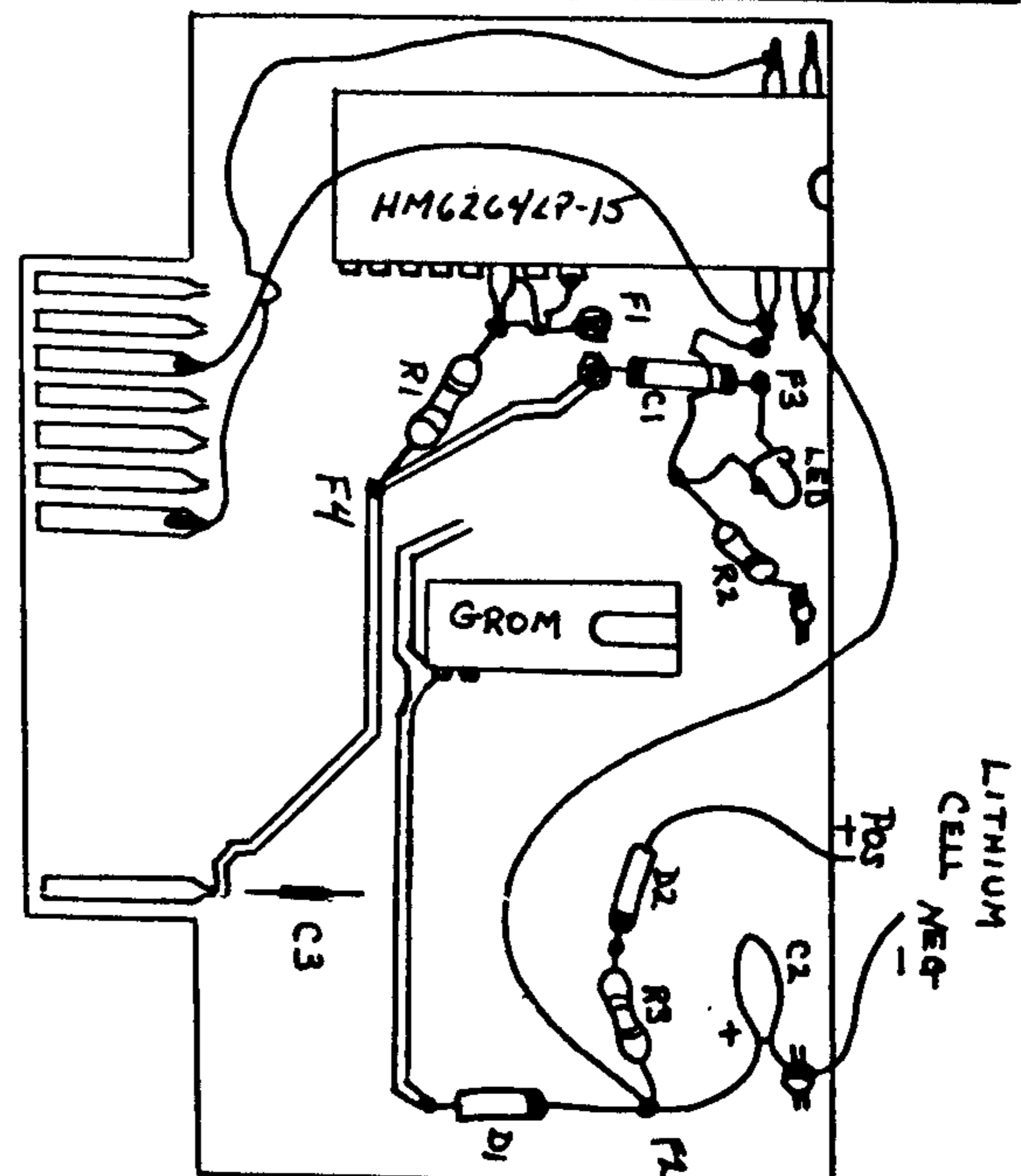
Update on SUPER CART

John Clulow has sent additional information regarding the construction of the SUPER CART module, articles about which appeared in the June and July issues:

The published design of the SUPER CART module does not work with a cartridge expander. To correct this, disconnect the resistor R1 from its F4 connection and re-solder it to F3.

Some modules, such as TI Invaders, have a capacitor at C3 rather than a wire. The foil around the edge of the board must be grounded. To correct this, remove the capacitor at C3 and replace it with a piece of heavy wire (such as a resistor lead). If this change is not made, the LED will not light and the module will not function correctly.

A disk of software for SUPER CART which includes material to allow any Option 3 E/A program to be loaded into the module for menu access can be obtained from David R. Romer, 213 Earl St., Walbridge, OH 43465. Enclose \$6 for the cost of disk, mailing and handling.



Asgard programs

Asgard Software announces the release of Disk Data Base and GRAPHX Companion and of Version 2 of Stamp Manager.

Disk Data Base is said to allow the user to catalog with assembly language speed up to 12,500 files in one single data base. The program is set up to allow the user to sort the data base by file name or disk name or to print it out unsorted. The program is said to allow for conversions of catalogs made with

other popular disk cataloging programs for use with DDB.

The program requires Extended BASIC, 32K memory expansion and a disk drive and controller; a second drive and a printer are recommended. Cost is \$15 for the unprotected program.

GRAPHX Companion is a collection of fonts, clip art, animation sequences and pictures for use with GRAPHX. The program requires GRAPHX (available through Asgard for \$60), and has a suggested retail

price of \$10.

Version 2 of Stamp Manager is said to be completely compatible with Version 1 and feature assembly language sorts and faster printing routines, as well as a new utility for sorting data by condition as well as by Scott Number, Value, Quantity or Date Purchased.

Asgard says purchasers of Version 1 may upgrade to Version 2 free of charge by returning their program diskette to Asgard Software, P.O. Box 10306, Rockville, MD 20850.

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BANKROLL—

(Continued from Page 41)

that nonetheless calls for measured responses by each player.

Although the game is enjoyable to play, keyboard input is on the slow side. Players must hold the keys down for a second to make sure responses are registered by the program. It would have been useful if the program would allow players to enter buy and sell orders for several investments at a time.

Ease of Use: The mechanics of Bankroll are quite easy to pick up, though the strategy may present a challenge. This game is definitely not for the very young. Those who enjoy playing Monopoly would probably enjoy Bankroll.

Documentation: The manual consists of six pages of information detailing the how-tos of the game as well as suggestions for winning strategies. It's adequate to the task.

Value: Bankroll is an interesting stock market game. It's well-conceived and operates in a logical fashion. What randomness there is—the headlines—affects all players equally.

Unlike similar board games, the computer is the banker in this one, which allows everyone to concentrate on winning rather than watching the banker. It's a nice break from family games of Monopoly.

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