Covering the TI99/4A and the Myarc 9640

MICROpendium

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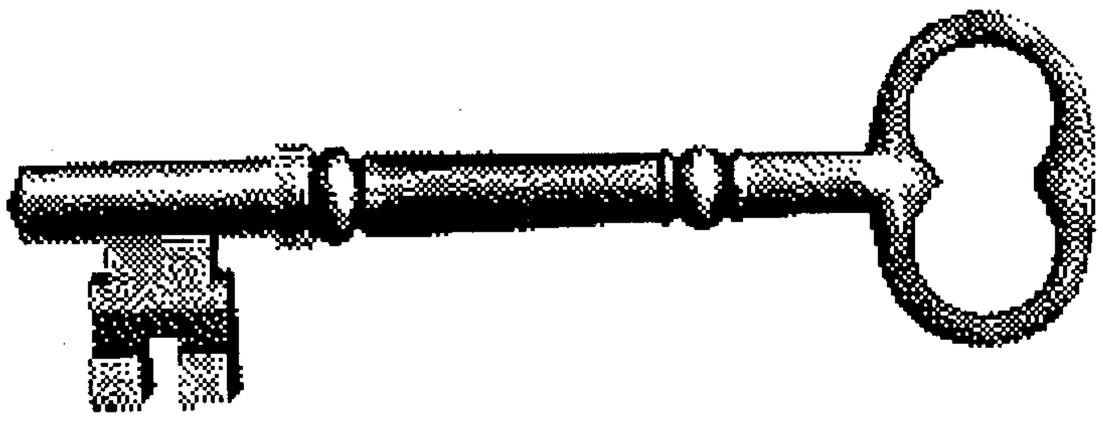

GROM devices

Keys to the kingdom?

PYRAMID SOLITAIRE

INSIDE

- ★ Messages on a wire
- ★ A little bit of calculus
- ★ More TI BBS listings
- ★ Power supply mod lets you run a hard and floppy drive from PEB
- ★ Reviews
  cShell99, Rave 99 Memory Enhancement Card, Page Pro 99 PIC-CAT, Powercost, TI-Keno
- ★ Six pages of User Notes

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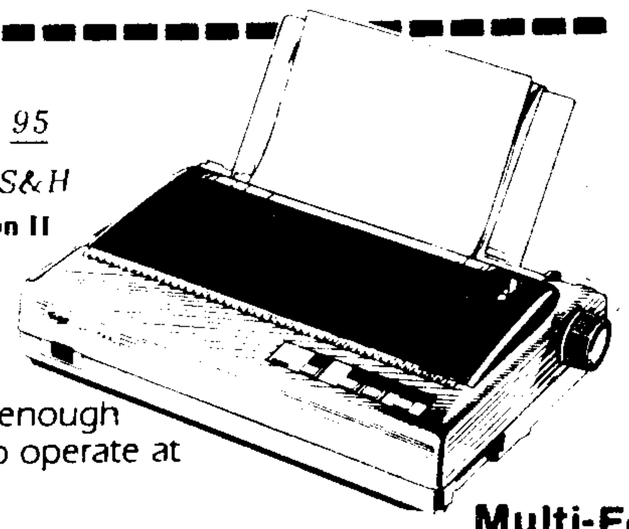

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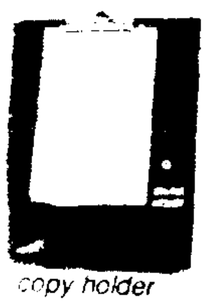
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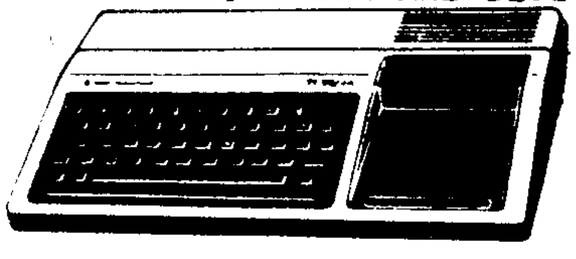

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Contents

MICROpendium

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***READ THIS**

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

1. All BASIC and Extended BASIC programs are run through Checksum, the numbers that follow exclamation points at the end of each program line. Do not enter these numbers or exclamation points. Checksum was published in the October 1987 edition.
2. Long XBASIC lines are entered by inputting until the screen stops accepting characters, pressing Enter, pressing FCTN REDO, cursoring to the end of the line and continuing input.

The MISSING LINK

The Ultimate Extended Basic Upgrade

The ultimate upgrade. The Missing Link is a powerful extension of the Extended Basic language that allows programmers to access all of the high resolution bit-mapped graphics and advanced text modes of the TI-99/4a. Before The Missing Link was developed these advanced display modes could only be accessed through assembly language programs, or by using optional and often expensive hardware. Now, using The Missing Link, ordinary Extended Basic programs, without the aid of any additional hardware, can be written to take full advantage of these advanced display modes.

High-speed subroutines. The Missing Link consists of over 30 assembly language subroutines that replace the usual methods of accessing the computer display through Extended Basic. With these high-speed subroutines many text, cartesian graphic, turtle graphic, sprite graphic, windowing and miscellaneous peripheral operations can now be incorporated into any Extended Basic program. Novice and expert users alike will find these subroutines easy-to-use, and also fully explained in the 32 page manual included with The Missing Link.

Incredible text functions. Using the text functions found in The Missing Link information can be displayed and input to and from the screen. Text can be displayed both horizontally and vertically with automatic word wrap in a window of any size. The character text size can be changed permitting up to 32 rows by 60 columns to be displayed on the screen. Different sized text can also be displayed simultaneously on the same screen.

Awesome graphics power. A tremendous amount of bit-mapped graphics functions are also available in The Missing Link. With cartesian graphics, points, lines, circles and boxes can be plotted on the screen. Turtle graphics can be used without the ink and color restrictions typically found in Logo. Using the advanced sprite routines up to 32 moving sprites can be defined and controlled simultaneously. Best of all, there are no limits when combining the advanced text and graphics capabilities on the screen.

"Through Extended Basic, The Missing Link allows anyone to access all of the incredible graphics and text capabilities found in the TI-99/4a. This was something people said could never be done... we did it."

Steve Lamberti
President of Texaments

It does windows. With The Missing Link you can display an unlimited amount of windows without any size or color restrictions. Text may be displayed in or input from a window; graphics may be generated inside and outside the boundries of a window. Multiple windows can even be overlapped and text or graphics output controlled within window boundries.

TI Artist compatibility. In addition to its remarkable text and graphics capabilities, The Missing Link can also display and save full color TI Artist pictures. Furthermore, The Missing Link can perform full bit-mapped screen dumps of any current display.

The first one is on us. Included free with The Missing Link is PaperSaver, the first program ever written with and for The Missing Link. PaperSaver is an impressive utility program that, for the first time, lets you see precisely how text prepared with TI Writer is going to look before it is printed.

Go ahead, try it! For only $3.00 (shipping included) we will send you a Live Demostration of The Missing Link that demonstrates almost every function of The Missing Link and PaperSaver. The Live Demostration is written entirely in Extended Basic and is a true representation of what can actually be done with The Missing Link. There is no better way to see what The Missing Link can do (unless you buy it, of course).

Order today. Not only is The Missing Link powerful, but it is affordable as well. For only $24.95 (plus shipping) you get The Missing Link, the PaperSaver utility, a comprehensive 32 page manual, and The Missing Link Live Demonstration.

Requirements. A TI-99/4a system with 32K memory expansion, disk drive system and an Extended Basic cartridge is all that is required to operate The Missing Link. An Epson compatible printer is needed to use the screen dump features. The Missing Link has been tested (but is not guaranteed) to be compatible with the Geneve 9640 (in TI mode), all Myarc and CorComp peripheral expansion cards, HRD, and the Triton/MG Super Extended Basic.

TEXAMENTS

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Comments

Catching up on the little things

☐ Beta testing is continuing on a version of MDM5 that will run with MDOS .97h. Currently MDM5 Version 1.29 works with MDOS 1.14. This h-MDOS compatible version of MDM5 is numbered 1.40.

☐ Myarc Advanced BASIC is nearing its final version. Still labeled 2.99A, beta testers say it is nearly ready to go. This was as of early April.

There are still 512 bytes of space left on the Advanced BASIC program, and Myarc wants to know how users would like this space used. Two choices are to use it for an array sorting routine that could be used in database and similar applications or a routine that would let the user drop directly from ABASIC to MDOS, similar to the SYSTEM command used in PC versions of BASIC. Readers may want to write us or Myarc. We'll print the suggestions here.

☐ MICROpendium is at 40 pages this month, but only this month. Advertising was down and we decided to take a few days off. Next month we'll be back to 48.

☐ I recently received an Asgard Mouse, and it looks like a very nice package to have, especially if you use TI-Artist or TI-Artist Plus. The mouse comes with software to use with these programs. Unlike other mice for the TI that plug into the joystick port, this model plugs into the RS232 port. (According to Asgard, a Geneve user could use the Asgard Mouse and the Myarc Mouse at the same time.) The mouse comes with several demonstration programs as well as software that lets the mouse work with user-written Extended BASIC programs. A programmers development kit is also available for $14.95 for those who are serious about using the mouse. The mouse retails for a reasonable $49.95.

☐ Here's a problem I recently heard about from a reader who receives the monthly MICROpendium disks: Those using a Myarc HFDC may have trouble reading the disks, even though they are formatted in single-sided, single-density format. We've been using a CorComp controller to copy the disks and, apparently, the CorComp formatting isn't compatible with the Myarc card. Disk subscribers who have had consistent problems reading the disks and who have Myarc controllers may drop us a note. We'll work around this. However, we'd also appreciate a note from Myarc controller users who *haven't* had a problem. Myarc is examining a CorComp formatted disk to find out why the two SSSD formats aren't compatible.

☐ **Magazine Holders**: We've had to reorder magazine holders and recently received them. Those who have been on back order should receive the holders before this magazine is delivered. If not, call or write us.

—JK

1990 TI FAIRS

FEBRUARY

TI-Fest West '90, Feb. 17-18, Day's Inn, 88 E. Broadway, Tucson, Arizona. Sponsored by Southwest 99ers. For information, call (602) 747-5046 or the Cactus Patch BBS, (602) 795-1953, check GEnie or write P.O. Box 17831, Tuscon, AZ 85730. For room reservations, call (602) 622-4000 by Jan. 16 and mention Fest-West.

MARCH

West Coast Computer Fair, 10 a.m.-6 p.m. March 1-4, Brooks Hall/Civic Center, San Francisco, California. San Francisco 99ers at Booth 1960. Fee $10 per day, discounts for multiple days. Call Neil Wood, (707) 425-3854.

TICOFF (TI Computer Owners' Fun Faire — The IBM & Clone Owners' Fun Faire, 9:30 a.m.-4 p.m. March 17, Roselle Park, New Jersey. For information, call (201) 241-4550 or the TICOFF BBS (201) 241-8902.

APRIL

Canadian TI-FEST, April 28, Merivale High School, Nepean, Ontario, Canada. For information, contact Ruth O'Neill, 34 McLeod St., Ottawa, Ontario, Canada K2P 0Z5 or (613) 234-8050 or CompuServe 72117,3541 or Delphi REON.

MAY

Boston Computer Society Home Computer Fair, 10 a.m.-4 p.m. May 5, cafeteria, Waltham Central Middle School, 55 School St., Waltham, Massachusetts. Contact Justin Dowling, The Boston Computer Society, TI99 User Group, One Center Plaza, Boston, MA 02108.

Alberta TI Orphan Reunion, 10 a.m.-5 p.m. May 12, Innisfail Lions Hall, Innisfail, Alberta, Canada. Contact Fred Kessler, Box 20, Sundre, Alberta, Canada T0M 1X0. Phone: (403) 638-3916.

TI Multi User Group Conference, 9 a.m.-6 p.m. May 26, Reed Hall/Student Activities Building, Ohio State University Lima Campus. For information write Lima Ohio User Group, P.O. Box 647, Venedocia, OH 45894, or call Dave Szippl evenings (419) 228-7109.

Annual Meet of TI99/4A Users Group UK, May 26, North Gate Arena, Chester, England. Contact Stephen Shaw, 10 Alstone Rd., Stockport, Cheshire, England SK4 5AH.

OCTOBER

Fourth Annual CPUG Computer/Electronics Exposition, 7 a.m.-3:30 p.m. Oct. 14, Cocoa Avenue Plaza, 605 Cocoa Ave. Hershey, Pennsylvania. Preregistration through Aug. 3. Write Central PA 99/4A Users Group, P.O. Box 14126, Harrisburg, PA 17104-0126 or call Dave Ratcliffe (717) 238-5414 or The Data Factory BBS (717) 657-4992 or 4997 (24 hours 8-N-1 300/240.

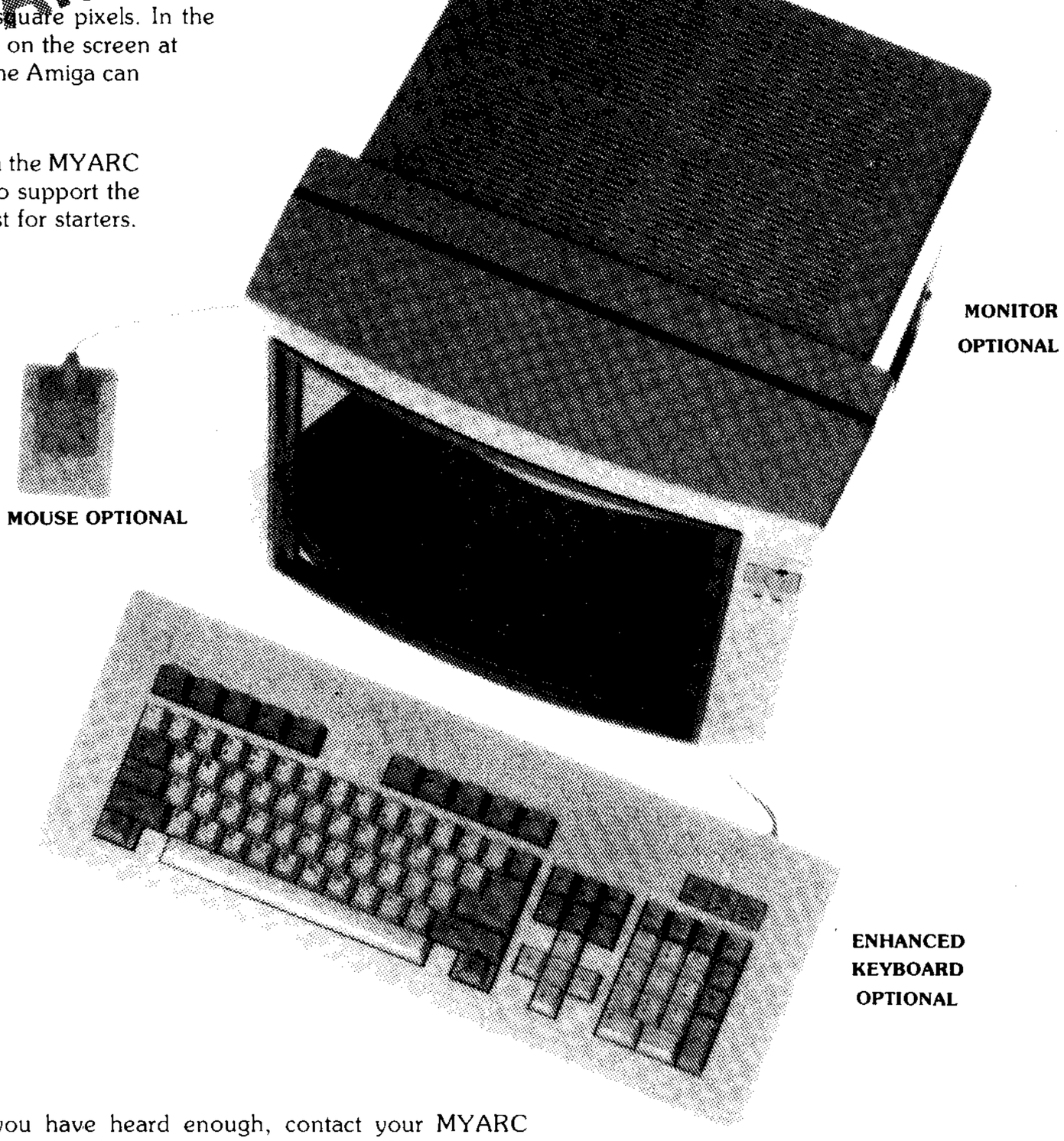
Columbia Northwest TI Computer Fair, Oct. 27-28, Jantzen Beach Red Lion Inn, Portland, Oregon. Sponsored by NOVA (Ninety-Niners Of the Vancouver Area), Washington, and PUNN (Portland Users of Ninety-Nines), Oregon. Contact N. Michal Calkins, 1215 S.W. Cedar St., Lake Oswego, OR 97034, or (503) 636-1839.

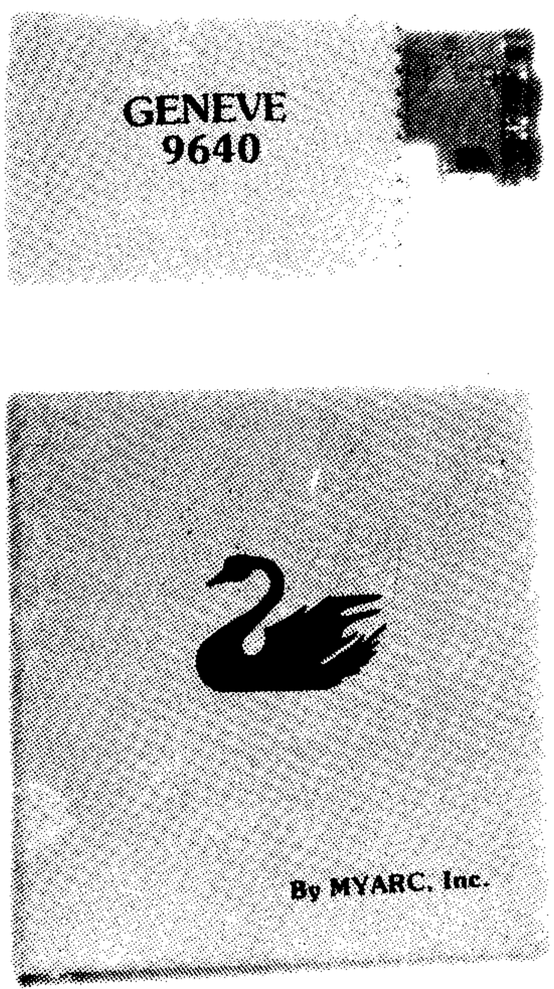
This TI event listing is a permanent feature of MICROpendium. User groups and others planning events for TI/Geneve users may send information for inclusion in this standing column. Send information to: MICROpendium Fairs, P.O. Box 1343, Round Rock, TX 78680.

THE GENEVE 9640 HAS LANDED

You will recognize it by its trade mark, a graceful gray swan swimming on blue water, an apt symbol. The ugly duckling TI no longer wanted, is no ugly duckling anymore. The GENEVE has surpassed everyones expectations, even our own; with power, speed, graphics, and adaptibility not found in other microcomputers. In fact, the GENEVE does so much, this ad can only begin to tell you about it.

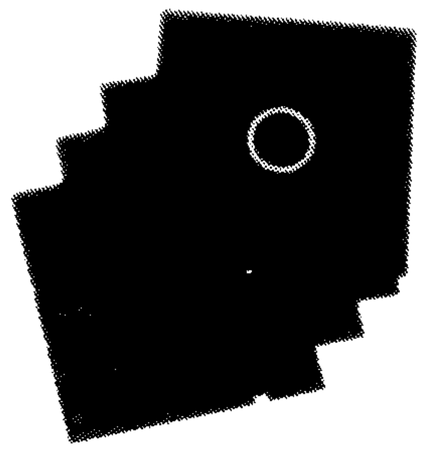
- **Near 100% Compatible:**
  — If you have a program written in Basic, Extended Basic, XBII, Assembly Language, Forth, Pascal, you name it, if it runs on the 99/4A then it is near certain to run on the GENEVE.
- **32K No Wait State High Speed RAM:**
  — Programs like MultiPlan, which are painfully slow on the 99/4A, run many times faster, thanks in part to the High Speed RAM.
- **V9938 Video Processor with 7 Graphics Modes:**
  — Compatible with the 99/4A so you can use the GENEVE with the TV or monitor you are currently using. Same resolution as the Mac but with color. Faster than the Amiga, as fast as the Atari and does it with true aspect ratio, something the Amiga and IBM AT can not do. Aspect ratio renders higher resolution, better color, and appearance, through the use of square pixels. In the high resolution mode, 256 colors may be displayed on the screen at one time by the GENEVE, eight times as many as the Amiga can display in its high resolution mode.
- **Mouse Interface:**
  — The mouse interface is built in and ready to use with the MYARC mouse. But we didn't stop there, it is also ready to support the newest hardware, like video digitzers, and that's just for starters.
- **6 Complete Pieces Of Software Are Included WithThe GENEVE. But, three you will not be able to see how you ever did without are:**
  — My-Word Processor; 80 columns, help screens for all modes of operation including control-U, initialize a disk without leaving the program, print formatted text to the screen for viewing before sending it to the printer and that's still not all My-Word will do.
  — Advanced Basic; the best and most powerful basic on the market today.
  — Pascal V4.21; if you have a standard USCD Pascal program, you will be able to run it with this program. If you do not have any Pascal programs, let me tell you, one of the largest library of programs available, is Pascal. Compilers for Fortran, Modula 2, Lisp, and Pilot, as well as business programs from A to Z, are all there. USCD Pascal Software developed for computers from Apple to IBM, will run on the GENEVE, without modification.





If you have heard enough, contact your MYARC dealer, they have one in stock for you. If you do not know who your stocking MYARC dealers are, or, if you want to know more about the GENEVE, telephone the number listed below, or mail your name and complete address with zip code to the address shown below.We will be happy to mail you a brochure covering the GENEVE in detail and a list of our stocking dealers. Supplies of the brochure are limited, so please hurry.

GENEVE
P. O. Box 140
Basking Ridge, New Jersey 07920-1014
(205) 854-5843



Feedback

Magnetic memory

I noted with interest the item in a recent issue about how magnetic materials do not seem to be able to remember for long time periods. I wonder if this is a new thing, because quality has been cut. I have some music tapes, reel to reel type, made during 1960-1964, none later. They have been played countless times, on the same machine which made them. So far as I can tell they have not lost any volume at all.

I guess that 30 years ago nobody told Scotch, Ampex or Audio Magnetics that one should produce tape which would soon forget.

Merle Vogt
Von Ormy, Texas

Computing for kids

I have set up a lab (six full systems) at a school for the children of farm workers. It is called Hope School and is in Indiantown, Florida. I should write an article about it. But I'm always busy.

Paul Yorke
Stuart, Florida

Credit due author

The February MICROpendium mentions The Missing Link on both page 6 and page 40. I suspect that the information presented is from a Texaments announcement as Texaments and Steve Lamberti are given more credit than they are due.

I know this to be a fact, because I was one of the beta testers for Harry Wilhelm's TML disk. Harry isn't given any credit in either of your articles! Perhaps Texaments makes it a practice *not* to give credit to program authors — I really don't know. It is probably inadvertent, but (in my opinion) you have done Harry tremendous harm.

Additionally, Demo and Paper Saver were written by Harry and *not* by Steve Lamberti of Texaments. After months of debugging TML, Demo and Paper Saver, Harry *then* began searching for a distributor.

I think Steve Lamberti and Texaments are doing a terrific job. I also think that the *correct* information should be disseminated.

Oliver D. Hebert
Brewton, Alabama

Apples and oranges

I am puzzled by Curt Purdy's remarks in the February Feedback column. He states, "I can boot MDOS and load TI-Writer from the HRD (19 seconds total), type and print a small letter while WordPerfect 5.0 is still spinning disks."

It is not my intention to assess the relative merits of the Geneve-HRD-TI-Writer combination vs. a PC and WordPerfect. But a comparison of 19 seconds to "still spinning disks" is rather vague and besides, to me, sounds like the proverbial comparison of apples and oranges. An impression is created that his procedure is much faster than what could be done with either a plain 99/4A or a PC. This simply is not so. And, while I agree that TI-Writer (apple) is a useful tool, to put it in the same category as WordPerfect (orange) is somewhat ridiculous.

I don't own a Geneve but do have a PC in addition to my good old TI and without any particular bias of preference, here is my unsolicited opinion: With the 99/4A, an HRD and MENU, because there is no need to boot a (still flawed) DOS, it takes two keypresses to get to the (Funnelweb) editor, or about 5 seconds, depending on one's dexterity. No doubt, for typing and printing a "small letter" one does not need a sophisticated program such as WordPerfect. And true, on a PC — if DOS has not been booted — it takes longer to get to WordPerfect or any other program for that matter. From a warm start, however, it requires only 8-10 seconds. When one considers that WordPerfect does everything and more than is provided by a combination of TI-Writer, Printer's Apprentice or Page-Pro plus a minimal graphics program, I would deem a boot time of a couple of minutes a minor inconvenience compared to the alternatives, i.e., switching from an editor to another program and, perhaps, yet another supplementary utility.

Also, "spinning disks" sounds like booting from floppies, which I can't imagine anyone doing with a program of that magnitude and would not be a fair comparison to booting TI-Writer from an HRD.

Nothing is wrong with expressing enthusiasm for or fondness/preference of a particular brand of computer — be it TI, Geneve, or whatever. But please, don't compare apples to oranges or do it at the expense of fairness and precision.

Lutz Winkler
San Diego, California

National Geographic can be indexed, too

I am writing to thank Harry Brashear for the time and effort invested in looking at Mail List Manager and Publications Index in his MICROreviews column. I am also writing to clarify some issues re the Publications Index program that I didn't do too good a job of pointing out in the documentation, I guess.

Harry is quite correct; a tone of indexing programs are around these days and Publications Index might be viewed as "just another banana" in the bunch. Texaments and I discussed that very concern before I convinced Steve Lamberti to produce it anyway.

Publications Index was written as much for its command file programming examples as it was for its ability to index publications. I discuss that concept in the beginning of the docs and also include a menu option to print out all the command files so the user can see just how everything was done. Sorry I didn't emphasize that more heavily. Folks really seem to be rather intimidated by TI-Base as a rule, and I wanted to demystify it for them. Doing so in a working, useful application seemed a much better way than writing articles about it.

On a related topic, Publications Index *can* index *any* type of publication, not just computer magazines, and certainly not just MICROpendium. What Mr. Brashear listed in the review were key search categories that are changeable by the user. The actual fields that can be used to capture data are *very* generic and aimed at indexing books, journals, magazines, newsletters, trade publications or whatever. The documentation explains how the key search categories may be modified and it even apologizes, after a fashion, for the computer-oriented vein the program is delivered in. Guess I didn't do too good a job explaining that, either. Sorry! Publications Index

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Feedback

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most certainly *can* index your *National Geographic* magazines, Harry, and it will allow you access to the information in virtually any manner desired. I apologize for not making that fact more obvious.

Bill Gaskill
Grand Junction, Colorado

Article helps recover part of blown disk

About five years ago, having only recently obtained a PEB, drive and memory expansion, I was given a series of disks (games, utilities, demos, etc.). Not realizing what I was doing, I started to copy a file to one of these disks — with a *disk copier,* not a file copier (OUCH!). As the message INITIALIZING DISK appeared on the screen, I saw what was happening and yanked the disk out of the drive (doing physical damage to the disk in the process). Needless to say, the directory was blown. Sunday I was going through my disks and happened upon this disk and, remembering I had seen something about disk hacking in a back issue somewhere, dug out September 1989 MICROpendium. On page 34 was "Disk Hacking" by Bob Carmany. I followed his directions and ended up able to access all but one of the files which had been lost to me all that time. (sector >0003 was the sector physically damaged). I then copied the entire disk sector by sector to a clean disk, but was still unable to read or reconstruct that one file. On examining the file area, I found that when I pulled the disk from the drive so long ago, I had not been fast enough to keep the file from being partially overwritten. Oh, well! I still have the rest of the disk, which is more than I have had for five years. Please express my gratitude to Mr. Carmany.

I was wondering what has happened to John Birdwell. I've been meaning to write to you or him about MICRO-WORD. I was following his article closely and haven't seen anything since December 1988. Will he be returning to complete this project?

I typed in CATWRITER by Jim Peterson out of the October 1989 issue. I was unable to get the program to work until I changed line 120 in the conversion program from "FOR J=10 TO 25" to "FOR J=170 TO 185". Once I had done this, the CAT/O MRGE file loaded into the proper area. I didn't notice anyone else mentioning this in any of the subsequent issues, so I thought I might.

Several months ago I wrote to Rave 99 and asked them about their MX01/544K memory enhancement cards. The reply I received from John McDevitt was very impressive. Mr. McDevitt mentioned a discussion in MICROpendium (April '88) about these cares. Is there any way I might be able to receive a copy of this discussion?

Phil Martin
Keizer, Oregon

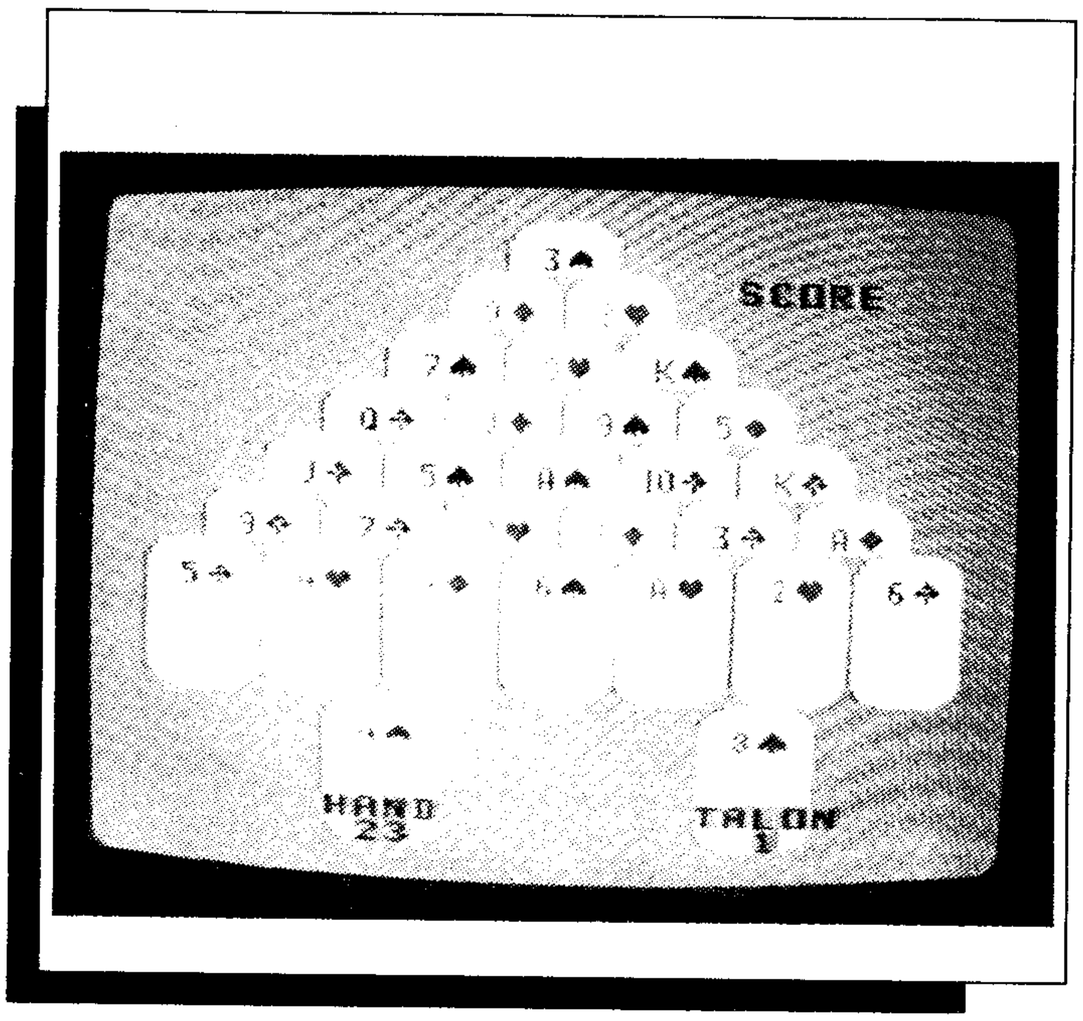
John Birdwell stopped writing his series because of job responsibilities. The April '88 and other back issues are available — see back page. — Ed.

BASIC

Pyramid Solitaire

By REGENA

This month's program is a card game I have been wanting to program for some time — and sketched the graphics — but some of the logic stumped me for a while. As I was playing around with my Geneve 9640 and Myarc Advanced BASIC, I was able to clear up the logic problems, then get the TI version working.



A full deck of 52 cards is used. A pyramid is dealt as shown on the screen, ending with the seventh row of seven cards (using 28 cards). The remaining cards are in your hand (or stock) and may be used one at a time. When a card is removed from your hand it is placed on the talon. The top card only of the talon and the new card in your hand are available for play.

The object is to try to get rid of the pyramid while keeping as many cards as possible in your hand. Discard cards from the pyramid by matching two cards at a time that total 13. For example, 6 and 7 may be chosen. Ace counts as 1, and J, Q and K are 11, 12 and 13, respectively. The King may be discarded alone, since it is worth 13.

In this computer version, the pyramid is shown along with the talon and the hand. Use the space bar to move the indicator (a blinking X-shaped symbol). Use the Enter key to select a card. If a King is selected, it will be discarded immediately. Other cards must be chosen in pairs.

Only a card which is completely uncovered (the whole face is showing) may be used. As cards are discarded, other cards may become available on the pyramid.

To move a card from the hand to the talon, use the right arrow key. The card will move to the talon pile and the next card in the hand will be shown. The numbers indicate how many cards are in each pile.

The score shown in the top right corner is simply one point for each card discarded. If the cards in the pyramid are all discarded while cards remain in the hand, the score is incremented by 2 for each card in the hand.

Although the suits are shown, they are ignored in this game. The numerical value of the card is what is important.

The cards in the pyramid are numbered from 1 through 28, and each position P(N) will have an RC(N), CC(N), BL(N) and BR(N) for row coordinate, column coordinate, left card position above and right card position above. The talon is position 29, and the hand is position 30. BL(N) and BR(N) are position numbers (1-21) which are cards covered by the card in position N.

Cards in the pyramid are initialized as P(N)=0. As a card becomes available, P(N)=1. Therefore, to start the game, positions 22-30 have P(N)=1 and are available for play. As a card is discarded, P(N)=5 so the indicator will not go to that position.

Also, when a card N in the pyramid is discarded, P for BL(N) and P for BR(N) are incremented by .5. Thus, if a card is half covered, it wll have the value of .5; and if the other half gets uncovered, P will become 1 — and the card is available for play.

When a card is used from the talon, there could be a card under it which becomes available. The program keeps track of these cards in order in the array TAL(24,2). HH and TT are the number of cards in the hand and talon piles. FLAG, FLAGA and FLAGB are used to keep track of a card removed from the hand or talon — so the next card available can be drawn. A and B are the values of the cards chosen first and second.

DR and DC are row and column coordinates used in blinking the indicator and marking chosen cards. NU is the number of a card and SU is the suit number (1=heart, 2=diamond, 3=spade, 4=club). AA is used as a counter number in FOR-NEXT loops. CARD(52,2) keeps track of the number and suit of each of the 52 cards as they are randomly during shuffling.

Line 120 DIMensioons variables as needed. Lines 130-380 print the title and instruction scren while defining colors and some of the graphic characters. Characters 96-102 are used for the white card background. Lines 390-430 define graphic characters from DATA statements in Lines 440-450. These are the red and black numbers used on the cards.

Lines 460-480 read in the variables for each of the 28 positions in the pyramid — row and column numbers and left and card numbers. The DATA statements are in Lines 490-520. Lines 530-560 define the rows and columns for positions 29 and 30 (talon and hand).

Lines 570-600 initialize variables for the start of the game. Lines 610-649 wait for you to press Enter before beginning the game.

Lines 650-710 are the subroutine to choose a card during shuffling. Lines 720-810 are the subroutine to draw a card. The red numbers are from character 104 to 116, and the black numbers

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REGENA ON BASIC—

(Continued from Page 10)

are from 120 to 132. The suits are 117, 118, 133 and 134. Lines 820-930 are the subroutine to print "TALON" and the number of cards in the talon pile. Lines 940-1040 are the subroutine to print "HAND" and the number of cards in the hand.

Lines 1050-1100 print the score. Lines 1110-1200 draw the white card. Lines 1210-1470 are the procedure to discard a card. The card is erased in Lines 1220-1240 and appropriate cards redrawn as they are uncovered in Lines 1250-1460. the P(N) values are adjusted appropriately.

Line 1480 is where the program branches for the beginning of a game. Lines 1490-1540 randomly shuffle the cards. Lines 1550-1630 draw the pyramid of cards, and Lines 1650-1710 print messages on the screen. Lines 1720-1740 initialize the P values. Lines 1750-1760 keep track of the talon pile. Line 1770 initializes the position at N=30.

Lines 1780-1830 initialize variables for choosing the card, and Lines 1840-1980 receive input for the card chosen. The indicator will only move to available cards as the space bar is pressed. Lines 1990-2300 move a card from the hand to the talon, uncovering the next hand card and printing the numbers in each pile.

Lines 2310-3040 check cards selected — if a King (either first card chosen or second), discard; if two cards equal 13, then discard; if cards do not equal 13, restore and continue. Cards on the talon or hand piles will change those piles, and cards in the pyramid may uncover other cards. Lines 3050-3310 check to see if play is still possible; otherwise the game ends. Lines 3320-3430 check to see if there is a win. Lines 3440-3490 print the ending message. Lines 3500-3570 initialize variables for a possible next game. Lines 3580-3650 offer the option to play again and branch appropriately. Lines 3660-3670 clear the screen and end the program.

If you wish to save typing effort, you may have a copy of this program by sending $4 to *REGENA, 918 Cedar Knolls West, Cedar City, UT 84720.* Please be sure to specify that you would like "Pyramid" for the TI and whether you want cassette or diskette (Myarc version also available.)

PYRAMID SOLITAIRE

```
100 REM PYRAMID !240
110 REM BY REGENA !071
120 DIM C(13,4),RC(30),CC(30
),P(30),BL(28),BR(28),CARD(5
2,2),TAL(24,2)!044
130 CALL CLEAR !209
140 CALL COLOR(9,16,1)!233
150 CALL CHAR(133,"081C3E7F7
F6B08")!012
160 CALL CHAR(134,"081C2A772
A0808")!223
170 PRINT TAB(6);"** PYRAMID
 **" !138
180 CALL COLOR(10,7,16)!024
190 CALL COLOR(11,7,16)!025
200 CALL CHAR(103,"DD9CEBF7E
39CDDFF")!237
210 CALL CHAR(119,"226314081
46322")!174
220 PRINT :"CARDS ARE DEALT
IN A PYRAMIDWITH THE REMAINI
NG CARDS     IN THE HAND." !1
58
230 CALL COLOR(12,2,16)!021
240 CALL COLOR(13,2,16)!022
250 PRINT :"USING THE <SPACE
 BAR>,":"SELECT THE HAND, TA
LON, OR  FULL-VIEW PYRAMID C
ARD AND  PRESS <ENTER>." !16
2
260 CALL CHAR(96,"000301F1F3F
3F7F7F")!083
270 CALL CHAR(97,"FFFFFFFFFF
FFFFFF")!024
280 PRINT :"SELECT ANOTHER C
ARD TO TOTAL13 AND PRESS <EN
TER> TO      DISCARD." !145
290 CALL CHAR(98,"00C0F0F8FC
FCFEFE")!168
300 CALL CHAR(99,"7F7F7F7F7F
7F7F7F")!162
310 PRINT :"MOVE A CARD FROM
 THE HAND TOTHE TALON BY PRE
SSING THE    RIGHT ARROW KEY.
" !011
320 CALL CHAR(100,"FEFEFEFEF
EFEFEFE")!050
330 CALL CHAR(101,"7F7F3F3F1
F0F03")!021
340 PRINT :"TRY TO CLEAR THE
 PYRAMID":"BEFORE USING ALL
THE CARDS   IN YOUR HAND!!" !
249
350 CALL CHAR(102,"FEFEFCFCF
8F0C")!056
360 CALL CHAR(117,"367F7F7F3
E1C08")!020
370 CALL CHAR(118,"081C3E7F3
E1C08")!006
380 PRINT :"A=1  J=11  Q=12
 K=13";!022
390 FOR N=104 TO 116 !012
400 READ C$ !254
410 CALL CHAR(N,C$)!092
420 CALL CHAR(N+16,C$)!078
430 NEXT N !228
440 DATA 182424243C2424,1824
04080810 3C,3C0408180404 3C,10
1024243E0404,3C2038040400438,
1820203824 2418 !043
450 DATA 3C0404080810 1,18242
418242418,1824241C040418,8C9
2929292928C,0404040404 2418,1
8242424242C1C,2224283028242 2
 !112
460 FOR N=1 TO 28 !119
470 READ RC(N),CC(N),BL(N),B
R(N)!217
480 NEXT N !228
490 DATA 1,16,0,0,3,14,0,1,3
,18,1,0,5,12,0,2,5,16,2,3,5,
20,3,0,7,10,0,4,7,14,4,5,7,1
8,5,6 !072
500 DATA 7,22,6,0,9,8,0,7,9,
12,7,8,9,16,8,9,9,20,9,10,9,
24,10,0 !225
510 DATA 11,6,0,11,11,10,11,
12,11,14,12,13,11,18,13,14,1
1,22,14,15,11,26,15,0 !090
520 DATA 13,4,0,16,13,8,16,1
7,13,12,17,18,13,16,18,19,13
,20,19,20,13,24,20,21,13,28,
21,0 !218
530 RC(29)=19 !041
540 CC(29)=23 !021
550 RC(30)=19 !033
560 CC(30)=10 !009
570 SCORE=0 !051
```

(See Page 12)

REGENA ON BASIC—

(Continued from Page 11)

```
580 TT=1 !096
590 HH=1 !072
600 WIN=0 !165
610 PRINT : :"PRESS <ENTER>
TO START.";!220
620 CALL KEY(3,K,S)!190
630 IF S<1 THEN 620 !119
640 IF K=13 THEN 1480 ELSE 6
20 !185
650 REM CHOOSE CARD !213
660 RANDOMIZE !149
670 NU=INT(13*RND)+1 !032
680 SU=INT(4*RND)+1 !244
690 IF C(NU,SU)=1 THEN 670 !
003
700 C(NU,SU)=1 !102
710 RETURN !136
720 REM DRAW CARD !066
730 GOSUB 1120 !180
740 NS=103 !190
750 NSU=SU !092
760 IF SU<3 THEN 790 !121
770 NS=119 !197
780 NSU=NSU-2 !103
790 CALL HCHAR(ROW+1,COL,NS+
NU)!057
800 CALL HCHAR(ROW+1,COL+1,N
S+13+NSU)!054
810 RETURN !136
820 REM TALON !088
830 RESTORE 880 !208
840 FOR AA=1 TO 6 !118
850 READ AC,CH !089
860 CALL HCHAR(23,AC,CH)!225
870 NEXT AA !024
880 DATA 22,84,23,65,24,76,2
5,79,26,78,26,78 !180
890 TX=INT(TT/10)!061
900 IF TX=0 THEN 920 !251
910 CALL HCHAR(24,23,TX+48)!
165
920 CALL HCHAR(24,24,TT-TX*1
0+48)!254
930 RETURN !136
940 REM HAND !245
950 CALL HCHAR(23,9,72)!007
960 CALL HCHAR(23,10,65)!050
970 CALL HCHAR(23,11,78)!055
980 CALL HCHAR(23,12,68)!055
990 HHA=24-HH !017
1000 HX=INT(HHA/10)!090
1010 IF HX=0 THEN 1030 !094
1020 CALL HCHAR(24,10,HX+48)
!149
1030 CALL HCHAR(24,11,HHA-HX
*10+48)!023
1040 RETURN !136
1050 REM SCORE !086
1060 SC=INT(SCORE/10)!251
1070 IF SC<1 THEN 1090 !146
1080 CALL HCHAR(3,29,SC+48)!
097
1090 CALL HCHAR(3,30,48+SCOR
E-SC*10)!133
1100 RETURN !136
1110 REM OUTLINE !250
1120 CALL HCHAR(ROW,COL-1,96
)!110
1130 CALL VCHAR(ROW+1,COL-1,
99,4)!234
1140 CALL HCHAR(ROW+5,COL-1,
101)!081
1150 CALL VCHAR(ROW,COL,97,6
)!115
1160 CALL VCHAR(ROW,COL+1,97
,6)!046
1170 CALL HCHAR(ROW,COL+2,98
)!112
1180 CALL VCHAR(ROW+1,COL+2,
100,4)!010
1190 CALL HCHAR(ROW+5,COL+2,
102)!082
1200 RETURN !136
1210 REM DISCARD !212
1220 FOR AA=CC(N)-1 TO CC(N)
+2 !119
1230 CALL VCHAR(RC(N),AA,32,
6)!100
1240 NEXT AA !024
1250 IF N<>29 THEN 1290 !014
1260 CALL HCHAR(23,26,32)!05
1
1270 FLAG=29 !013
1280 RETURN !136
1290 IF N<>30 THEN 1320 !036
1300 FLAG=30 !005
1310 RETURN !136
1320 P(N)=5 !199
1330 P(BL(N))=P(BL(N))+.5 !1
84
1340 P(BR(N))=P(BR(N))+.5 !1
96
1350 IF BL(N)=0 THEN 1410 !1
32
1360 DR=RC(BL(N))!159
1370 DC=CC(BL(N))!129
1380 CALL VCHAR(DR+2,DC+1,97
,4)!047
1390 CALL VCHAR(DR+2,DC+2,10
0,3)!081
1400 CALL HCHAR(DR+5,DC+2,10
2)!153
1410 IF BR(N)=0 THEN 1470 !1
98
1420 DR=RC(BR(N))!165
1430 DC=CC(BR(N))!135
1440 CALL VCHAR(DR+2,DC,97,4
)!116
1450 CALL VCHAR(DR+2,DC-1,99
,3)!049
1460 CALL HCHAR(DR+5,DC-1,10
1)!152
1470 RETURN !136
1480 CALL CLEAR !209
1490 PRINT "SHUFFLING . . ."
 !002
1500 FOR N=1 TO 52 !116
1510 GOSUB 660 !230
1520 CARD(N,1)=NU !227
1530 CARD(N,2)=SU !233
1540 NEXT N !228
1550 CALL CLEAR !209
1560 CALL SCREEN(8)!153
1570 FOR N=1 TO 30 !112
1580 NU=CARD(N,1)!227
1590 SU=CARD(N,2)!233
1600 ROW=RC(N)!006
1610 COL=CC(N)!221
1620 GOSUB 730 !044
1630 NEXT N !228
1640 RESTORE 1690 !253
1650 FOR AA=1 TO 18 !170
1660 READ RA,CA,CH !159
1670 CALL HCHAR(RA,CA,CH)!06
9
1680 NEXT AA !024
1690 DATA 3,23,83,3,24,67,3,
25,79,3,26,82,3,27,69 !081
1700 DATA 23,9,72,23,10,65,2
3,11,78,23,12,68,24,10,50,24
,11,51 !167
1710 DATA 23,22,84,23,23,65,
23,24,76,23,25,79,23,26,78,2
4,24,49,24,24,49 !173
1720 FOR N=22 TO 30 !164
1730 P(N)=1 !195
1740 NEXT N !228
1750 TAL(TT,1)=CARD(TT,1)!06
1
1760 TAL(TT,2)=CARD(TT,2)!06
3
1770 N=30 !057
1780 CALL SOUND(100,1492,2)!
```

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REGENA ON BASIC—

(Continued from Page 12)

```
185
1790 FLAG=0 !209
1800 FLAGA=0 !018
1810 FLAGB=0 !019
1820 DR=RC(N)+3 !097
1830 DC=CC(N)+1 !065
1840 CALL KEY(3,K,S)!190
1850 CALL HCHAR(DR,DC,103)!0
31
1860 CALL HCHAR(DR,DC,97)!25
0
1870 IF S<1 THEN 1840 !064
1880 IF (K=68)THEN 2000 !130
1890 IF K=13 THEN 2310 !067
1900 IF K<>32 THEN 1840 !045
1910 IF (N=30)+(HH>0)=-2 THE
N 1950 !058
1920 IF (N=29)+(TT>0)=-2 THE
N 1950 !090
1930 IF N<29 THEN 1950 !228
1940 CALL HCHAR(DR,DC,119)!0
38
1950 N=N-1 !022
1960 IF N>0 THEN 1980 !199
1970 N=30 !057
1980 IF P(N)=1 THEN 1820 ELS
E 1950 !210
1990 REM HAND TO TALON !086
2000 IF A>0 THEN 1840 !046
2010 IF HH=24 THEN 3060 !122
2020 TT=TT+1 !201
2030 P(29)=1 !170
2040 NU=CARD(30,1)!194
2050 SU=CARD(30,2)!200
2060 CARD(29,1)=NU !202
2070 CARD(29,2)=SU !208
2080 TAL(TT,1)=NU !004
2090 TAL(TT,2)=SU !010
2100 ROW=RC(29)!237
2110 COL=CC(29)!196
2120 CALL HCHAR(23,26,32)!05
1
2130 GOSUB 730 !044
2140 GOSUB 830 !145
2150 HH=HH+1 !153
2160 ROW=RC(30)!229
2170 COL=CC(30)!188
2180 GOSUB 1120 !180
2190 IF HH<24 THEN 2230 !058
2200 P(30)=5 !166
2210 GOSUB 950 !009
2220 GOTO 1950 !244
2230 NU=CARD(29+HH,1)!027
2240 SU=CARD(29+HH,2)!033
2250 GOSUB 740 !054
2260 GOSUB 950 !009
2270 CARD(30,1)=NU !194
2280 CARD(30,2)=SU !200
2290 P(30)=1 !162
2300 GOTO 1770 !063
2310 IF CARD(N,1)<>13 THEN 2
390 !139
2320 IF A=0 THEN 2360 !054
2330 P(TN)=1 !023
2340 CALL HCHAR(RC(TN)+3,CC(
TN)+1,97)!142
2350 A=0 !248
2360 GOSUB 1220 !024
2370 SCORE=SCORE+1 !113
2380 GOTO 2660 !189
2390 IF A>0 THEN 2450 !146
2400 A=CARD(N,1)!129
2410 TN=N !174
2420 P(N)=5 !199
2430 CALL HCHAR(DR,DC,119)!0
38
2440 GOTO 1950 !244
2450 CALL HCHAR(DR,DC,119)!0
38
2460 B=CARD(N,1)!130
2470 IF A+B=13 THEN 2540 !03
4
2480 A=0 !248
2490 B=0 !249
2500 CALL HCHAR(DR,DC,97)!25
0
2510 CALL HCHAR(RC(TN)+3,CC(
TN)+1,97)!142
2520 P(TN)=1 !023
2530 GOTO 1780 !073
2540 GOSUB 1220 !024
2550 IF FLAG<=28 THEN 2570 !
220
2560 FLAGA=FLAG !051
2570 N=TN !174
2580 FLAG=0 !209
2590 GOSUB 1220 !024
2600 A=0 !248
2610 B=0 !249
2620 IF FLAG<=28 THEN 2650 !
044
2630 FLAGB=FLAG !052
2640 FLAG=0 !209
2650 SCORE=SCORE+2 !114
2660 GOSUB 1060 !120
2670 IF FLAG=30 THEN 2700 !1
52
2680 IF FLAG=29 THEN 2880 !0
85
2690 IF (FLAGA=30)+(FLAGB=30
)THEN 2700 ELSE 2870 !070
2700 HH=HH+1 !153
2710 IF HH<24 THEN 2780 !098
2720 P(30)=5 !166
2730 ROW=RC(30)!229
2740 COL=CC(30)!188
2750 GOSUB 1110 !170
2760 GOSUB 950 !009
2770 GOTO 2870 !144
2780 NU=CARD(29+HH,1)!027
2790 SU=CARD(29+HH,2)!033
2800 ROW=RC(30)!229
2810 COL=CC(30)!188
2820 GOSUB 730 !044
2830 GOSUB 950 !009
2840 CARD(30,1)=NU !194
2850 CARD(30,2)=SU !200
2860 P(30)=1 !162
2870 IF (FLAGA<>29)*(FLAGB<>
29)THEN 3060 !184
2880 TT=TT-1 !202
2890 IF TT>0 THEN 2960 !249
2900 ROW=RC(29)!237
2910 COL=CC(29)!196
2920 GOSUB 1110 !170
2930 GOSUB 830 !145
2940 P(29)=5 !174
2950 GOTO 3060 !078
2960 NU=TAL(TT,1)!004
2970 SU=TAL(TT,2)!010
2980 ROW=RC(29)!237
2990 COL=CC(29)!196
3000 GOSUB 730 !044
3010 GOSUB 830 !145
3020 CARD(29,1)=NU !202
3030 CARD(29,2)=SU !208
3040 P(29)=1 !170
3050 REM CHECK END !047
3060 FLAG=0 !209
3070 FLAGA=0 !018
3080 FLAGB=0 !019
3090 IF P(1)<>5 THEN 3120 !1
09
3100 WIN=1 !166
3110 GOTO 3320 !083
3120 IF SCORE<>52 THEN 3150
!131
3130 WIN=1 !166
3140 GOTO 3320 !083
3150 IF HH<24 THEN 1950 !033
3160 FOR X=30 TO 1 STEP -1 !
232
3170 IF P(X)<>1 THEN 3200 !0
```

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(Continued from Page 13)

```
23
3180 IF CARD(X,1)<>13 THEN 3
200 !194
3190 X=-1 !210
3200 NEXT X !238
3210 IF X<0 THEN 1950 !178
3220 FOR X=30 TO 1 STEP -1 !
232
3230 IF P(X)<>1 THEN 3300 !1
23
3240 FOR M=X TO 1 STEP -1 !0
08
3250 IF P(M)<>1 THEN 3290 !1
02
3260 IF CARD(X,1)+CARD(M,1)<
>13 THEN 3290 !094
3270 M=-1 !199
3280 X=-1 !210
3290 NEXT M !227
3300 NEXT X !238
3310 IF X<0 THEN 1950 !178
3320 IF WIN<>1 THEN 3440 !22
5
3330 SCORE=SCORE+2*(23-HH)!0
35
3340 GOSUB 1060 !120
3350 RESTORE 3400 !178
3360 FOR AA=1 TO 8 !120
3370 READ CA,CH !089
3380 CALL HCHAR(12,CA,CH)!22
3
3390 NEXT AA !024
3400 DATA 10,89,11,79,12,85,
14,87,15,79,16,78,17,33,18,3
2 !064
3410 FOR X=1 TO 50 !124
3420 CALL SOUND(-50,INT(RND*
1000)+500,2)!054
3430 NEXT X !238
3440 RESTORE 3490 !012
3450 FOR AA=1 TO 10 !162
3460 READ CA,CH !089
3470 CALL HCHAR(14,CA,CH)!22
5
3480 NEXT AA !024
3490 DATA 10,71,11,65,12,77,
13,69,14,32,15,79,16,86,17,6
9,18,82,18,82 !208
3500 FOR N=1 TO 13 !113
3510 FOR S=1 TO 4 !069
3520 C(N,S)=0 !187
3530 NEXT S !233
3540 NEXT N !228
3550 FOR N=1 TO 30 !112
3560 P(N)=0 !194
3570 NEXT N !228
3580 FOR AA=1 TO 16 !168
3590 READ CA,CH !089
3600 CALL HCHAR(16,CA,CH)!22
7
3610 NEXT AA !024
3620 DATA 8,80,9,76,10,65,11
,89,12,32,13,65,14,71,15,65,
16,73,17,78,18,63,19,32,20,8
9,21,47,22,78,22,78
3630 CALL KEY(3,K,S)!190
3640 IF K=89 THEN 570 !125
3650 IF K<>78 THEN 3630 !060
3660 CALL CLEAR !209
3670 END !139
```

EXTENDED BASIC

Messages Found on a Wire

By JERRY STERN

There is a special connection between computer hobbyists and ham radio operators. Each time I go to a computer show that includes tailgating sales, I see radio equipment, radio books, antennas, old electronic hulks now suitable for boat anchors, and almost anything that could show up at a flea market. Some of these shows are called Hamfests, and the two hobbies have been associated for the last decade.

The hams helped a lot of us find the parts and products we needed to start our systems and to maintain them, and many hobbyists somehow create the time for activities in both of these circuits. CODE TRAINER is a help for these hams in teaching new hobbyists International Morse Code. Besides that, it's great for decoding submarine messages on old war movies.

Morse code should be learned as a series of sound patterns. Memorizing patterns on paper like three dots for S, or one dash for T, isn't enough. The patterns must be heard and learned as sound. Start learning the code by using the Character Drill, option number four on CODE TRAINER. The program will randomly pick a code and sound it out. You may guess the code, and the program will sound out the pattern of an incorrect guess, and let you try again. You may give up by pressing enter; CODE TRAINER will then show the correct answer.

Once you've learned the sounds of the letters, try writing down incoming messages. First, choose instructions as option number one on the menu. CODE TRAINER will show a help screen, which you may print out for reference. In the instructions, you have the option of setting the words per minute speed as low as five words per minute, up to as high as twenty words per minute. Start at five wpm. Choose Random Trainer as option three of the menu. As the program displays and sounds out an endless stream of grammatically correct sentences, try to follow along. This portion of the program may be stopped by holding down the enter key. When the program reaches the end of each sentence, it checks that key, and stops if it is held down.

Two more options remain, Code Generator, which will sound out the codes for any message typed, and Quit, which will confirm that you are done before exiting the program. The confirmation is usually not needed in a program like this, a program that does not save data. I've included that confirmation because the program setup of pre-scan and variable initialization takes nearly twenty seconds, so leaving the program accidentally should be avoided.

The hams helped a lot of us find the parts and products we needed to start our systems and to maintain them, and many hobbyists somehow create the time for activities in both of these circuits. CODE TRAINER is a help for these hams in teaching new hobbyists International Morse Code.

While learning Morse code, there are some things you should know. A "dash" is three times as long as a "dot." The pause between dots and dashes inside a character is the same length as a dot. The pause between letters in the same word should be three times as long as a dot, and the pause between words is five dots in length. These lengths of pauses are important. For example, B is one dash and three dots. Too long a pause after the dash will make the B into a T (one dash) and a S (three dots).

CODE TRAINER is a program written in sections. There are ten subprograms, including some new subprograms written especially for this project, and other subprograms pulled out of other programs for ease of re-use. All Extended BASIC programmers should build a file disk of subprograms for using over and over again. These building blocks can make a difficult project into an easy program. Here, the ten subprograms make CODE TRAINER easy to understand.

The subprogram INSTRUCT(K) is new, and unique to CODE TRAINER. It displays the instructions for the program, and so will not be usable again in another program. Notice that I've used line numbers near 20000 for subprograms that are not reusable, and high line numbers for the subprograms that will be added to the subprogram file. On line 20030, change the printer name to suit your system.

MESSAGE is also new. It displays the key combinations, used in the code generator portion of the program, that indicate message control codes, like wait, or end of transmission.

The subprograms CHARPRT2 and DUMP4 are slight variations on the graphic screen dump published in MICROpendium in June 1989. CHARPRT2 converts a hexadecimal character definition to a string containing the printer codes for printing that shape in double density on an EPSON or TI compatible printer. The original CHARPRT creates single density graphics.

DUMP4 prints a graphic screen dump with actual character shapes. Like DUMP3, this subprogram retrieves each screen character with GCHAR, decides if that letter has already been converted to Epson codes, and calls CHARPRT2 as needed. DUMP4 prints a graphic screen without resetting the line height on the printer. It should be used when there are graphics to be printed that do not extend

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vertically from line to line. When lines or graphics run vertically, use the subprogram DUMP3 from June, which resets the line heights so that the graphics butt up against each other. Either DUMP3 or DUMP4 can use either CHARPRT or CHARPRT2 interchangeably, for single or double density.

CODE is the subprogram that sounds out Morse code, and creates a Morse code help screen. These functions form the core of the main program, but they've been isolated in a subprogram. Why? All right, that was done in case I want to add a Morse code routine to another program. Maybe a sound effects generator could use Morse code for those submarine sounds.

CODE uses DATA statements to set up the sounds of the letters. Those data statements are read only once, the first time that CODE is called. During that first call, CODE will not sound out any letters, but will just set up the array C(46,8). That variable array contains up to eight dots and dashes for each of forty-seven characters. Be careful if you move CODE to another program. DATA statements in the main program or other subprograms may throw off the data counters of Extended BASIC so that it reads the wrong DATA. If you reuse CODE, or move that first call of the subprogram, add this line:

28958 RESTORE 28965

That will keep the pointers properly oriented. After the first call of the subprogram, CODE will skip past the setup routine, and go directly to the sound creation program lines starting at 29000. The text sent in the string from the calling line will be sounded out at a pace of K words per minute. If K is equal to zero, CODE creates a help screen using the same variable array C(46,8) that stores the dots and dashes code for each character.

BLUE sets up white characters on a blue background. PAUSE waits for a key press before going on to the next function, and TITLE displays the title screen. MENU creates a menu screen and asks for a choice of options. ENDING is a short subprogram that confirms that you are ready to exit from the program.

That leaves the main program. Because so many program functions are in the subprograms, the brief program that remains is easy to read. Lines 130 to 220 set up the words to be used in the Random Training portion of the program. You can change these words, add to them, or use less of them, as you like. Each DATA line starts with the number of terms on that line. Similar terms are kept together. If you change words, use the same parts of speech in your new list. Line 130 should be kept as all adjectives. Line 150 contains nouns. In order, lines 170, 190, and 210 contain adverbs, articles, and verbs. Line 350 chooses terms from each category at random, and assembles them into a sentence in this order: Article, noun, verb, adverb, adjective. If you keep any changes sorted by the parts of speech of the terms, each of the sentences created by the Random Trainer will be grammatically correct, although they might not make much sense. TI Extended BASIC automatically dimensions arrays with up to ten elements during the pre-scan process. If you increase any of the work lists to more than ten words, you will need to add a dimension statement. This statement would allow the use of up to 20 nouns.

125 DIM Z$(20)

If CODE TRAINER will be used on a cassette system with no printer, leave out line 20030, and the subprograms DUMP4 and CHARPRT2 (lines 28820 to 28930) and change line 20020 to read: 20020 CALL CODE("S",0).

The sentence assembly routine could be used in other projects. Used with the Speech Synthesizer, it might be the start for an elementary reading program. The testing routine on lines 390 to 480 might also be used for other teaching programs. One of the benefits of using so many subprograms is that the program could be converted easily into another project altogether. Each of the sections of the program, like the compartments of the submarine, is individually checked for tightness and utility. If the program chunks leak variables, they crash. If the submarine compartments leak water, there will be a message going out very quickly... S-O-S... S-O-S....

MORSE CODE TRAINER

```
90 ! CHANGE PRINTER NAME ON
LINE 20030 !232
100 ! CODE : MORSE CODE TRAI
NING PROGRAM; JLS 4/90 !221
110 CALL CLEAR :: ON WARNING
 NEXT !042
120 CALL BLUE :: CALL TITLE
!255
130 DATA 9,RED,YELLOW,GREEN,
BIG,BROKEN,STOLEN,PURPLISH,Q
UICK,JEALOUS !176
140 READ A :: FOR L=1 TO A :
: READ A$(L):: NEXT L !119
150 DATA 10,QUICK BROWN FOX,
CAR,ROCK,HOUSE,RADIO,COMPUTE
R,CHAIR,DOG,ZEBRA,BOX !251
160 READ Z :: FOR L=1 TO Z :
: READ Z$(L):: NEXT L !194
170 DATA 7,VERY,,AWFULLY,,HA
RDLY,HARDLY EVER,EXTREMELY !
136
180 READ AV :: FOR L=1 TO AV
 :: READ AV$(L):: NEXT L !12
1
190 DATA 7,THE,MY,YOUR,HER,H
IS,THEIR,THE ONLY !100
200 READ P :: FOR L=1 TO P :
: READ P$(L):: NEXT L !164
210 DATA 7,IS,WAS,WILL BE,WI
LL NEVER EVER BE,MAY BECOME,
HAS BEEN,HAS NOT BEEN !082
220 READ V :: FOR L=1 TO V :
: READ V$(L):: NEXT L !182
230 K=20 :: RANDOMIZE :: CAL
L CODE("C",K)!200
240 VR$=".,?();:"&CHR$(177)&
CHR$(178)&CHR$(179)&CHR$(180
)&CHR$(181)!168
250 CALL PAUSE !232
260 B$="Instructions    Code
 Generator  Random Trainer
Character Drill Quit" !067
270 CALL CLEAR :: CALL MENU(
B$,X)!207
280 ON X GOTO 290,300,350,39
0,490 !083
290 CALL INSTRUCT(K):: GOTO
```

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```
270 !129
300 F=9 :: CALL MESSAGE !249
310 F=F+1 :: IF F>23 THEN PR
INT :: F=23 !065
320 ACCEPT AT(F,1)VALIDATE(U
ALPHA,DIGIT,VR$):I$ :: IF I$
="" THEN 340 !076
330 CALL CODE(I$,K):: GOTO 3
10 !100
340 CALL PAUSE :: GOTO 270 !
200
350 TT$=P$(INT(RND*P+1))&" "
&Z$(INT(RND*Z+1))&" "&V$(INT
(RND*V+1))&" "&AV$(INT(RND*A
V+1))&" "&A$(INT(RND*A+1))!0
68
360 PRINT :TT$ :: DISPLAY AT
(1,1):"  HOLD DOWN ENTER TO
STOP" :: CALL CODE(TT$,K)!15
7
370 CALL KEY(3,Y,S):: IF Y=1
3 THEN 380 ELSE 350 !182
380 CALL PAUSE :: GOTO 270 !
200
390 CALL MESSAGE :: DISPLAY
AT(20,1):"FOR EACH PATTERN,
TYPE THE  CHARACTER. PRESS E
NTER TO   GIVE UP" !196
400 L=INT(RND*39+48):: IF L>
57 THEN L=L+7 !028
410 IF L>90 THEN L=L-47 !192
420 IF L=45 THEN L=63 !174
430 X$=CHR$(L)!201
440 CALL SOUND(500,330,30)::
 PRINT :"CHARACTER?" :: CALL
 CODE(X$,K):: ACCEPT AT(23,1
2)SIZE(1)VALIDATE(VR$,DIGIT,
UALPHA):ZZ$ !242
450 IF ZZ$="" THEN PRINT "TH
IS PATTERN IS '";X$;"'": ::
CALL CODE(X$,K)ELSE 470 !020
460 PRINT :"TRY ANOTHER? Y/N
" :: ACCEPT AT(23,14)SIZE(-1
)VALIDATE("YN"):Y$ :: IF Y$=
"Y" THEN 400 ELSE 480 !217
470 IF ZZ$=X$ THEN PRINT "RI
GHT!" :: GOTO 400 ELSE PRINT
 "NO, ";ZZ$;" SOUNDS LIKE TH
IS:" :: CALL CODE(ZZ$,K):: G
OTO 440 !064
480 CALL PAUSE :: GOTO 270 !
200
490 CALL ENDING :: GOTO 270
!000
20000 SUB INSTRUCT(K)!165
20010 ! INSTRUCTION SCREEN F
OR CODE; JLS 4/90 !087
20020 CALL CODE("S",0):: DIS
PLAY AT(24,7):"PRESS P TO PR
INT" !021
20030 CALL KEY(3,L,S):: IF S
<1 THEN 20030 ELSE IF L=80 T
HEN CALL HCHAR(24,1,32,28)::
 CALL DUMP4("RS232.DA=8.BA=4
800")!100
20040 CALL PAUSE :: CALL CLE
AR !059
20050 DISPLAY AT(4,1):"The c
ode generator will sendany s
entences that you type in.
To stop this activity, press
 ENTER by itself." !174
20060 DISPLAY AT(9,1):"To ch
ange the speed of the  code
generator, enter words per m
inute: (";K;"WPM Now)":K;"(F
rom 5 to 20 WPM)" !009
20070 ACCEPT AT(12,2)SIZE(-2
)VALIDATE(DIGIT):K :: IF K<5
 OR K>20 THEN CALL SOUND(100
,-3,0):: GOTO 20070 !082
20080 DISPLAY AT(14,1):"The
random code generator  will
 display and send in  inte
rnational code random  nons
ence sentences until" !170
20090 DISPLAY AT(18,1):"you
stop it by holding down the
ENTER key." !051
20100 CALL PAUSE :: CALL CLE
AR :: DISPLAY AT(2,1):"The p
ractice drill will testyour
knowledge of the  indiv
idual code patterns." !052
20110 DISPLAY AT(6,1):"For e
ach example of a  patte
rn, you will hear the  code
for one character and  then
will be asked to type" !238
20120 DISPLAY AT(10,1):"the
character of the patternfor
that sound." !143
20130 DISPLAY AT(13,1):"If y
ou are wrong, you will  hear
 what the pattern of thechar
acter you typed sounds  like
, and be asked for the" !006
20140 DISPLAY AT(17,1):"same
 character again,  To g
ive up, press 'ENTER' by its
elf." !001
20150 CALL PAUSE !232
20160 SUBEND !168
21000 SUB MESSAGE !117
21010 ! MESSAGE DATA FOR COD
E; JLS 4/90 !084
21020 DISPLAY AT(4,1):"CONTR
OL 1: ERROR":"CONTROL 2: WAI
T":"CONTROL 3: END OF MESSAG
E" !013
21030 DISPLAY AT(7,1):"CONTR
OL 4: BREAK":"CONTROL 5: TRA
NSMISSION END" !116
21040 SUBEND !168
28820 SUB CHARPRT2(C$,T$)!18
2
28825 ! C$-HEX CHARACTER COD
E, T$-EPSON DOUBLE DENSITY P
RINT CODE !125
28830 DIM T(16)!124
28835 C$=C$&RPT$("0",16)!110
28840 FOR L=1 TO 16 :: T(L)=
ASC(SEG$(C$,L,1))-48 !088
28845 IF T(L)>9 THEN T(L)=T(
L)-7 !157
28850 NEXT L !226
28855 FOR L=1 TO 8 :: C(L)=0
 :: NEXT L !219
28860 FOR L=1 TO 2 :: FOR L2
=L TO 16 STEP 2 :: FOR P=0 T
O 3 !035
28865 IF (T(L2)AND 2^P)=2^P
THEN C((L-1)*4+4-P)=C((L-1)*
4+4-P)+2^(INT((16-L2)/2))!10
4
28870 NEXT P :: NEXT L2 :: N
EXT L !224
28875 T$=CHR$(27)&CHR$(76)&C
HR$(16)&CHR$(0):: FOR L=1 TO
 8 :: T$=T$&CHR$(C(L))&CHR$(
C(L)):: NEXT L !068
28880 SUBEND !168
28885 SUB DUMP4(P$)!185
28890 ! GRAPHICS SCREEN DUMP
 FOR REG. LINE SPACING; JLS
4/90 !250
28895 DIM C$(143)!193
28900 OPEN #8:P$&".CR",OUTPU
T !181
28905 FOR R=1 TO 24 :: FOR C
=1 TO 32 :: CALL GCHAR(R,C,T
)!109
28910 IF T<32 THEN T=32 !183
28915 IF C$(T)="" THEN CALL
CHARPAT(T,S$):: CALL CHARPRT
2(S$,C$(T))!047
```

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```
28920 PRINT #8:C$(T);!043
28925 NEXT C :: PRINT #8:CHR
$(10);CHR$(13):: NEXT R :: C
LOSE #8 !199
28930 SUBEND !168
28935 SUB CODE(X$,K)!111
28940 ! SOUNDS MORSE CODE OF
 X$, AT RATE OF K WORDS PER
MINUTE; JLS 4/90 !214
28945 ! FIRST PASS THROUGH I
S SILENT SET-UP, DISPLAYS HE
LP SCREEN IF K=0 !177
28950 DS=43 :: D=1252-K*62 !
162
28955 IF F THEN 28995 !247
28960 DIM C(46,8)!034
28965 DATA 22222,12222,11222
,11122,11112,11111,21111,221
11,22211,22221 !139
28970 DATA 221122,121212,12,
2111,2121,211,1,1121,221,111
1,11 !214
28975 DATA 1222,212,1211,22,
21,222,1221,2212,121,111,2,1
12,1112,122,2112,2122,2211 !
231
28980 DATA 112211,11111111,1
2111,12121,21112,111212,2221
11,212121,212212 !160
28985 CALL CHAR(91,"0",92,"0
00000001818",93,"00000007E7E"):
: MC$="0123456789,.ABCDEFGHI
JKLMNOPQRSTUVWXYZ?:;(" !189
28990 FOR L=0 TO 46 :: READ
C$ :: C(L,0)=LEN(C$):: FOR L
2=1 TO C(L,0):: C(L,L2)=VAL(
SEG$(C$,L2,1)):: NEXT L2 ::
NEXT L :: F=1 :: SUBEXIT !00
3
28995 IF K=0 THEN 29060 !244
29000 FOR LP=1 TO LEN(X$)::
T=ASC(SEG$(X$,LP,1))!233
29005 IF T>176 THEN T=T-138
ELSE IF T>64 THEN T=T-53 ELS
E IF T=63 THEN T=38 ELSE IF
T>57 THEN T=T-14 ELSE 29015
!064
29010 GOTO 29020 !028
29015 IF T>47 THEN T=T-48 EL
SE IF T=46 THEN T=11 ELSE IF
 T=44 THEN T=10 ELSE IF T>39
 THEN T=46 ELSE CALL SOUND(D
*2,440,30):: GOTO 29040 !026
29020 FOR L=1 TO C(T,0)!241
29025 ON C(T,L)GOSUB 29045,2
9050 !059
29030 CALL SOUND(DS,330,30)!
235
29035 NEXT L :: CALL SOUND(D
*2,-3,30)!023
29040 NEXT LP :: SUBEXIT !09
1
29045 CALL SOUND(DS,-3,0)::
RETURN !030
29050 CALL SOUND(DS*4,-3,3):
: RETURN !225
29055 SUBEXIT !167
29060 CALL CLEAR !HELP SCREE
N !093
29065 DISPLAY AT(1,3):"Inter
national Morse Code" :: CALL
 HCHAR(2,5,95,24)!142
29070 FOR L=1 TO 14 :: FOR L
2=1 TO 3 :: DISPLAY AT(3+L,1
0*L2-9):SEG$(MC$,L*3+L2-3,1)
;!152
29075 FOR L3=1 TO 8 :: CALL
HCHAR(3+L,10*L2-7+L3,C(L*3+L
2-4-5*(L>13),L3)+91):: NEXT
L3 :: NEXT L2 :: NEXT L !172
29080 DISPLAY AT(19,6):"ERRO
R":"     WAIT":"     END OF
MESSAGE":"     BREAK":"
TRANSMIT ENDS" !159
29085 FOR L=40 TO 44 :: FOR
L3=1 TO 8 :: DISPLAY AT(L-21
,1)SIZE(5):"^";L-39;":" :: C
ALL HCHAR(L-21,21+L3,C(L-1,L
3)+91):: NEXT L3 :: NEXT L !
141
29090 SUBEND !168
29160 SUB ENDING !036
29165 !CONFIRMS PROGRAM QUIT
 JLS 9/89 !129
29170 CALL SOUND(800,130,0,1
60,0):: DISPLAY AT(24,3):"PR
ESS SPACE BAR TO QUIT" !105
29175 CALL KEY(3,K,S):: IF S
<1 THEN 29175 ELSE IF K<>32
THEN SUBEXIT !006
29180 STOP :: SUBEND !194
29505 SUB BLUE !149
29510 ! SWITCHES DISPLAY TO
WHITE ON BLUE; JLS 7/88 !230
29515 CALL SCREEN(5):: FOR L
=0 TO 14 :: CALL COLOR(L,16,
1):: NEXT L :: SUBEND !202
30595 SUB MENU(A$,X)!127
30600 !A$ IS LIST OF OPTIONS
,X RETURN VARIABLE; JLS 4/90
 !027
30605 FOR L=1 TO 5 :: DISPLA
Y AT(4+L,1):L;SEG$(A$,(L-1)*
16+1,16):: NEXT L :: L=L-1 !
137
30610 DISPLAY AT(23,3):"CHOI
CE?" :: CALL SOUND(200,-1,4)
!168
30615 CALL KEY(3,X,S):: IF S
<1 OR X>L+48 OR X<49 THEN 30
615 ELSE X=X-48 !104
30620 IF X=5 THEN SUBEXIT EL
SE DISPLAY AT(2,7)ERASE ALL:
SEG$(A$,(X-1)*16+1,16)!030
30625 SUBEND !168
30820 SUB PAUSE !236
30825 FOR D=1 TO 100 :: NEXT
 D !241
30830 DISPLAY AT(24,2):"PRES
S ANY KEY TO CONTINUE" !088
30835 CALL KEY(3,K,S):: IF S
<1 THEN 30835 !052
30840 SUBEND !168
31530 SUB TITLE !240
31535 DISPLAY AT(5,7)ERASE A
LL:"CODE GENERATOR" :: CALL
CHAR(95,"00FF"):: CALL HCHAR
(6,9,95,14)!079
31540 DISPLAY AT(9,5):"Morse
 Code Trainer" !214
31545 DISPLAY AT(17,6):"1990
 J. L. STERN" !032
31550 SUBEND !168
```

TRIALS OF A c99 BEGINNER

A bit of calculus

By CHARLES E. KIRKWOOD JR.

My grandson, a senior in high school, is being exposed to Calculus this year. Recently I sent him a program in BASIC to calculate the value of the derivative of a polynomial. Some of you might be interested in such a program. Actually, no knowledge of Calculus is required to write the program.

The program is a modification of the Floating-Point Polynomial Evaluation program that appeared in the March 1989 c99 article. Probably the best way to explain the problem is to take an example and go through it. Take, for example, a third degree polynomial with coefficients 3, -4, 6, AND -5. Evaluate the polynomial and its derivative for x = 2.

Factoring the polynomial as in the March article produces arithmetic like synthetic division and the function fpoly() does just that:

```
2)  3   -4   6   -5
        6   4   20
    ---------------
    3   2  10   15

 2 x   3 =  6
-4 +   6 =  2
 2 x   2 =  4
 6 +   4 = 10
 2 x  10 = 20
-5 +  20 = 15
```

The number 15 is the remainder, which is also the value of the equation; i.e., when x=2, y=15. The numbers 3, 2, and 10 are the coefficients of the result or reduced equation, a quadratic equation. A statement is added in the function fpoly() to store these numbers in the coefficient array.

In the program the degree is reduced by 1 and again we use fpoly() with the new coefficient values. The function fpoly() will now evaluate this new polynomial:

```
2)  3   2   10
        6   16
    -----------
    3   8   26
```

The result is 26, this is the value of the derivative at x=2.

Note that it is necessary to store the **a** coefficients into another array **b**. The array **b** is changed after fpoly(). This is repeated each time there is a new value for x. Since this is a floating-point program, the degree of the polynomial is the only integer input value. A table of values will be printed from an initial value of x to a maximum value at a desired increment (or step).

See program below.

The libraries CSUP and FLOAT must be linked with the assembled program.

```
#include DSK1.FLOATI
#include DSK1.CONV
main( )
{
  int i,j,m,n;
  char z;
  char s[15];
  float a[10][8],b[10][8];
  float x[8],dx[8],xm[8],y[8],yp[8];
  puts("Input degree of polynomial ");
  n=atoi(gets(s));
  puts("Input coefficients\n");
  for(i=0;i<=n;++i)
    fpget(s,&a[i][0]);
  puts("Input initial value of x ");
  fpget(s,x);
  puts("Input maximum value of x ");
  fpget(s,xm);
  puts("Input x increment        ");
  fpget(s,dx);
  i=0;
  m=n-1;
  while(fcom(x,"<=",xm))
  {
    for(j=0;j<=n;++j)
      fcpy(&a[j][0],&b[j][0]);
    putchar(10);
    fpput(x,s);
    putchar(' ');
    fpoly(n,b,x,y);
    fpput(y,s);
    putchar(' ');
    poly(m,b,x,yp);
    fpput(yp,s);
    fexp(x,"+",dx,x);
    ++i;
    if(i%20==0)
    {
      i=0;
      puts("\nPress <ENTER>");
      gets(z);
    }
  }
}

fpoly(n,a,x,y)
int n;
float a[][8],x[],y[];
{
  int i;
  fcpy(&a[0][0],y);
  for(i=1;i<=n;++i)
  {
    fexp(x,"*",y,y);
    fexp(y,"+",&a[i][0],y);
    fcpy(y,&a[i][0]);
  }
  return;
}
```

CSGD prices lowered

Texaments has reduced prices on all its **Character Sets and Graphic Design** software titles. According to company president Steve Lamberti, prices were reduced an average of 35 percent, with reductions ranging from 28 percent to 40 percent.

The **CSGD Software Series** consists of three program packages (CSGD I, II and III), seven User Disks (#1-#7) and one utility program (CSGD Cataloger). More than 160 fonts, 490 small graphics, 145 large graphics and 78 monograms are available for it from Texaments alone.

Lamberti says the company plans to release **CSGD IV** within the next six months.

New prices are **CSGD I,** $10.95; **CSGD II** $8.95; **CSGD III,** $12.95; **CSGD Disk Cataloger,** $4.95; **CSGD User Disk #1,** $2.95; **CSGD User Disks #2-7,** $6.95 each. Any two user disks may be ordered for $12.90 and any three for $18.90 (excluding **CSGD User Disk #1.**

For further information, contact Texaments, 53 Center St., Patchogue, NY 11772 or (516) 475-3480 (voice) or (516) 475-6463 (BBS).

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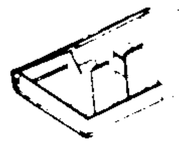

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#22. ASTROLOGY
This one is as good as anything you will see in an arcade. Great color graphics and displays of the Zodiac. Enter your birthdate and learn about your sign, your lucky days and famous events in history on your birthday. Even prints out a report. Can be used as a great moneymaker at a charity event. Help guide your spouse's career.

#23. WILL WRITER
Enter your answers to a group of computer asked questions and this program then writes you a last will and testament. Now you can leave your TI-99/4A to your favorite nephew. Works with any printer. Appears legal in all states but better check that out!

#24. ENGINEERING CALCULATIONS
A two sided computer handbood of dozens of the most often used engineering and technical formulas. A real time saver. Does conversions, calculations and even designs electrical circuits. A must for anyone whose profession or hobby involves scientific calculations. Even has medical and communications applications.

#25. MEDICAL ALERT
This disk contains many menu accessible files covering most everyday medical emergencies. A good "what to do until the doctor or paramedic comes" guide. Well written and organized. Could very easily save a life!

#26. R RATED GAME
It was bound to happen. A talented (but demented) programmmer in Germany wrote an Invaders type game but with most unusual guns and targets. Definitely not what you would find at your neighborhood arcade. Not only a great party game but some great programming. You must be over 18 to order this one!!

#27. KIDS LEARNING
An educator in Georgia put this two sided disk collection of educational programs together. Contains great material. Math, geography, reading improvement, and even IQ testing. All high quality programs for kids of all ages.

#28. LOADERS AND CATALOGERS
We put together a collection of the best programs that catalog and load a group of programs on a disk. Just try them, pick the one you like and transfer it to another disk with the file name LOAD and you are in business.

#29. LABEL MAKER I
Two great programs for making custom labels for disks, addresses video tapes or any other application. Even contains a graphic display of the TI-99/4A console. Now you can create custom labels of any number by just typing in the lines as you want them. Uses standard tractor labels.

#30. HOUSEHOLD BUDGET PRINTOUT
With this disk you print out the data you have stored with the TI HBM Module. HBM is a great module that can be used for many home and small business applications but TI forgot to include a printout function. This program comes with full instructions and we are sure that your HBM Module will now start being used. Fantastic programming job.

#31. MORSE CODE TRAINER DISK
This disk has everything you need to learn and practice Morse Code for the various FCC license exams. It also is great for scout groups and school "ham" clubs for group training and merit badge qualification. Professional quality.

#32. EXBASIC XMAS MUSIC
Two disk sides full of high quality xmas music that can be played throughout the holiday season and then used as a learning tool since it contains wonderful arrangements and graphics. Autoloading and menu driven.

#33. CHECKERS & BACKGAMMON
A collection of great checkers and backgammon games for the TI-99/4A. These are professional in quality and will keep you busy for hours.

#34. SOLITAIRE & SCRABBLE
Another collection of classic games for the TI-99/4A. Exbasic & 32K req.

#35. PROGRAMMING AIDS & UTILITIES I
A collection of some unusual programs of interest to programmers. One program shows a group of opening title displays, another is a cross reference program as good as any of the commercial ones, plus a great disk management utility.

#36. STRICTLY BUSINESS
A collection of various programs for evaluating loans, calculating interest, and other financial items such as return on investment and security performance. Two disk sides filled with financial and business related programs.

#37. LAPD COOKBOOK
This unofficial police cookbook was put together by one of our boys in blue who is also a gourmet chef. (Yes, it contains jailhouse chili) Over 50 great receipes from soup to nuts on two disk sides and each separate side can be called up on screen or printer in exbasic from a menu. As good as any of the new PC computer cookbooks we have seen.

#38. GREAT 99/4A GAMES VOL. I
A collection of professional games in assembly and exbasic that all load from a menu in exbasic. Includes a great ski game where you dodge the trees in a fast downhill run. We have included only the best.

#39. GREAT 99/4A GAMES VOL. II
Still more of the great ones from all over the world. The quality, graphics and speed of many of these games will make you wonder why they were never released commercially.

#40. ARTIFICIAL INTELLIGENCE
This disk contains the famouse computer program "Eliza" where you type in a question or a problem you are having and "Eliza" helps you find the solution. Also contains one of the better bio-rhythm programs so you can analyze all your emotional problems at one sitting.

#41. VIDEO GRAPHS MODULE BACKUP DISK
This disk is a backup of the discontinued Video Graphs Module from TI. For legal reasons, it can only be purchased for backup use by owners of the original module. Do not order UNLESS you have the original module and intend to use this disk only for backup purposes. Exbasic autoload...

#42. FUNNELWEB FARM UTILITY
You heard about this one, now direct from Australia is the latest version of this fantastic utility that puts everything at your command. From one program you can access word processing, editor assembler, telecommunications and just about everything else. A freeware program complete with documentation on a second disk side.

#43. BEST OF BRITAIN, VOL I
Now for the first time, a collection of the best 99/4A games Britain has to offer including the famous "Billy Ball" series of arcade games. Great graphics, action and excitement.

#44. LABEL MAKER I GRAPHICS
A disk filled with graphics for the Label Maker I disk (#29). Dozens of great graphics for custom labels!

#45. BEST OF BRITAIN, VOL II
This disk contains an outstanding 3-D graphics adventure game for the TI-99/4A. Carfax Abbey lets you actually move through a four story mansion complete with bats and vampires. You actually are placed in each room and go up and down stairs and through secret panels. Legend of Zelda...look out!

#46. SUPER TRIVIA 99
A great trivia game for 1 to 4 players with great questions and capability to add your own and print out the files. This one is a real challenge.

#47. INFOCOM RAPID LOADER
If you have Infocom games this is for you. Loads all TI Infocom games in only 28 seconds and permits new screen colors and improved text display. Comes with all documentation on disk.

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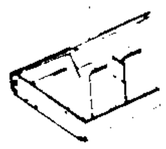

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#48. GHOSTMAN (from England)
This Pacman Munchman type game starts at a slow pace and slowly speeds up to a break-neck pace. A totally new experience.

#49. DEMON DESTROYER (from France)
This great assembly game starts where Invaders leaves off. Add features like descending aliens and closing walls. Hours of great arcade action.

#50. OH MUMMY (from Germany)
Move through the chambers of a Pyramid in search of hidden treasure. Fantastic graphics and great entertainment.

#51. BERLIN WALL (from Canada)
This game requires a mine field to be crossed before escaping from E. Berlin. Good graphics and a real challenge.

#52. ANIMATION 99 (from Germany)
THIS IS THE ONE!!! A demo disk filled with computer animation routines like you have never seen before on any computer. See famous cartoon figures move with more realism that on Sat. morning TV. This disk received a standing ovation when previewed at a local users group. We have even included instructions how to do it yourself on the second disk side. This one is a show stopper!!!

#53. HACKER/CRACKER
A collection of disk copying programs that copy TI disks by tracks. If one of these can't copy a protected disk nothing will. We included a collection of the very best ones including both TI and CorComp compatible. These programs require 2 disk drives and 32K of memory.

#54. ASTRONOMY
This program from Australia plots the heavens and teaches you about the solar system. A great learning and reference tool. Exbasic and 32K required. Don't confuse this one with our Astrology demo. They are not the same...ask Nancy!

#55. SCREEN DUMP
This program allows you to dump disk and even module programs to a Star Epson compatible printer. Comes with easy to follow plans to build a load interrupt switch which is needed to dump module programs. This dump program by Danny Michael is considered the best of the bunch! Complete with documentation.

#56. SPREAD SHEET
OK, it's not Multiplan but it works great and handles many spread sheet applications. A great way to learn to use spread sheet software. Comes with full instructions and documentation.

#57. TELCO
Considered one of the best data communications programs for the TI-99/4A. Complete with documentation.

#58. PR BASE
The alltime most popular and widely used data base program for the TI-99/4A. A freeware program that is widely supported and updated.

#59. GRAPH MAKER
A collection of the best programs for producing graphs and charts from your data. Exbasic and printer.

#60. FREDDY
A fantastic game where you guide the hero through underground passages filled with danger. Nintendo quality, great graphics and fast action. One of the best we have ever seen!!!

#61. THE MINE
A fast action game from F.R.G. that will keep you going for hours. Many screens and skills required.

#62. DISK MANAGER II MODULE BACKUP
The complete TI Disk Manager II on Disk. For legal reasons it is only available to owners of the original module for backup use.

#63. ASTROBLITZ/MAZOG
A pair of great games that continue where Parsec and Munchman leave off. Imagine Parsec with enemy space craft coming from in front and in back of your ship!!!

#64. MAJOR TOM/SPACE STATION PHETA
A pair of great space games. These two are going to keep you in front of the 99/4A for hours. Great!

#65. PERFECT PUSH
An all new space game where you assemble and launch a rocket ship in outer space while avoiding a space monster. This one is professional in very way..graphics. speed and action!!!

#66. HEBREW TYPEWRITER
This program converts your TI-99/4A keyboard into a typewriter that displays Hebrew letters on the screen. Can also be printed when used in conjunction with screen dump program (included). Great for religious training or making your copy of the dead sea scrolls or ten commandments!

#67. GENEALOGY
Now you can set up your family tree and store or print out the records. Great for keeping track of family relationships and records.

#68. CHESS
The original computer chess game Sargon has been reprogrammed for the TI-99/4A. Now play chess with your computer. Documentation included. Exbasic autoload.

#69. COMPUTER PLAYER PIANO/KEY-BOARD CHORD ANALYSIS
A unique music program which displays a piano on the screen and actually plays your selections.

#70. TI RUNNER II
The very latest (and best) "runner" game based on TI Runner and Star Runner. Great action, graphics and entertainment.

#71. KIDS LEARNING II
Two more disk sides loaded with the best in educational programs. Kids improve their math, spelling and comprehension skills while having fun.

#72. CERBERUS
Fantastic space game from Germany. Pilot your ship through narrow and crooked channels in space without colliding. Great graphics and music.

#73. CRYPTO (gram)
One of the best word games we have seen for any computer. Set up like a TV game show with great screen displays.

#74. LABEL MAKER II
Make labels for holidays and special events. You compose the text and select the resident graphics for the occasion.

#75. DISK CATALOGER
Now you can organize your disk files with this great utility. Files, sorts, and prints your records. Easy to use.

#76. PROGRAMMING AIDS AND UTILITIES II
A collection of very useful material. Includes a program to convert basic to exbasic so your old basic programs will load & run in exbasic, even with graphics. Also includes two on screen diagnostic programs to test your keyboard and processor. A great merge utility is also on this disk.

#77. MICROdex 99
A database program by Bill Gaskill which files and retrieves data such as magazine articles. A sample database is included.

#78. ARTCON+ BY RAY KAZMER
ATTENTION GRAPHX AND TI ARTIST USERS!!!
This program lets you convert Exbasic graphics to TI Artist and Graphx pictures. Also contains a new MAC-RLE (2) for converting from Artist to Graphx.

#79. DM1000 V3.5
One of the most popular disk managers for the TI-99/4A. Originally a rip-off of the CorComp manager, it has been improved and refined by talented users all over the world. This version is deemed the most reliable to date and is far advanced over the TI Disk Manager II. Distributed by permission from CorComp.

#80. BIRDWELL DISK UTILITY
A must if you are iunto programming and software development. Besides being a great disk manager, it has provision for copying sectors, comparing files and is menu driven. Complete with documentation.

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A complete family & small business accounting system including a checkbook manager, budget analysis, mailing list and an inventory program. Complete with documentation. Easy to modify for specific needs.

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This utility which can be installed on a disk loads and runs or displays most files. Now you can have a disk with exbasic programs, Editor Assembler programs and TI Writer files and run or display them all from exbasic.

#86. COLUMN TEXT III V3.2
A very useful utility for printing TI Writer and 99 Writer II files in separate spaced columns. Saves hours in producing a newsletter. Complete with documentation.

#87. ARCHIVER III
This utility allows you to "pack" or combine several files into one for space utilization. A number of boards are sending files packed to save transmission costs. This utility will let you pack and/or unpack these files.

#88. AUSSIE GAMES VOL 1
A collection of games from our friends down under. Includes a great card game and board game. Hours of fun and entertainment. Includes Matchmaker & TILO.

#89. PROCALC
This is an on screen calculator for decimal/hexidecimal conversions and much more. A must for the serious programmer.

 # 90. JET CHECKBOOK MANAGER
This checkbook manager is considered the ultimate with every feature you can think of for keeping track of your checking account and keeping records of your spending for budget and tax purposes. Complete with documentation.

#91. "THE MAZE OF GROG"(St. Valentine)
Ray Kazmer has created a great maze game with fantastic graphics and the characters from his now legendary "Woodstock" disk. Fun for all!!!

#92. HOUSEHOLD INVENTORY
Written by 99/4 programming great Charles Ehninger, this prize winner originally sold for $59.95. Keeps track of household, business or personal items by category and provides automatic updating for inflation etc. A must for tax and insurance records!

#93. THE 1990 KBGB GIRLIE CALENDAR
This latest offering from programming master Ken Gilliland prints out a jumbo 12 month calendar with a knock-out centerfold pinup for each month. If you like our #14 Figure Study disk, you will flip over this one. For Adults Only!! Exbasic & d/m printer.

#94. GREAT 99/4A GAMES VOL. 111
If you have seen vols. 1 & 2 of this series you know we only provide the very best. This latest volumn is also filled with a collection of great ones!

#95. WEATHER FORECASTER
The weather predictions are amazingly reliable and accurate! A great game "Lawnmower" and a mini database are also included to make this disk a fantastic value.

#96. STATISTICS & SORTING
Two great assembly utilities by John Clulow. STAT is a set of statistic routines for use in exbasic. SORT allows sorting by two separate fields and a choice of two types of sorts.

#97. MEMORY MANIPULATOR
This powerful utility lets you explore the entire memory in your 99/4A system and take apart what you find. User friendly!

#98. DAYS OF EDEN & DOORS OF EDEN
Two bible games)non-fiction) that work with the TI Adventure Module.

#99. GREAT 99/4A GAMES VOL. IV
This disk features the works of J. Peter Hoddie. All of these games are of commercial qualaity and well worth the donation requested!

#100. ASSULT THE CITY (T. of DOOM)
An exciting game for use with the Tunnels of Doom module. Several Exbasic bonus games are included.

#101. ENCHANCED DISPLAY PACKAGE
This screen enhancement utility lets you do 40 columns, windowing, reverse scrolling, clock/alarm, and a whole host of other great tricks in exbasic. Fully documented.

#102. COLOSSAL CAVES ADVENTURE
This classic adventure now available for the 99/4A is what led to the Zork series. Hours of text adventuring.

#103. SORGAN, THE 99/4A ORGAN
This program which is currently selling for big bucks on module turns your 99/4A into an electronic organ. Sound effects, different instruments and voices, chord forms, color graphics with complete control of all.

#104. C99 COMPILER AND LIBRARY
This two-sided (flippy) disk gets you into C programming with your 99/4A. Comes with a great collection of utilities such as text & graphics. (E/A)

#105. KING'S CASTLE+
A great arcade style assembly game formerly offered on module. Also includes an EB "Trek" game and a collection of sprite & graphics from Tigercub's Jim Peterson.

#106. QUEST (Dungeons & Dragons)
One of the best D&D games around! You must destroy the Dark Lord to free your homeland! Complete with documentation on disk.

#107. STAR TREK MUSIC ALBUM
Ken Gilliand's music and graphics version of the TV theme and the three motion pictures. (Exbasic)

#108. FUNLPLUS BY JACK SUGHRUE
Fantastic disk packed with Funnelweb (#42) templates, utilities and prog. to augment and configure Funnelweb. Unbeliveable collection of fantastic aids to make the best even better!

#109. TI-WRITER MINI MANUAL
This disk prints out a five page TI Writer manual with everything you need to know to use TI Writer or the many clones such as 99Writer II. Additional aids for using this powerful word processor are included.

#110. DISK + AID
A powerful disk sector editor formerly sold for $20. Menu Driven and easy to use.

#111. POP MUSIC & GRAPHICS
This exciting disk from Germany features music/graphics written in 100% assembly and what comes from the TI sound chip is sure to astound you.

#112. INVOICE PACK
An excellent invoice preparation and printing program with instructions on how to modify it for your own business.

#113. LABEL MAKER 3
A collection of label programs to create mailing and disk envelopes, disk labels and much more!

#114. PANORAMA
A drawing and illustration program that compliments Graphx and TI Artist. A must for the serious 99/4A artist!

#115. GRAPHICS DESIGN SYSTEM
A complete system for creating graphic screens in full color for your programs by J. Peter Hoddie. Fully documented.

#116. FOURTH TUTORIAL
A lesson in FORTH programming on how to create graphics.

#117. UNIVERSAL DISASSEMBLER
This powerful utility written in Forth allows disassembly of programs off disk in any format, in memory, and even off of P-Box cards. Very complete with some very unique features.

#118. FAST TERM
One of the most popular and recommended of the 99/4A terminal emulator programs. Supports TE-II, ASC11, and X-Modem transfers, print spooling and more. Loads from Exbasic or E/A.

#119. RAG LINKER
A utility for converting DIS/FIX 80 assembly object code files to PROGRAM image. This allows files to load faster and take up less space on disk. Full Doc

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EXPANDING YOUR SYSTEM

GROM boxes like keys to kingdom

By JOHN KOLOEN

TI created a GROM box for use in debugging its cartridges but never intended to sell it to purchasers of its 99/4A. And who could blame them? A GROM box, or GROM card, could be used to make copies of solid state cartridge software. And TI's marketing strategy was aimed at controlling software sales as much as possible through licensing and use of the solid state technology.

But Californian Craig Miller, an outstanding programmer, changed all that in November 1985 when he began selling his GRAM Kracker, the first commercial GRAM/GROM device for the 4A. As many as several thousand of these hand-assembled metal boxes were sold for $175 each during a production life that lasted only two years or so. But for those who bought them, the device was like receiving the keys to the kingdom.

Simply put, the GRAM Kracker allows a user to dump the contents of cartridge software onto a disk. It also works with cassettes, but I doubt whether anyone who has a GRAM Kracker has ever used it with a tape recorder. After saving the cartridge program to disk, you then load it into the GRAM Kracker's memory and use it. However, these cartridge files saved to disk are of no use without a GRAM/GROM device to load them. Other GRAM devices that followed the GRAM Kracker include Maximem, Gramulator and the P-GRAM card. (This article is limited to GRAM hardware devices and does not consider the Module Emulator, marketed by the defunct Pilgrim's Pride, or other software-based cartridge dumping utilities, such as the program that comes with the Myarc Geneve 9640.) What follows is a brief description of each device. Addresses and telephone numbers are last known and may not be current in all cases.

GRAM Kracker — Manufactured by Miller's Graphics (1475 W. Cypress Ave., San Dimas, CA 91773 (714-599-1431), later MG (reviewed May 1986). A black metal box that plugs into the 99/4A cartridge port. Cartridges are then plugged into the GRAM Kracker. Has switch panel on front. Comes with software that allows the user to load both Extended BASIC and Editor/Assembler into memory simultaneously. Selection of one or the other is done through a title screen menu. Comes with 80K of memory to store programs. GRAM Kracker editor allows modifying of cartridge program files. Cartridge software may be rewritten to the original cartridge or to disk or cassette. Memory of GK is battery backed so programs aren't erased when the computer is turned off. Comes with excellent manual. No longer manufactured.

MAXIMEM — Manufactured by Guy Gournay (933 Delorimier, Longueuil, Quebec, Canada J4K 8M8). Reviewed June 1986. Plugs into the cartridge port and provides additional 16K of RAM and up to 40K of GRAM. Uses switch to select from resident Editor/Assembler or Disk Manager programs in GROM (Graphics Read Only Memory) and the MAXIMEM itself. Cartridges to be dumped to disk are plugged into the MAXIMEM. Actual downloading of the programs is more complex than GRAM Kracker and requires either a Navarone Widget cartridge expander, or the user must install a reset button in the 99/4A console. One feature of MAXIMEM is that after dumping a cartridge program to disk, the program can be copied to a tape and then loaded from tape into MAXIMEM without the use of a memory expansion. A title screen menu is used to select from the E/A, Disk Manager or a third program (cartridge previously saved by the user) Originally cost about $150 and included a GPL (Graphics Programming Language) compiler and decompiler which could be used to modify cartridge software. Battery backup was offered as an option. Not actively marketed. Write manufacturer for information.

Gramulator— Manufactured by CaDD Electronics (52 Audubon Rd., Haverhill, MA 01830). Reviewed August 1988. A black metal box that plugs into the 99/4A cartridge port. Includes 64K of GROM/GRAM, 16K of RAM/ROM, 16K for expansion and 8K of ROM containing Gramulator software. Front panel includes switches to control the device. Features include the ability to emulate Milton Bradley MBX cartridges, an editor (loaded from disk) to modify GRAM and CPU memory, and battery backup (battery is external and easy to change). Originally cost about $185. Works similarly to GRAM Kracker and includes informative manual.

Armed with sufficient information, users can also get around the limitations of many TI cartridges. For example, all it takes to modify the TI Tax cartridge so that it will support parallel printers is the changing of a single character in the cartridge code. A GRAM device can also be used to modify a Terminal Emulator II cartridge so that it will work at 1200 baud.

P-GRAM — Manufactured by Bud Mills Services (166 Dartmouth Dr., Toledo, OH 43614 (419-385-5946). Reviewed December 1988. A Peripheral Expansion Box card, the only one of the four GRAM devices listed here that is still actively marketed. Prices range from $150 to $250 in kit form, depending on options. Assembled cards are $30 extra. Options include up to 192K of memory and clock. The device has gone through a number of improvements

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EXPANDING YOUR SYSTEM—

(Continued from Page 26)

since introduced. To dump a cartridge to disk, plug the cartridge into the 99/4A GROM port, go to BASIC and enter CALL PG. This brings up a menu that walks you through the cartridge dumping process. From then on, the cartridge program can be loaded directly from disk. The P-GRAM includes software that allows you to modify and save cartridge programs.

WHAT CAN YOU DO WITH IT?

All of these devices allow you to save most cartridge-based programs to disk. They also allow you to edit the programs, though most users don't have the skills to do this type of programming on their own. Relatively simple modifications, such as changing the background and foreground colors of various cartridges, are outlined in various manuals (the GRAM Kracker manual excels at this and would be of value regardless of which GRAM device is used).

Armed with sufficient information, users can also get around the limitations of many TI cartridges. For example, all it takes to modify the TI Tax cartridge so that it will support parallel printers is the changing of a single character in the cartridge code. A GRAM device can also be used to modify a Terminal Emulator II cartridge so that it will work at 1200 baud.

The bread and butter reason for having a GRAM device, however, remains the dumping of cartridges to disk. Elaborate menuing systems have been developed to facilitate the loading of disk-based cartridge software. Users with RAMdisks can load a number of these programs into the RAMdisk and load them into the 99/4A through the GRAM device virtually instantly. The possibilities, though not endless, are enough to keep any hobbyist busy for many weekends.

SO WHO NEEDS ONE?

I wouldn't consider buying a GRAM device unless I had a PEB and disk system already in place. If you use a word processor a lot, you'd probably also put a printer ahead of a GRAM device. The decision comes when you are considering a hard disk, a RAMdisk, a GRAM device or a modem. If I had to choose one of these four I'd have a hard time. Each has its merits. I got my GRAM Kracker before I had a hard disk or RAMdisk but after I had a printer and a modem. If you use a TI a lot, the GRAM device becomes a bigger value because it saves on the wear and tear of cartridges. Once you've got the cartridges on disk, you can pack them away for posterity. One thing is for sure, you don't have to worry about your Extended BASIC cartridge going on the fritz.

WHICHONETO BUY?

Which of the GRAM devices is the best to buy? That's a toss-up. (I recommend you read the reviews of these products before making any decisions.) Because I already have one, I'd probably go for the GRAM-Kracker if I was in the market and I could find one..It is extremely well built. The only drawback that I am aware of is the fact that the device has to be disassembled when the battery needs changing. What is intriguing about the P-GRAM card, in addition to the support you can expect to get from Bud Mills Services, is that it plugs into the PEB and is out of sight. The GRAM devices that plug into the cartridge port of the TI console put a strain on the right wrist if you spend a lot of time typing. (Inventive TIers have resolved this problem by building a ribbon cable that plugs into the cartridge port so that the device itself sits nearby but out of the way.)

If you are looking for a used GRAM device, make sure you get what you pay for, including all software and manuals. It would be nice to have assurance that the device actually works. (How do you know all the software is there? Read the manual, it will refer to any software used by the device).

Memory chips in the devices can go bad but when they do it isn't always obvious. It's best to try the device out before buying, but if that isn't possible ask the seller what happens if you can't get the device to work. No matter how unlikely such an untoward event may be, an agreement beforehand can make all the difference in terms of reassuring you, the buyer.

Next month: RAMdisks.

Next Month in MICROpendium

- ★ Translating from other BASICs into TI XBASIC
- ★ EEPROMs and the TI
- ★ Tank Commander
- ★ Review of the Hard Master sector editor

HARDWARE PROJECT

Modifying the PEB power supply to support internal hard and floppy drives

By DR. ERIC W. BRAY, M.D.

Caution: This modification should be attempted only by those persons who are able to use a soldering iron and have experience working with electrical equipment and parts. Any damage that results from following these instructions is the responsibilty of the person performing these tasks.—Ed

Myarc Inc., of Martinsville, NJ, produces a hard and floppy disk controller card for the TI99/4A and the Myarc Geneve 9640 computers. This has lead to many users buying separate power supply boxes in which to house hard drives. The reason that people have had to make these purchases is because when Texas Instruments originally built the Peripheral Expansion Box, it was engineered with a slightly under-powered power supply going to the PEB's drive section. As it was designed, it has the power to fully supply only one drive.

However, by making a few minor modifications to the power supply board inside the PEB, you can house a low power half-height hard drive inside the PEB along with a low power half-height floppy drive.

PARTS AND EQUIPMENT

- Four 3-AMP diodes — Radio Shack part number 276-1141 or 276-1143
- One (1) tube of heat sink grease — Radio Shack part number 276-1372
- One (1) TO-3 heat sink
- One (1) 1000 uF axial capacitor (35 WVDC) — Radio Shack part number 276-1032
- One (1) THM 6079 heat sink
- One (1) 78H12 voltage regulator (3-5 amps)

INSTRUCTIONS

Turn off the POWER to the PEB and remove all of your cards and drives from the PEB. Next, unscrew all of the screws holding holding the PEB box together and disassemble the PEB. You will then see the power supply board located in the section that also houses the fan. Carefully disconnect all of the clip-on connectors that connect the transformer to this card. Then, using the proper size screw driver, disconnect the holder from the base of the PEB and unscrew the power supply board from this holder. Be careful to keep the board oriented in the same position that it occupied on the holder.

With the components of the board facing toward you, you will notice four small 1 amp diodes in the upper left hand corner of the board. These are small, solid colored diodes with a silver band around one end. They are identified on the board as D1, D2, D5, and D6. Carefully desolder these diodes from the board. Make sure you pay attention to the pairing of the electrical connectors on the reverse side of the board. Just to the bottom right of these diodes, you will see a 47 uF capacitor identified as C18. Carefully desolder this capacitor from the board.

To the right of the site where the capacitor was located will be a voltage regulator identified as Q1. Remove the two screws and nuts that hold this device in place. Carefully desolder this device from the board.

Now that all of the items have been removed from the power supply board, the next step is to use a small jeweler's screw driver to carefully enlarge the old openings that contained the diodes. *(Do not use a drill bit of any type to perform this task.)* This task *must* be done by hand. This is necessary so that the new diode wires can fit into the openings. You can test this by inserting the wires into these openings until they all allow the wires to slide in easily.

After the openings have been widened enough to allow the new wires to be inserted, unscrew the screw and nut holding down the voltage regulator identified as Q1 and insert the THM 6079 heat sink under this device. Make sure that *both* sides of the heat sink has heat sink grease on it. Retighten the nut and screw holding this voltage regulator in place.

The next step is to coat both sides of the TO-3 heat sink with heat sink grease and place this on the board along with the 78H12 voltage regulator. Tighten up the two screws and nuts that hold it in place. After that is completed, the device may now be soldered into place on the board. You may have to bend or remove some of the TO-3 heat sink fingers to get this device to fit correctly!

Replacing the capacitor is the next step. Care must be taken that the positive lead is inserted into the opening marked (+). After both wires are in place, then this device can also be soldered into place on the power supply board.

The last step is to replace all of the diodes. Extreme care must be taken to make sure that these devices are oriented in the correct manner. On the board you will see that there is a drawing of these diodes underneath where they will reside on the board. There is a light band drawn to one side of the diagram. *Make sure that the light band or section of the new diodes are oriented in the same manner when they are placed in the board.* It is best to work from the bottom up when replacing these diodes. Be careful that the soldering is done correctly. *(Get experienced help if you are unsure about this step.)* You do not want to have solder bridges or bad connections on this step.

Now that all of the soldering is done, you can place the power supply board back on its bracket and screw the bracket back to the floor of the PEB. Reconnect the transformer plugs to the proper places on

(See Page 27)

TI bulletin boards

By GERALD J. MACDONELL

This is the second part of a listing of more than 220 TI electronic bulletin boards begun in last month's edition. The remainder will be published next month. Here are a few considerations to keep in mind about the listing:

- Some of the boards listed here may no longer exist.
- A BBS with the notation Not Known has no listed names.
- A BBS listed as 1200 baud can handle baud rates up to and including 1200 baud.
- A BBS listed as operating out of a PC should contain TI or Geneve files.
- Call unfamiliar boards by voice first. If you hear a modem tone, you know they are still in business.

BOARDNAME	TELEPHONE	BAUD	HOURS	CPU	OTHER
Pro 99er	305-951-7681	1200	24	TI	FL
Not Known	306-384-2844	1200	24	TI	Canada
Not Known	306-978-0182	1200	24	TI	Canada
Techie	309-353-9161	1200	24	TI	IL
Interface	309-353-8383	1200	24	TI	IL
TI-North	312-359-4618	2400	24	TI	IL
Westdale	312-455-3256	1200	24	TI	IL
TI-West 2	312-562-7670	1200	24	TI	IL
TI-North	312-587-1950	300	24	TI	IL
Not Known	312-587-3490	300	24	TI	IL
Not Known	312-598-5955	1200	24	TI	IL
Northwest Side	312-622-7074	1200	24	TI	IL
TI-South	312-757-3135	1200	24	TI	IL
Not Known	312-848-3669	1200	24	TI	IL
Chicago User Group	312-966-2342	1200	24	TI	IL
New Logic	313-288-2020	1200	24	TI	MI
Down River	313-291-4415	300	24	TI	MI
Not Known	313-296-9436	1200	24	TI	MI
Not Known	313-422-7124	1200	24	TI	MI
LMUG	313-524-0204	1200	24	TI	MI
Librarians BBS	313-544-0714	1200	24	TI	MI
Sun Disk	313-751-1119	1200	24	TI	MI
Not Known	314-878-4289	1200	24	TI	MO
Wichita BBS	316-681-3167	1200	24	TI	KS
Techie	317-423-4878	1200	24	TI	IN
Cal Tec	317-631-9941	1200	24	TI	IN
Bayou TIBBS	318-474-6144	1200	24	TI	LA
Dubuque	319-332-7648	1200	24	PC	IA
Not Known	401-461-6837	1200	24	TI	RI
Northeast 99ers	401-724-2446	1200	24	TI	RI
Techie	401-785-0697	1200	24	TI	RI
Techie	403-457-2203	1200	24	TI	Canada
Ham Radio TIBBS	404-363-1640	1200	24	TI	GA
Atlanta User Group	404-366-1914	300	24	TI	GA
Atlanta TIBBS 1	404-425-5254	1200	24	TI	GA
Micro 99	404-768-0090	1200	24	TI	GA
Rockline	404-955-2731	1200	24	TI	GA
Elite 99er BBS	404-964-2670	1200	24	TI	GA
Atlanta TIBBS 2	404-911-6250	300	24	TI	GA
Sooner Techie	405-672-8270	300	24	TI	OK
Billings	406-256-8717	1200	11p-11a	PC	MT
Cal Tec #12	408-578-6264	1200	24	TI	CA
Techie	412-242-5342	1200	24	TI	PA
Computer Bug	412-882-0717	1200	24	TI	PA
Pioneer Valley U.G.	413-736-0667	1200	24	TI	MA
Not Known	414-437-6930	1200	24	TI	WI
Not Known	414-739-5380	1200	24	TI	WI
Techie	414-743-8654	1200	24	TI	WI
Not Known	414-922-5747	1200	24	TI	WI
Not Known	414-923-5514	1200	24	TI	WI
Aircomm	415-689-2090	1200	24	PC	CA
T.P.O.	416-736-6492	300	24	TI	Canada
Not Known	417-732-7636	1200	24	TI	MO
Techie	419-385-7484	1200	24	TI	OH
Midnight Hour	501-735-9980	2400	24	PC	AR
Techie	504-851-5190	1200	24	TI	LA
Alfred Anderson	507-281-0970	1200	24	PC	MN
SAGEsoft BBS	509-224-9209	1200	24	TI	WA
Caltex	509-328-0553	1200	24	TI	WA
Not Known	509-484-6163	1200	24	TI	WA
99er BBS	512-623-2074	1200	24	TI	TX
Ram BBS	512-647-7160	1200	24	TI	TX
T.I.M.E. BBS	512-828-1871	300	24	TI	TX
John's BBS	513-831-5330	1200	24	PC	OH
Not Known	514-684-6375	1200	24	TI	Canada

ADDENDA: Marc Levine, Sysop of Champaign Fido, reports corrections to two entries in last month's BBS listing. The board at 217-384-8173, Techie in our listing but Tranquility II now, is run on an Amiga and is not TI specific. Levine reports that the board is conversationally oriented "with plenty of politics.' The Champaign Fido board (217-359-3431) has been down for almost a year. The board started on a TI, went to a PC, then was upgraded twice. Sysops changed and the current operator is "just too busy,' according to Levine.

Gary Crawford reports that the NOVA 99BBS was left out of last month's listing. Here it is:

NOVA BBS 206-687-4497 2400 24 TI WA

PEB POWER—

(Continued from Page 26)

the board. Now plug in the PEB and, with a voltmeter, test the output on the two lines going to the drive section. If everything was done correctly, you should have one nice 12-volt and one nice 5-volt reading.

The last step before reassembling the PEB is to drill many 1/4-inch holes in the floor and back of the drive section of the PEB. This is to provide ventilation for your hard drive.

Finally, you can re-assemble the PEB and place your drives in their proper places, not having to worry about the power supply to these devices.

I wrote about how to add an extra 12-volt, 1 amp regulator to the drive power supply section of the PEB in the February 1988 issue of MICROpendium. That modification can be used along with the modification described here. If you choose to do so, you may use the 12-volt, 1 amp regulator to power your floppy drive and the new modification to power your hard drive.

I have been running a Seagate ST-138 hard drive and a TEAC 3.5-inch floppy drive in a modified PEB for 18 months with no problems.

MICRO-REVIEWS

RAVE Memory Enhancement is 4★ and so is Powercost

By HARRY BRASHEAR

Ratings for the software reviewed in this column are based on a star system as follows:

★ Leave it alone, back to the drawing board.

★★ Needs improvements, but workable.

★★★ A good program, worth trying.

★★★★ Send your money and buy it.

★★★★
RAVE 99
Memory Enhancement Card

First of all, let me state categorically that this review doesn't belong in this column. The memory card and its associated software requires a full, high caliber review in this magazine, more than I have time for.

Now that I have stated that, let me give you a little background on why I am contradicting the previous statement.

For a long time, I was convinced that there was more to this memory card than the ads were telling me. All I know was that it worked like a Horizon card, but also provided some RAM that could be utilized. Few people were able to figure out what it was about though, because the ads only talked about memory locations and hex-code. It's very hard for someone to make up their mind to buy something if they don't understand what it does.

Two fairs ago, I met John McDevitt at the Harrisburg show and explained this to him. He promised to send me a card to examine and review, but various problems occurred and hence it took over a year for me to finally wind up with it. During that period I invested in more than a megabyte of Horizon RAMdisk cards, so my devotion to them was is set by default. I feel though that I have an obligation, both to Rave and to the people who read this column, to give my opinion on the product in as unbiased a manner as possible regardless of my loyalties.

I have to say that Rave is one of the most professional companies in the TI community. Any product, whether it be hardware or software, is judged by its support and the quality of materials.

Quality, in the case of Rave's memory card, can be determined by simply looking at it. The boards are clean, both in engineering and assembly. The solder connections are clean, the silk screening is bright and the packaging is secure. You get the feeling right off that you have a working piece of equipment in your hands. I have talked to others who own Rave products and they have all confirmed that my feelings are correct. I can't tell you what their repair policies are because I couldn't find anyone who ever needed repairs. What does that tell you?

FIRSTRATEMANUALS

Like any piece of hardware, you should always hit the docs before you do any installation. Unlike their ads, I found Rave's manuals to be thorough, and extensive, utilizing a sufficient amount of illustration (for the DIP switch settings) to help the novice get this card up and running.

Installation of the software is also easy if you follow directions to the letter. That's always the best policy to begin with. I tried to take some short cuts based on my Horizon knowledge, but they didn't work, so it was back to the docs. This time I had no problem because I did things the way I was told to.

The boot up menu for the Rave card ($25) is a clone of John Johnson's Boot/Menu program, but it also includes the card configuration built into it on the third space bar press. Very handy! The configuration allows you break up the memory of the card into two drives, if you wish, and also to set aside the number of blocks needed for memory usage. Don't confuse this usable memory with the data type memory that these devices are normally used for. Generally speaking, a RAMdisk is still just a floppy drive. It holds programs to be loaded into the working memory of your system, and the program runs from there, not the RAMdisk.

The Rave card was the first to use blocks of memory for running programs. Don't think you are going to dump anything into the Rave and get it to run. The program must be designed for those locations to run from them. A good example is Myarc's Extended BASIC II, which was designed for the Geneve. It would never run out of the TI in your wildest dreams, but a special version of it, available from Rave for $75, will run with your TI and a Rave memory card.

There is also a Macros program that runs from there (available for $15). It's similar to the "Hotkeys" type of programs that were available some years ago for the TI, the difference being that you don't have to load the program to use it. It's always there, in the memory card.

BATTERY BACKUP

One thing that I liked very much about the Rave card is its memory retention method. If you use your system every day for a couple of hours, you don't need batteries to keep the memory up. There is a built in capacitor that handles that job for five days. On the other hand, you can put a small lithium battery in it, and it will back up the memory for a year or so. There aren't any worries about whether your batteries are in contact or are recharging properly.

First and foremost, the Rave is a RAMdisk. It works just the same as all the rest on that score, and if you're really gung-ho you can have two megs of these things in one P-box. Forget everything else about memory enhancement, particularly if you haven't been exposed to RAMdisks. Consider the memory enhancement as frosting on the cake for future reference. That will make your decision about which one to buy a lot easier. If you are considering the extra memory at all, then keep in mind that there IS software for it right now, no waiting.

(See Page 29)

MICRO-REVIEWS—

(Continued from Page 28)

That's important.

The only thing that bothered me about this card was that in spite of verbal help from John, I couldn't get it to live with my Horizon cards. It may have been me, I don't know, but my advice is don't try to mix the two companies. (Horizon and Rave) Also, the Rave is a little pricey. 512K runs $489.95 off the rack, although the price was $400 as a show special in New Jersey. The special made it a coin toss with the alternative in the same configuration.

I hope that I have cleared up some confusion with this review, and also taken the fear out of choice. The Rave does what the company says it will do and their quality and support are excellent. What more can I say.

Write to: RAVE 99, 112 Rambling Road, Vernon, CT 06066.

TOOL
Page Pro 99 PIC-CAT

This is the latest graphic utility from Paul Scheidemantle for Page Pro 99 users.

Since this publishing program has become so popular, many users are changing scores of graphic pictures, instances, giant fonts, etc., to the PP picture format. Therein lies a problem — a memory image picture file that doesn't tell you the size of the picture it holds. Also, you are blessed with the additional cataloging problem of a ton of new picture names and where they are located in your library.

Out of necessity comes invention.

Paul's cataloging program works in three modes: Screen, file and printout. The printout takes one of two forms, a straight catalog or the old "print your cut-n-paste disk jacket with four rows of files on it" trick. What makes all of this unique is that it also lets you know how big the pictures are, in rows and columns, along with the normal info. See Fig. 1 for an example of a mixed disk:

As you can see, standard file types are presented in the normal manner, D/V 80, I/F 128, PGM etc. The picture files are represented by the sizes, instead of just telling you they are a program image file.

Fig. 1

GENIE-D/L Open: 86 Used: 632 Files: 14 Date: 03/19/90

Filename	Col	Row	Filename	Col	Row	Filename	Col	Row	Filename	Col	Row
3421	I/F	128	3604	I/F	128	MON2P	22	18	PPLINE	PGM	
3583	36	21	3606	48	18	MON3P	42	22	PPLINE-DOC	D/V	80
3602	22	20	3655	26	31	MON4P	40	24			
3603	31	29	MON1P	29	17	MON5P	31	24			

If you run your catalog to disk, rather than the printer, you can use an appended file name for one big listing.

The program parameters are set up for hard drive, ramdisk, anything you have for media storage. Believe me, I speak from experience, when this guy makes up a program, he does a thorough job of it.

The cost of the program is $7.50 which includes the disk, postage and handling. Paul is also including a large character font for PagePro in clipped picture format for his paying customers. It's a beautiful headline-sized one called Bookman and will be on the disk in arched format.

Send to: Paul Scheidemantle, 2762 Lovington, Troy, MI 48083.

★★★★
Powercost

PowerCost is defined as a dedicated (subject specific) database program in Extended BASIC. That could be a tool, but I prefer to think of this one as a utility for home or business. Most of the following description is quoted from the docs. I was really impressed with this program because of it's programming and completeness. Although there have been many similar ones over the years, I haven't seen one done as well, with quite so many options.

The program is used to accumulate and compare usage of electricity in kilowatt hours and cost.. Analysis may be made from a time period of a few months to a maximum of eight years provided in the program. You may input each year's data at once or monthly by saving the data to file called ELECDATA.

The Display Data portion of the program provides data in tabular form or bar chart graphs, as required. Both tabular and graphic data, (the graphics are beautiful) may be printed using Epson-compatible printers. You may view a complete year of data, or a single month extracted from any given year.

Once the data is loaded into the program, you can select Calculations and choose either a single month of any year, or all years, to provide you with the following:

A. Total KWH's
B. Average KWH's
C. Minimum Monthly KWH's
D Maximum Monthly KWH's
E. Total cost
F. Average cost
G. Minimum Monthly cost
H. Maximum Monthly cost
I. Average cost per KWH

I think this is a whale of a program for the picky householder, the slumlord who wants to keep a handle on other electric meters, or a small business — perhaps a ceramics business with electric kilns.

POWERCOST is copyrighted by R.Rodney Llewellyn and is issued as Fairware. The asking donation is $8. Send your money to: R. Rodney Llewellyn, 107 August Dr., Seaford, Virginia, 23696.

★★★
TI-Keno

Keno is a simple, addictive game that is a Las Vegas specialty. Bob Gastoni effectively cut the regular game in half and programmed it for the TI.

This is how the game works: You select four to seven numbers from one to 40 by typing them to the screen with commas

(See Page 30)

cSHELL99

Windows and icons for the TI

By MIKE HENSE

Review

REPORT CARD

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

Cost: $30 each; $25 for 5 or more
Distributor: Joe Ross, 119 Knollwood Terrace, Clifton, N.J. 07012; or VMC Software, PO Box 326, Cambria Heights, N.Y. 11411
Requirements: TI99/4A, disk system, memory expansion, XBASIC, E/A or TI-Writer (printer, joystick optional)

You can thank — or blame, depending on your point of view — the makers of the Apple Macintosh for the current deluge of so called Graphical User Interfaces (GUI) that seem to be popping up everywhere you look nowadays.

After all, the 'Mac' was the first widely available personal computer to offer us the user friendliness of cute little pictures (icons), that were supposed to be visual representations of data files, printers, disk drives, or various other objects. And all you had to do was point to any one of those little icons with a pointer that moved about the display screen in response to the movements of another cute, user friendly innovation — the high tech mouse (as in Mickey, cute and friendly)

Just add a few pop-up windows, and some pull-down menus, and you have the makings of the easy to use, graphical oriented, user interface (pronounced 'what you see is what you get') that is supposed to make our lives a lot easier when we sit down in front of our new found high tech crystal balls.

After all, it is surely a lot easier to point to a picture of a file, click on it (press the left mouse button), drag it (keep the left mouse button down and move the pointer, along with the icon you clicked on, across the screen) to a picture of a disk drive, and release the mouse button in order to copy a file. A lot easier and quicker than typing in some cryptic command line like:

COPY A:FILE1.TXT B:FILE1.TXT

or,

PIP B:=A:FILENAME.DOC

In a similar manner, all sorts of useful things could be done quicker and easier in this new environment. Now all of us can have access to the hitherto inaccessible power of the computer. All we had to know was how to point and click.

Well, the users saw, and some of them started to believe, and soon it seemed as if everybody had to have a Graphical User Interface.

There is Microsoft Windows for the IBM and compatible crowd. Or maybe you prefer GEM from Digital Research, or DeskMate by Tandy. They all run on IBM and compatibles.

The new Atari ST and Commodore Amiga machines come with the graphical user interfaces already built into the operating systems of the machines, just like the old Mac.

Even the old Commodore 64 was given a new lease on life when it too got a graphical user interface in the form of GEOS from Berkeley Softworks of California.

So where did that leave us loyal TI users....

Well, you know where — I don't have to tell you — you've been there before.

I also don't have to tell you that 99ers are a fiercely stubborn and resourceful lot, As usual, from the loyal masses the TI alternative arose.

cShell99 , by Joe Ross of Clifton N.J., brings TI users into the forefront of the graphical user community.

For those who wish to avail themselves, the program provides a point and click, desktop environment, from which the user may access programs and system utilities via dialog boxes, pop-up windows, and icons.

cShell99 is also a unique programming environment for C programmers using the c99 compiler developed by Clint Pulley of Ontario, Canada (hence the small c in the name of the program).

The program runs on an expanded TI99/4A. 32K, disk controller and drive (1 drive minimum, 2 or more drives or RAMdisk recommended), and E/A , Extended BASIC or TI-Writer module. A printer and joystick are optional.

cShell99 comes on 2 5 1/4 single sided, single density flippy disks. With the E/A module installed, insert the System Disk side A in DSK1, and select E/A option 5, DSK1. UTIL1 to start cShell99. After the cShell desktop appears, flip the disk over to side B in order to access the cShell99 support modules. For ease of use, if you have a double-sided disk drive, I suggest that you copy sides A and B of the cShell99 System Disk onto a double-sided disk, and use that as your cShell99 work disk. You are now ready to explore the cShell99 environment.

The cShell99 desktop environment is similar in concept to GEOS on the Commodore 64, but closer to Tandy's DeskMate in operation since the cShell99 desktop runs in the 40-column text mode.

The Menu Bar is at the top of the screen. System, File, Disk,
and Special functions can be selected from there by moving the pointer (arrow) to the selected group, and pressing the joystick fire-button. If using the keyboard, you would use the arrow keys (S,D,E,X) to move the pointer, then press the Q key to select an item

The main window displays the directory of the currently logged disk. To log in a disk, simply move the mouse pointer to the disk icon located at the top of the main window and click (press Q if using the keyboard).

Configuring the cShell99 Desktop environment is probably the first thing you should do after loading up the system. This is done by selecting the System menu option. You can set the foreground and background colors, specify the type

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cSHELL99—

(Con tinued from Page 30)

printer you have, install c99 libraries to the system, and access them as if they were part of the original system., You can also set single disk processing if your system has one disk drive.

The File menu option allows for file copying, renaming, viewing, deleting and printing, all with just the click of a button. You can also view a text file or search for an occurrence of a word or phrase. File protect and unprotect is also available.

The Disk menu option allows the standard disk functions; cataloging, renaming, and back-up.

From the Special menu option all types of program files can be executed from the cShell99 Desktop. If the program was designed for the cShell99 Desktop, it will return to the Desktop when it is finished running. The options available from the Special menu are detailed below.

Load & Run will load and run an autorun E/A option #3 file.

Link & Run will execute a batch file (text batch file) that contains a list of modules, the last which must be an autorun module, and run it. (Instructions for creating Load & Run and Link & Run program files are included in the manual provided with cShell99).

E/A #5 programs can be loaded and run with the Program Loader option.

There is also provisions for running the c99 Compiler, and TK Writer from the Desktop.

With cShell99, any TI-99/4A user can operate the 99/4A by simply pointing and clicking.

As with any GUI environment, real productivity can only be realized when programs written especially for the environment start to appear. While you can run most of the programs that presently are available from cShell99, most of them do not take advantage of the cShell99 Desktop metaphor, and the available resident utilities such as pull-down menus and pop-up dialog boxes.

Like Microsoft Windows in its early days, cShell99 lacks the programs that will make it shine. Word processors, databases, and useful applications and utilities will have to be developed that run in the cShell99 environment. cShell99 provides the C programmer with ready access to the features of the cShell99 Desktop environment. The accompanying manual gives plenty of information on how to include these features into a program.

In these days of 33 MHz PCs and Mac IIs whiz-bangers, can 'our computer' survive,? Can the TI continue to provide its users with true productivity, and recreation in the '90s?

I definitely think so, and I think that cShell99 is one of the means by which it can be done.

MICRO-REVIEWS—

(Continued from Page 29)

between. After that the screen goes blank and the Keno board comes up. Your numbers are checked off on the board, and then ten random numbers are picked by the computer. The random numbers are blocked with a red marker on the board, inverse if it is a checked block. If two or more of yours is hit, you get a certain amount of money.

The graphics are super on this game, and it runs very well. It was fun to play by myself, and I can see it would be nice with several players.

I can't recommend it unless you have 32K expansion though, because it takes up 97 sectors of XBASIC. (Why?) The play is quite fast despite the size.

Send $10 to Bob Gastoni, PO Box 3112, Sparks, NV 89432-3112.

UPGRADE — John Birdwell, creator of the famous Disk Utilities program, has released Ver 4.2. If you aren't familiar with this fantastic disk manager program, get on the stick and buy it from him. You might easily throw out your old antiquated DM 1000 in lieu of it. Send $15 to: John Birdwell, 1310 Kent Court, Wheaton, Il 60187.

This brings up a good point. programmers work on programs forever, and if you want to let people know about upgrades, you have to let me know about it!

If you would like me to review your software in this column, please send it to the address below, and if you would like it returned, include a SASE. Please help me make this an exciting column, folks, don't be shy. Harry T. Brashear, 2753 Main St., Newfane, NY 14108.

READER TO READER

Heino Huenken, Apfeltrangerstr. 136 B, 8950 Kaufberen, West Germany, asks what happened to Myarc updates on software in Europe. He says, "Without the help of Alex Hulpke, Martin Zeddies, Beery Miller and other friends in the TI world, there would have been a dark age feeling around my Geneve."

He asks if it is possible to read a disk from a PC with IBM-Standard format (512 bytes per sector, nine sectors, 40 tracks, double sided, double density =360K).

"I tried once and couldn't get anything," he says. "The same is true for a try the other way around. As I understand, there is a different format in use. Translating that isn't the problem but reading the 'right' things at the right time in order to get the reading from an alien disk to the format in the controller.

"Is it true in order to read from any disk that the controller needs to check what was read and where to put it in order to fit in a special format? For instance, track 0 has information of the disk name; in the TI world the file allocation is different from that of the IBM world.

"And here comes my question: Technically there shouldn't be a big difference between reading from an IBM or the beloved TI if the things read are being put in memory and from there later on translated to the specific system use — is this true or is my imagination going wild? Do we need two controllers for this or is there one in the TI world capable of doing this?

"From my understanding (let me know if I am mistaken), this could be done with a disk copy like action from disk to memory or disk to disk."

L. Renda says he owns a TI99/8 computer and would like to get in contact with other 99/8 owners to share information and software, such as 9640 or TI Proto Type. "Also," he writes, "does anyone have specs on the pinout for the 99/8 to 99/4 P-Box card? The one I have is missing the end connector."

Contact him at 1762 Mahoning Ave., Youngstown, OH 44509 or (216) 793-3684.

***Reader to Reader* is a column to put TI99/4A and Geneve 9640 users in contact with other users. Anyone with a specific problem or question that may be answered by other readers is encouraged to submit an item. Be sure to address it to Reader to Reader; c/o MICROpendium, P.O. Box 1343, Round Rock, TX 78680.**

Newsbytes

Texaments releases Artoons! disks

Texaments has released **Artoons!**, a three-disk collection of cartoon artwork designed to be used with TI Artist PLUS!

Artoons! is composed of more than 60 famous cartoon character renderings, stored in the TI Artist "instance" format, which allows for modification and use to create personalized pictures and scenes.

Artoons! is available for $12.95 (plus $2.50 shipping). TI Artist or TI Artist PLUS! (or another compatible graphics package) is required to view and use all the instances included.

For further information or to order, contact Texaments, 53 Center St., Patchogue, NY 11772 or (516) 475-3480 (voice) or (516) 475-6463.

TICOFF earns money for scholarships

The 1990 TICOFF (TI Computer Owners' Fun Fair — The IBM & Clone Owners' Fun Fair) earned almost $4,000 for scholarships for Roselle Park High School students in Roselle Park, New Jersey, according to Robert Guellnitz, TICOFF coordinator.

TICOFF, which was held March 17, is a project of the Roselle Park High School Student Council.

Harrison gives up on music for Geneve

Harrison Software has "thrown in the towel" on converting its music programs for the Geneve, and has released Word Processor V2.0, according to Bruce Harrison of the company.

He says the company has gone to a more advanced method of putting menus on-screen to make its concert disks more efficient in use of disk and memory space, and will allow the menu to return as soon as a number has finished playing.

"That all works beautifully on the TI99/4A, but requires us to use a GPL/DSR link built into our menu program," he says. He notes that this causes a crash on the Geneve 9640,

The company continues to offer the two works using the old-style menu which do work on the Geneve, **The Nutcracker Suite** and **Remembrance,** but has "discontinued trying to stay compatible with the Geneve," Harrison says.

Harrison Software Word Processor V2.0, introduced at the 1990 TICOFF in New Jersey, includes more flexibility in naming documents, document name carryover between functions, choice of disk drive numbers being 1-9 or A-Z, improved cursor movement operation and multiple-copy printing, according to Harrison.

Harrison says a flyer is being sent to all the owners of record in the company's data base.

"If we've missed you, let us know and we'll send one out PDQ," he says.

The update is available to existing owners for $1.50 for media and mailing. A manual supplement is included with the new disk to describe the changes, he says.

Contact Harrison Software, 5705 40th Place, Hyattsville, MD 20781, or (301) 277-3467.

Northwest fair set for all 'orphans'

The first Columbia Northwest TI Computer Fair is scheduled for Oct. 27-28 at the Jantzen Beach Red Lion Inn in Portland, Oregon, sponsored by NOVA (Ninety-Niners Of the Vancouver Area), Vancouver, Washington, and PUNN (Portland Users of Ninety-Nines), Portland.

The fair will include an electronics swap meet open to all computer enthusiasts, as well as speakers and demonstrations covering other orphaned computers, as well as the TI, according to N. Michal Calkins, correspondence committee chairperson.

Fair plans also include user group displays from all the western states and Canada, as well as commercial vendors.

For information, contact Calkins at 1215 S.W. Cedar St., Lake Oswego, OR 97034, or (503) 836-1839.

BBS list updated

Marc Levine, president of the WW99ers in east central Illinois, has sent some updates to Jerry MacDonnell's BBS list in the March 1990 issue.

He says (217) 384-8713 is no longer TI-specific. The board, Tranquility II, operated by Dale Creekmur, runs on an Amiga and is "a conversationally oriented BBS with plenty of politics, etc." It supports up to 2400 baud.

Levine is sysop of the TI area on Champaign Fido (217) 359-3431. Primary sysop is Jim Lewis. Levine says the board, which also supports up to 2400 baud, has been down for more than a year for various reasons. The board started on a TI but was switched to an IBM clone and dedicated to the Amiga and TI.

Line 'tagged on'

Dave Swartz, whose "Checkbook Balancer" program was published in the March 1990 MICROpendium, notes that in the published version, Line 830 was tagged on to the checksum of line 820.

Advice available for cassette users

The series **"Getting the Most from Your Cassette System,"** by Mickey Schmitt, originally written for the West Penn 99ers newletters, is now available in booklet form.

The 52-page typeset looseleaf booklet (without the holes) contains updated versions of the articles plus new material.

The author says a booklet bought by a users' group may be copied for the members. (This copying agreement is not offered to any commercial company, nor are user groups given permission to distribute

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User Notes

Reverse video for printing

This comes from James Aaron, of Norwalk, California. He writes:

I recently purchased a programmable remote control for my VCR's and TV. Since the case was black, I wanted to print labels for the keys to match the case. Rather than try to locate black labels and a white ribbon for my Star NX-10 printer (if either one exists), I wrote the following programs to load the TI character set into printer RAM in reverse video format.

The first program prints 95 sets of printer codes to be put in DATA statements to follow the second program, which will then be loaded into printer RAM. The reason I wrote the programs this way is that the conversion from TI to printer codes takes almost 20 minutes to run. If the codes were loaded into RAM immediately after the conversion, this would take 20 minutes each time the printer was turned on. With the codes loaded from DATA statements, the loading takes about one minute.

Since the printer doesn't print even a redefined space character, I used character 127 (Control V) instead. If you use a CTRL V in your program instead of CHR$(127), the program will run without problems. The only problem you might have is if you list the program to the printer — the lines with the CTRL V may not print correctly. You may want to experiment with different type styles such as elite, boldface, underline, subscripts, etc. to suit your printer.

```
1 ! PROGRAM 1 !Ø12
9 ! Convert each character o
f pattern to reverse video !
1Ø7
1Ø OPEN #1:"PIO" :: X$="Ø123
456789ABCDEF" :: FOR A=33 TO
 127 :: CALL CHARPAT(A,A$)::
 FOR B=1 TO 16 :: B$=SEG$(X$
,17-POS(X$,SEG$(A$,B,1),1),1
):: C=POS(X$,B$,1)-1 !Ø22
19 !Convert to binary !Ø12
2Ø IF C THEN C=C/2 :: D=C-IN
T(C):: C=INT(C):: D$=SEG$(X$
,D*2+1,1)&D$ :: GOTO 2Ø ELSE
 E$=E$&RPT$("Ø",4-LEN(D$))&D
$ :: D$="" !2Ø1
3Ø C$=C$&B$ :: NEXT B :: C$=
"" !114
39 ! Convert to printer !171
4Ø FOR B=1 TO 8 :: E=128 ::
FOR F=B TO 63 STEP 8 :: G=G+
VAL(SEG$(E$,F,1))*E :: E=E/2
 :: NEXT F :: P(B)=G :: G=Ø
:: NEXT B :: E$="" !247
5Ø PRINT #1,USING "### ### #
## ### ### ###":P(2),P(3),P(
4),P(5),P(6),P(7):: NEXT A !
Ø19
```

```
1 ! PROGRAM 2 !Ø13
9 ! Set line spacing to zero
; set to uni-directional pri
nting;set to emphasized, bol
dface, and underline !144
1Ø OPEN #1:"PIO" :: Y$=CHR$(
27):: Z$=CHR$(Ø):: PRINT #1:
Y$;"3";Z$;Y$;"U";"1";Y$;"!";
CHR$(152)!Ø41
19 ! Load characters into pr
inter RAM !Ø97
2Ø FOR X=33 TO 127 :: READ A
,B,C,D,E,F :: PRINT #1:Y$;"&
";Z$;CHR$(X);CHR$(X);CHR$(13
9);CHR$(A);Z$;CHR$(B);Z$;CHR
$(C);Z$;CHR$(D);Z$;CHR$(E);Z
$;CHR$(F):: NEXT X !246
29 ! Select download char-
acter set;set line spacing
to zero vertical space
between lines !ØØ3
3Ø PRINT #1:Y$;"%";"1";Z$;Y$
;"3";CHR$(27)!Ø79
```

Using control codes with MULTICOL

This comes from Ralph W. Mills, of Selkirk, Manitoba. He writes:

In using MULTICOL (January and February 1988, MICROpendium), I've been frustrated by not being able to use printer control codes with the program. The February article includes half a column about using printer control codes with a Gemini 10X. My printer, an Epson LX800, does not have available a "one time only horizontal tab." Instead, it has "Horizontal/Vertical Skip." This essentially does the same thing and has enabled me to use doublestrike and italics characters in article titles, etc. for our group newsletter. Underlining, which I did by hand, is still not possible as far as I know.

The horizontal/vertical skip for my printer is: ESC f n s (where n=0 for horizontal skip, n=1 for vertical skip, and s is the required number of spaces or line feeds).

The printer manual is not at all clear, at least to me, about getting a useful value for "s." It may be the ASCII value for the number of spaces required to make up for the loss due to the control characters on the line. The ASCII number can be produced using the Special Character Mode discussed on page 98 and a table on page 146 of the TI-Writer manual.

When using doublestrike, four spaces are required for the control codes ESC G and ESC H. The skip command (four spaces) must be included. The total skip required is eight spaces (ESC is one space).

In preparing an article with TI-Writer for use with MULTICOL, the title line would be keyed as below (spaces are to avoid a jumble of letters):
ctrlU fctnR ctrlU G THE TITLE ctrlU fctnR ctrlU H ctrlU fctnR ctrlU f 0 ctrlU shiftH ctrlU.

The "ctrlU fctnR ctrlU" and "ctrlU shftH ctrlU" are for the ASCII values 27 (ESC) and 8, respectively, and the line appears on the display as:

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Newsbytes

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copies outside their own membership.)

To order, send $9.95, plus $2.50 shipping and handling in the U.S. or $4 outside the U.S., to: Mickey Schmitt, 196 Broadway Ave., Lower Burrell, PA 15068.

User Notes

(Continued from Page 33)

bGTHE TITLEbHbfØb

Underlining has been another problem since it requires six character spaces: "ESC-1" and "ESC-0" plus four for a total of 10 skips. This requires ASCII 10 (linefeed symbol), which MULTICOL quickly strips when using formatted files with L/F symbols. I've tried splitting the skips into two sets but it ig-nores the second set. Since I prefer doublestrike to underlined titles, it's not a problem. Italics is handled in the same way.

Putting TI-Count on a hard disk

This comes from Ron A Warfield, of New Westminster, British Columbia. He writes:

Recently a reader asked how to go about putting TI-Count onto a hard drive. This is the procedure I used.

First, create a directory called DSK.

Second, create eight subdirectories from the DSK directory. Name the subdirectories the same as the TI-Count disk names. Example: SYSTEM-GL.

There are six system disks and two support disks which all run from disk names and not drive numbers.

Next, I transferred all the files onto their proper directories. To speed up the loading of each program, I used the file MENU instead of LOAD. This eliminates the title screens and goes directly to the MENU option. Also, in each menu program I changed the END statement to "RUN WDS1.COUNT." There are six menu programs, one for each system disk. This allowed me to write a small, seven-option loader to choose each system of TI-Count or quit. Now, when each section ends, it re-loads the loader to access other options. My loader is called "COUNT," which is stored on the root directory. The two extra support disks are CLOSING and LEDGER, which are accessed through the other system programs.

I have been using this system for over a month and it has worked perfectly.

Give p-System the boot

This comes from Denver Earl Sullivan, of Osgood, Indiana. He writes:

Many users of the UCSD p-System get annoyed because most of the p-Code cards TI manufactured did not include the boot interrupt switch on the card. This switch was designed to stop the p-System from booting when the system is first booted or when one would leave an assembly program. TI just began to incorporate the switch into the card about a month before it left the home computer market.

One solution to this problem is to make a hardware modification and update the card to the last version TI produced. I do not recommend this because the TI interrupt switch was only in the prototype stage when it was made a last minute release by TI. Also, the danger that could result to the card by altering it could be irreparable. Also, since the TI p-Code card is somewhat rare, it is not worth the risk.

Instead, I have asked TI for information on the UCSD p-System's booting procedures. The company provided me with the following information.

If the p-Code card cannot locate the word "NO" in memory location >38FA

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User Notes

Continued from Page 34)

the system will force system re-initialization upon returning to the color bar screen.

The following command will override the booting procedure:

```
CALL INIT
CALL  LOAD(14586,78,79)
```

The following command will read the values in the UCSD booting procedure:

```
CALL INIT
CALL  PEEK(14586,A,B)
PRINT CHR$(A)&CHR$(B)
```

The following command will cause the UCSD system to boot upon leaving XB:

```
CALL INIT
CALL  PEEK(14586,0,0)
```

These routines will not stop all UCSD boots but will reduce this annoyance to a bare minimum.

Quick and dirty checkbook register

This comes from Larry Tippett, of Model City, New York. He writes:

This program is used to create a checkbook register that at one time or another we all need. It requires a printer. It is set up to print at a width of 132 columns. User may be required to modify the printer codes to match their machine's.

```
90 !SAVE DSK1.REGISTER !120
100 CALL CLEAR :: DISPLAY AT
(12,4):"THIS PROGRAM IS USED
 TO":"  PRINT A REGISTER FOR
 YOUR              CHECKBOOK."
!238
110 DISPLAY AT(23,1):"PRESS
ANY KEY WHEN READY" !244
120 CALL KEY(0,K,S):: IF S<1
 THEN 120 !190
130 CALL HCHAR(23,1,32,56)::
 DISPLAY AT(23,1):"PRINTING.
...!" !013
135 N=10 !055
140 OPEN #1:"PIO",VARIABLE 1
32 :: PRINT #1:CHR$(15)&CHR$
(27)&CHR$(65)&CHR$(6);!077
145 PRINT #1:TAB(N);!179
150 PRINT #1:"     CK#     D
ATE   PAYEE
            REMARKS
      AMOUNT   BALANCE" !18
6
155 PRINT #1:TAB(N);!179
160 PRINT #1:"-------------
---------------------------
---------------------------
---------------------------
---------------------" !113
170 FOR LINES=1 TO 24 :: PRI
NT #1:TAB(N);!213
180 PRINT #1:"¦    ¦  -   -9
0¦
     ¦

¦       ¦          ¦" !045
190 PRINT #1:TAB(N);RPT$("-"
,119):: NEXT LINES :: FOR SP
ACE=1 TO 10 :: PRINT #1 :: N
EXT SPACE !073
200 PRINT #1:CHR$(27)&CHR$(6
4):: CLOSE #1 :: DISPLAY AT(
23,1):"RUN AGAIN?" !157
210 CALL KEY(0,K,S):: IF S<1
 THEN 210 :: IF K=89 THEN 11
0 ELSE L DISPLAY AT(23,1):"T
I-EXTENDED BASIC          R
EADY" :: END !013
```

Program converts PC to TI text files

This comes from Quinton Tormanen, of Battle Ground, Washington. He writes:

This short, Extended BASIC program will help people involved with telecommunications with other computers. This program will take downloaded text files from PCs and possibly other formats and turn out a TI-Writer format file. It is called IBM Text File Converter. It is easy to use, requiring only two prompts: Input filename and Output filename.

Here is how it works: Files from PC word processors consist of line after line packed into 80 bytes. The only line separators are a carriage return followed by a linefeed. The linefeed is not needed by TI-Writer, so that portion is tossed. Also, since each line is stacked onto the previous line, those must be separated into individual lines.

One other problem was overcome with this program. At the end of the 80-byte records, the line is cut off, sometimes in the middle of a word or sentence. These truncations were pasted together to give you the end product.

```
10 CALL CLEAR :: CALL SCREEN
(5):: FOR I=0 TO 14 :: CALL
COLOR(I,16,1):: NEXT I !234
20 DISPLAY AT(5,1):"  IBM  T
ext File Converter": :"A Tel
ecommunications Utility    b
y  Quinton Tormanen" !239
30 DISPLAY AT(12,1):"Input:
 DSK1.filename":"       NOTE:
 Must be D/F 128": :"Output:
 DSK1.filename":"       NOTE:
 WILL BE D/V80" !073
40 CALL GETFILE(12,F1$):: CA
LL GETFILE(15,F2$)!046
50 DISPLAY AT(18,1):"The rec
ords will be loaded from the
 INPUT filename, andthen be
broken into lines  and save
d to OUTPUT as in-" !070
60 DISPLAY AT(22,1):"dividua
l records. Note:   Linefee
ds will be eliminated --PRES
S ANY KEY TO BEING--" !015
70 CALL KEY(5,K,S):: IF S=0
THEN 70 ELSE CALL CLEAR !225
80 OPEN #1:"DSK"&F1$,DISPLAY
 ,FIXED 128,INPUT !247
90 OPEN #2:"DSK"&F2$ !076
100 B$="" !235
110 IF EOF(1)THEN CLOSE #1 :
: CLOSE #2 :: END !035
120 LINPUT #1:A$ !187
130 IF ASC(A$)=10 THEN A$=SE
G$(A$,2,255)!096
140 A=POS(A$,CHR$(13),1):: I
F A=0 THEN B$=B$&A$ :: GOTO
110 !015
150 B$=B$&SEG$(A$,1,A):: PRI
NT B$ :: PRINT #2:B$ :: B$="
" :: A$=SEG$(A$,A+1,255):: G
OTO 130 !026
160 SUB GETFILE(Y,A$)!078
170 ACCEPT AT(Y,12)SIZE(-12)
:A$ :: IF POS(A$,".",3)THEN
170 ELSE IF LEN(A$)<3 THEN 1
70 ELSE IF POS(A$," ",1)THEN
 170 !108
180 SUBEND !168
```

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User Notes

Beating the drive limit

This comes from Ed Gerten, of Hill City, South Dakota. He writes:

As many frustrated TI owners searching for greater disk storage capacity know, Texas Instruments placed a 3-drive limit on their controller card. Other available cards may support up to four floppies, but even that might not be enough room, when several disk-hogging programs are used together, such as Funnelweb and The Printer's Apprentice.

Many of us can't afford the cost of a hard drive and controller or even a moderately priced RAMdisk, but there is a huge number of discount-priced PC clone floppy drives just waiting to be used. There may be found in these pages as well as many computer magazines. I have seen these drives offered for as little as $20, for DSDD yet!

While you take your chances with these real bargains, I have been using that 20-buck drive for almost two years now. Of course, a more reliable drive costing about $80 or less may be substituted if you have more cash than faith. This is also a way to put your old SSSD drives back into service without reducing your existing setup's capacity.

A simple DPDT (Double Pole-Double Throw) switch added to the +5 and the +12 volt lines of each drive's power cord will allow another drive to be added onto each drive thus modified.

If your controller cable only has three connectors, you may have to purchase or fabricate a new ribbon cable to accommodate the extra drives. Cable-piercing press-on connectors may be installed onto your existing cable, but be careful so that you do not damage it in the process.

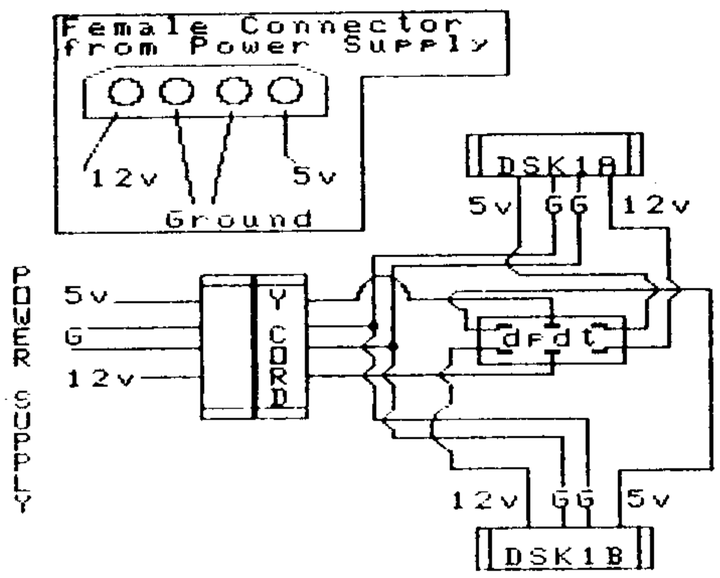
I used one of the ready-made cabling kits offered to install two drives in the PEB, and then added a standard four-drive cable for the external drives. I spliced the kit's power connector with wires for the switch. This gives me a limit of six drives, although I am using only four at this time, with a TI controller. I have the extra drive set as an alternative drive 1, positioning the DIP switches for it the same way as for my normal drive 1.

When the DPDT switch is placed in one position, drive 1A is turned on. Flip the switch, and now drive 1B is activated. I am, of course, careful not to flip the switch while either drive's access light is on. And the switch itself is of a design that is hard to accidentally trip.

I use the "extra" drive to run Funnelweb from drive "1A" and TI-Base or another program which insists on running from DSK1 in drive "1B." I also use it to store extra fonts when using TPA; or pictures, when using Joypaint.

Backups are also easier when I program in Extended BASIC, as a FCTN 8 (Redo) and a flip of a switch duplicates my SAVE command onto another disk.

Whenever you alter your TI, make doubly sure that all connections are correct and safe before powering up. I used a meter to insure that I was installing the switch on the proper wires. A simple wiring guide is included below to assist in completing the project. As in any hardware project, neither MICROpendium nor the author assumes any liability for any damages that may result from the use of these instructions. Make sure all power is disconnected from your computer and disk drives before attempting this project.



A different disk cataloger

This disk catalog program appeared in the newsletter of the Portland Users of Ninety-Nines (PUNN). It's a disk cataloger with a difference. Unlike other catalogers, it allows you to page back and forth through a catalog of filenames. Also, it comes with its own lowercase character set.. It runs in Extended BASIC.

```
30 REM LOAD LOWER CASE LETTE
RS !002
35 CALL CHAR(97,"0000007008383
848740004047844444780000003
84440443800040436C4444443C")!
205
40 CALL CHAR(101,"0000003844
7C403C0018242070202020000004
384438047C00404078444444444")
!231
45 CALL CHAR(105,"0010003010
1010380000800189808483000404
8507048440030101010101038")
!152
50 CALL CHAR(109,"0000007854
5454540000005824242400000
3844444438000000784478404 0")
!199
55 CALL CHAR(113,"0000003844
5448340000005864404040000000
3C4038047800103810101014 08")
!180
60 CALL CHAR(117,"0000004848
4848240000004444281000000
4454545428000000442810284 4")
:: CALL CHAR(121,"0000004424
1810600000007C0810207C")!139
65 ! Subrout. from TK-Wrtr L
oader (XB).... !110
70 CALL DIRECTORY !035
75 SUB DIRECTORY :: CALL SCR
EEN(3):: DIM T$(5),FILE$(127
):: GOTO 80 :: A$,B$,A,J,K,L
,LM,LMAX !053
80 CALL CLEAR :: T$(1)="Dis/
Fix" :: T$(2)="Dis/Var" :: T
$(3)="Int/Fix" :: T$(4)="Int
/Var" :: T$(5)="Program" !07
0
85 DISPLAY AT(1,3)BEEP:"MAST
ER DISK (1-3 ?)  1" :: ACCEP
T AT(1,24)SIZE(-1)VALIDATE("
123"):A$ :: IF A$="" THEN 85
 ELSE A=VAL(A$)!084
90 OPEN #1:"DSK"&A$&".",INPU
T ,RELATIVE,INTERNAL :: INPU
T #1:A$,J,J,K !115
95 DISPLAY AT(1,2):"DSK"&STR
$(A)&" -Diskname- "&A$:"
 " !216
100 DISPLAY AT(3,2):"Sectors
 used  =";J-K:" Available
```

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User Notes

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```
  =";K :: DISPLAY AT(21,1):"
Filecount =     Page" !135
105 DISPLAY AT(6,1):"Filenam
e   Size   Type      P":"----
------ ---- ---------- -" ::
 DISPLAY AT(24,2):"READING D
ISK DIRECTORY..." !070
110 FOR L=1 TO 127 :: INPUT
#1:A$,A,J,K :: IF A$="" THEN
 LMAX=1+10*INT((L-2)/10):: L
M=L-1 :: L=128 :: GOTO 140 !
196
115 DISPLAY AT(21,12)SIZE(4)
:L :: DISPLAY AT(21,22):"1 o
f";1+INT((L-1)/10)!166
120 B$="    " :: IF ABS(A)<>5
 THEN B$=" "&STR$(K):: B$=SE
G$(B$,LEN(B$)-2,3)!105
125 IF A<=0 THEN B$=B$&" Y"
!111
130 A$=A$&RPT$(" ",14-LEN(A$
)-LEN(STR$(J)))&STR$(J):: FI
LE$(L)=A$&RPT$(" ",16-LEN(A$
))&T$(ABS(A))&B$ !178
135 IF L<11 THEN DISPLAY AT(
8+L,1):FILE$(L)!215
140 NEXT L :: L=1 :: CLOSE #
1 :: A$=RPT$("",28):: DISPLA
Y AT(20,1)BEEP:A$ :: DISPLAY
 AT(22,1):A$ :: DISPLAY AT(5
,1):A$ !064
145 DISPLAY AT(23,1):" -Page
 Fwd/Back ~~ fctn-X/E  -Esca
pe /Redo  ~~ fctn-9/8" !132
150 CALL KEY(3,J,K):: IF K<1
 OR NOT(J=6 OR J=15 OR J=10
OR J=11)THEN 150 !134
155 IF J=10 THEN L=MIN(LMAX,
L+10):: CALL BLOCK(FILE$(),L
):: GOTO 150 !182
160 IF J=11 THEN L=MAX(1,L-1
0):: CALL BLOCK(FILE$(),L)::
 GOTO 150 !127
165 IF J=6 THEN CALL ERASENA
M(FILE$(),LM):: GOTO 80 !127
170 IF J=15 THEN CALL CLEAR
!061
175 SUBEND !168
180 SUB BLOCK(F$(),L):: FOR
I=1 TO 10 :: DISPLAY AT(8+I,
1):F$(L+I-1):: NEXT I :: DIS
PLAY AT(21,21)SIZE(3):1+INT(
L/10):: SUBEND !050
185 SUB ERASENAM(F$(),LM)::
FOR I=1 TO LM :: F$(I)="" ::
 NEXT I :: SUBEND !088
```

Star NX1000 fix

This item appeared in the newsletter of the Northcoast 99ers User Group of Cleveland, Ohio. It was written by Wesley R. Richardson.

If you have a Star NX-1000 printer and cannot get the printer to print using the TI99/4A, then I may have a solution for you. First, run the short version of the printer system test. At the top left of the printout it will say something like VER 1.2, VER 1.3, or VER 1.4. If you are using a TI RS232 card, then you need VER 1.5 TI. A call to Star's service center (800-537-8270) will get you a replacement ROM chip at no charge, as long as you return the chip which you take out of the printer. The chip comes with instruction on doing the replacement.

Formatter changes for Funnelweb and more

This item appeared in the newsletter of the Johnson Space Center TI99/4A User Group. It was reprinted from the newsletter of the Decatur 99ers.

Frank DePinto, of the Pennsylvania-Ohio Users Group of Struthers, Ohio, reminds us that the *mark file* option of the directory doesn't work in the Formatter, so that the names have to be entered from the keyboard unless they are already in the "mailbox" from the Editor. He passes along a fix taekn from the Suncoast Beeper, which works for Funnelweb 4.0 but not for 4.12.

Using a sector editor, and a work disk, make these changes:

Location: Third sector of QD:

Change byte >BF from >06 to >07.

Change byte >CF from >7B to >72.

In the fifth sector of UTIL1, make these changes:

Change byte >29 from >06 to >07.

Change byte >39 from >7B to >72.

Remember to use FCTN-7 to call the directory, and mark your file just before you load the formatter.

Another tip, for those who want to permanently change the default of the "Pause at the end of page" prompt from "Y" to "N:"

The default values of the Formatter messages are stored in the 13th sector of file FO in both Funnelweb 4.0 and 4.12. Bytes >70 through >73 have the values "N A N 1."

The first "N" is for "Pause at end of page." Change it to "Y."

"A" is for "What pages (ALL)." The second "N" is for "Use mailing list?" And the 1 is for "Number of copies?"

And finally, this tip is from Charles Good of the Lima (Ohio) User Group. It also appeared in the JSC newsletter. It has to do with setting up a default file for printing on envelopes through Funnelweb. The codes are specifically written for use with Gemini 10X/SG-10 printers.

Although printers are supposed to work with single sheets of paper as well as tractor feed paper, the printer normally stops printing well before it reaches the bottom of the single sheet. This means that you cannot easily run single business-sized envelopes through the printer and have the printer print the sending address directly on the envelope, since this address is too close to the bottom of the envelope. The printer detects that it is "Out of paper" before the middle of the envelope reaches the printer head.

Good's fix uses a printer control code that disables the "Out of paper" switch. For the 10X, SG10 and NX-10, the code is ESC 8. This is placed in the first line of a Funnelweb file named ENVELOPE using the following key sequence: CTRL-U, FCTN-R, CTRL-U, 8. (Enter it without spaces.) Codes to select print style can be entered on the same line. On the next three lines, place the return address starting at or near the left margin. Leave three blank lines and on the eight and following lines enter a dummy sending address, starting at about column 35. Save the file using the name ENVELOPE (or some other name of your choosing) on a disk used for correspondence to keep it handy.

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To use, load ENVELOPE from disk and replace the dummy address with the one you want to use. Place an envelope in the printer with the upper edge just above the printhead. Use the command PF to print.

Recovering from Function QUIT

This item appeared in the newsletter of the Los Angeles 99ers and elsewhere. It's by LA 99er Chick De Marti. It's a tip on how to recoever from FCTN QUIT. We haven't been able to get it to work, but may you can. Here goes:

If FCTN QUIT is accidentally hit before you can save a program — and you are using XB with a memory expansion — type: CALL PEEK(-31952,A,B,C,D) ::

PRINT A,B,C,D

The first two values point to the start of the line number table. The second pair of values point to the end of this table. Write down these numbers, then press FCTN QUIT and re-enter XBASIC. Type:

CALL INIT

CALL LOAD(-31952,W,X,Y,Z)

Replace W, X, Y, Z with the values you have for A, B, C and D. Then type: LIST. The program should then be listed to the screen. This didn't happen for us, but who knows?

Make sure that you do the CALL INIT and PEEK commands immediately after fatally pressing FCTN QUIT.

User Notes **is a column of tips and ideas to help readers put their computers to better use. The information provided here comes from many sources, including user group newsletters and MICROpendium readers. MICROpendium pays $10 for items sent in by readers and used in this column.**

USER GROUP UPDATE

These are additions and updates to our user group listings, begun in our May 1987 issue.

California

LA 99ers Computer Group, P.O. Box 7736, Torrance, CA 90504 (new address).

Michigan

Grand Rapids 99er Computer Group, 1419 Laughlin Dr. N.W., Grand Rapids, MI 49504 (new address). Newsletter editor Bert Vanderstrom, (616) 791-0059.

New Jersey

Northern New Jersey 99ers User Group, Kenvil, disbanded February 1990.

Virginia

Roanoke Valley 99er Users Group, P.O. Box 12522, Roanoke, VA 24206. Leonard Morgan, president, (703) 366-0145. Meets 7-9 p.m. second Tuesday of month at Monterey Elementary School. Annual dues $12; 10 members.

Tidewater TI99/4A User Group, dissolved, all former members automatically become members of the Hampton Roads TIers, 4701 Atterbury St., Norfolk, VA 23513.

Wisconsin

Sheboygan Area 99ers Users Group, c/o Wally Scheele, 2104 North 20th St., Sheboygan, WI 53081 (new address).

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