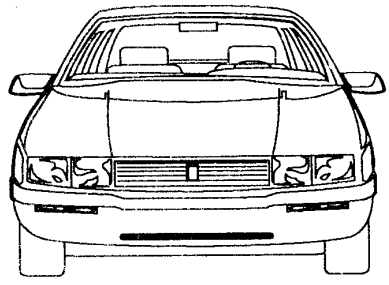
Covering the TI99/4A and the Myarc 9640

MICROpendium

Volume 7 Number 9 October 1990 $2.50



Keeping track of mileage

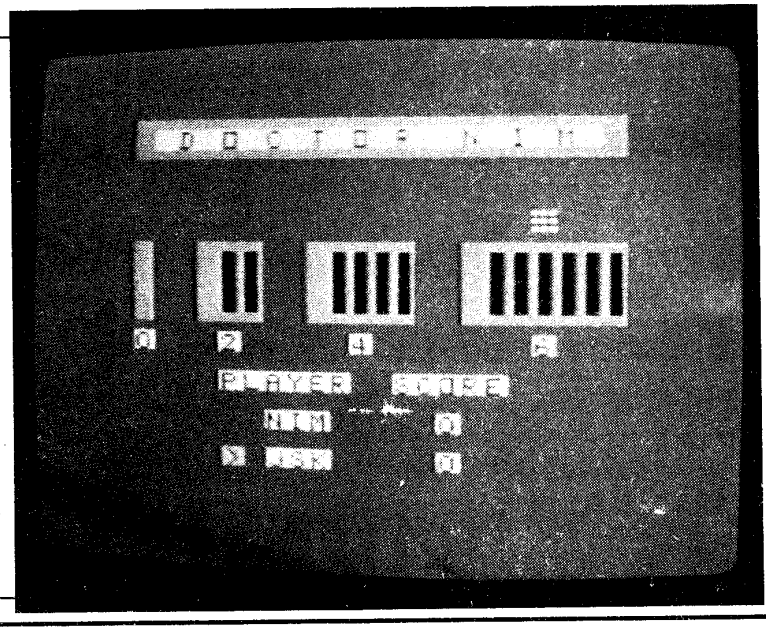
An Extended BASIC program to help deal with higher prices

Inside

- A game of Keno for the Geneve.
- Knitting in BASIC
- An easy way to insert TI-Artist graphics into TI-Writer files.
- More TI Bulletin Board listings
- Tips on making your own printer cables, and using TI-Base

The game of Dr. Nim.

Yes, it's challenging



Software

Choose from our big selection of software for the TI-99/4A Computer.

Tex Comp continues to stock the world's largest selection of TI Software. The TI Software library on module, disk and cassette and is considered the best in the home computer software field. TI utilized the talents of such industry leaders as Scott Forsman, Milton Bradley, Microsoft Corp., Scott Adams, Addison Wesley Publishing, DLM, Milliken Publishing, Scholastic Inc., Imagic, Spinnaker and the list goes on and on.

Home Management, Personal Finance, Education, Arcade-type games — all in the big TI Computer software library.

Tex-Comp purchased TI's inventory of these outstanding titles in order to continue its support of the TI-99/4A user

With its five warehouses and financial resources, Tex-Comp has been able to assure you, the TI-99/4A user continued support.

HOME ENTERTAINMENT

MODULES

PHM 3229 Hopper....4.95
PHM 3023 Hunt The Wumpus....4.95
PHM 3052 Tombstone City....4.95
PHM 3053 TI Invaders....4.95
PHM 3054 Car Wars....4.95
PHM 3057 Munch Man....4.95
PHM 3056 Alpiner....4.95
PHM 3112 Parsec....4.95
PHM 3031 The Attack....4.95
PHM 3194 Jawbreaker II....5.95
PHM 3110 Chisholm Trail....5.95
PHM 3034 Hustle....6.95
PHM 3037 Hangman....6.95
PHM 3025 Mind Challengers....6.95
PHM 3036 Zero Zap....8.95
PHM 3038 Connect Four....8.95
PHM 3042D Tunnels of Doom (with disk)....9.95
PHM 3042T Tunnels of Doom (with tape)....9.95
PHM 3067 Othello....9.95
PHM 3220 Microsurgeon....9.95
PHM 3219 Super Demon Attack....9.95
PHM 3222 Fathom....9.95
PHM 3233 Burgertime....9.95
PHM 3146 Munchmobile....11.95
PHM 3197 Slymoids....15.95

DISKETTE PROGRAMS

PHD 5002 TI-TREK (TE-11 req. for speech)....4.95
PHD 5010 Mystery Melody....4.95
PHD 5015 Oldies But Goodies 1....4.95
PHD 5017 Oldies But Goodies 11....4.95
****SPECIAL Oldies But Goodies 1 & 11....7.95
PHD 5025 Sat. Night Bingo (Ex-Basic & Speech)....4.95
PHD 5037 Draw Poker (Ex-Basic)....4.95

CASSETTE PROGRAMS

PHT 6002 TI-TREK (TE11 req. for speech)....4.95
PHT 6010 Mystery Melody....4.95
PHT 6015 Oldies But Goodies 1....4.95
PHT 6017 Oldies But Goodies 11....4.95
****SPECIAL Oldies But Goodies 1 & 11....7.95
PHT 6026 Sat. Night Bingo (Ex-Basic & Speech)....4.95
PHT 6037 Draw Poker (Ex-Basic)....4.95

ADVENTURES

PHM 3041D Adventure Module & Pirate Adv.(disk)....6.95
PHM 3041T Adventure Module & Pirate Adv.(tape)....6.95
ADVENTURE SERIES (must be used with PHM 3041 module)
Specify disk or tape with order
Adventureland....4.95
Mission Impossible....4.95
Voodoo Castle....4.95
The Count....4.95
Strange Odyssey....4.95
Mystery Fun House....4.95
Pyramid of Doom....4.95
Ghost Town....4.95
Savage Island 1 & 11 (two adventures)....4.95
Golden Voyage....4.95
Knight Ironheart Adventure....4.95
****SPECIAL-ALL ABOVE ADVENTURES ON DISK OR TAPE....17.95
Spiderman Adventure....4.95
Incredible Hulk Adventure....4.95
Buckaroo Banzai Adventure (based on the movie)....4.95
Sorcerer of Claymorgue Castle....4.95
****SPECIAL-ALL OF THE ABOVE FOUR + HINT BOOK + TWO NEW BONUS ADVENTURES....17.95
****SUPER ADVENTURE SPECIAL-BOTH OF THE ABOVE SPECIALS + COMPLETE HINT BOOK + ADVENTURE MODULE....29.95
PHM 3189 Return to Pirate's Island (self contained adventure on module with graphics)....11.95

COMPUTER PROGRAMMING AIDS

MODULES

PHM 3026 Original TI Extended Basic....39.95
PHM 3055 Editor-Assembler....9.95
PHM 3058 Mini-Memory (with Writer 11)....12.95

DISKETTE PROGRAMS

PHD 5007 Teach Yourself 99/4A Basic....4.95
PHD 5019 Teach Yourself Extended Basic....4.95
PHD 5004 Programming Aids 1....4.95
PHD 5005 Programming Aids 11....4.95
PHD 5077 Programming Aids 1,11,111....9.95
PHD 5067 Beginning Basic Tutor....4.95
PHD 5076 Text to Speech (Ex-Basic Speech)....4.95
PHD 5098 TI Forth & manual (Ed/Assem req.)....19.95
PHD 5078 TI Forth Demo Disk (Ed/Assem)....4.95
PHD 5079 TI Forth Source Code (2 disks)....4.95

CASSETTE PROGRAMS

PHT 6006 Programming Aids 1....4.95
PHT 6007 Teach Yourself 99/4A Basic....4.95
PHT 6019 Teach Yourself Extended Basic....4.95
PHT 6067 Beginning Basic Tutor....4.95

EDUCATION

MODULES

PHM 3002 Early Learning Fun....4.95
PHM 3003 Beginning Grammar....4.95
PHM 3010 Physical Fitness....4.95
PHM 3020 Music Maker....9.95
PHM 3004 Number Magic....9.95
PHM 3023 Weight Control & Nutrition....10.95
PHM 3109 TI Logo 11 (32K req.)....12.95
PHM 3043 Reading Fun....9.95
PHM 3046 Reading On....9.95
PHM 3047 Reading Roundup....9.95
PHM 3048 Reading Rally....9.95
PHM 3082 Reading Flight....9.95
PHM 3027 Addition & Subtraction 1....9.95
PHM 3028 Addition & Subtraction 11....9.95
PHM 3029 Multiplication 1....9.95
PHM 3048 Division 1....9.95
PHM 3051 Numeration 11....9.95
PHM 3061 Scholastic Spelling 5 (speech)....9.95
PHM 3091 Milliken Subtraction....9.95
PHM 3093 Milliken Division....9.95
PHM 3094 Milliken Integers....9.95
PHM 3098 Milliken Number Readiness....4.95
PHM 3099 Milliken Laws of Arithmetic....4.95
PHM 3101 Milliken Measurement of Formulas....4.95
PHM 3114 Alligator Mix....6.95
PHM 3115 Alien Addition....6.95
PHM 3118 Minus Mission....6.95
PHM 3177 Face Maker....9.95
PHM 3178 Story Machine....9.95

DISKETTE PROGRAMS

PHD 5009 Music Skills Trainer....4.95
PHD 5011 Computer Music Box....4.95
PHD 5018 Market Simulation....4.95
PHD 5030 Speak & Spell 11 (Ex Basic req.)....9.95
PHD 5031 Speak & Math (TE-11 req.)....4.95
PHD 5062 Spell Writer (TE-11 req.)....4.95
PHD 5026 Bridge Bidding 1....4.95
PHD 5039 Bridge Bidding 11....4.95
PHD 5041 Bridge Bidding 111....4.95
SPECIAL!! BRIDGE BIDDING 1,11&111....9.95
PHD 5020 Music Maker Demo (use with module!)....4.95
PHD 6010 Mystery Melody (stop the music quiz)....4.95

CASSETTE PROGRAMS*
*see disk versions for requirements i.e TE-11

PHT 6009 Music Skills Trainer....4.95
PHT 6010 Mystery Melody....4.95
PHT 6011 Computer Music Box....4.95
PHT 6018 Market Simulation....4.95
PHT 6031 Speak & Math....4.95
PHT 6042 Spell Writer....4.95
PHT 6026 Bridge Bidding 1....4.95
PHT 6039 Bridge Bidding 11....4.95
PHT 6041 Bridge Bidding 111....4.95
SPECIAL!! BRIDGE BIDDING 1,11&111....9.95
PHT 6020 Music Maker Demo (use with module)....4.95

MANAGEMENT AND BUSINESS

MODULES

PHM 3006 Home Financial Decisions....4.95
PHM 3007 Household Budget Management....4.95
PHM 3022 Personal

PHM 3006 Home Financial Decisions....4.95
PHM 3007 Household Budget Management....4.95
PHM 3022 Personal Real Estate....4.95
PHM 3016 Tax/Investment Rec. Keeping (disk req.)....4.95
PHM 3035 Terminal Emulator 11....9.95
PHM 3044 Personal Report Generator (PRK req.)....10.95
PHM 3113 Multiplan....14.95
PHM 3112 TI Writer....14.95
PHM 3013 Personal Record Keeping....15.95

DISKETTE PROGRAMS

PHD 5001 Mailing List (upgraded version)....4.95
PHD 5003 Personal Financial Aids....4.95
PHD 5021 Checkbook Manager....4.95
PHD 5022 Finance Manager....4.95
PHD 5024 Inventory Management....4.95
PHD 5027 Invoice Management....4.95
PHD 5029 Cash Management....4.95
PHD 5038 Lease/Purchase Decisions....4.95
PHD 5075 TI/Multiplan upgrade disk....4.95

CASSETTE PROGRAMS

PHT 6003 Personal Financial Aids....4.95
PHT 6038 Lease/Purchase Decisions....4.95

TI-COUNT BUSINESS SOFTWARE NEW LOW PRICE!

General Ledger
Accounts Receivable
Accounts Payable
Inventory
Payroll
Mail System

SPECIAL OFFER!!! ALL SIX PROGRAMS PLUS AUTO COUNT AUTO EXPENSE PRO(RAM..$89.95+s&h.

MATH AND ENGINEERING

specify disk or tape with order

Math Routine Library....4.95
Electrical Engineering Library....4.95
Graphing Package....4.95
Structural Engineering Library....4.95
AC Circuit Analysis....4.95
****SPECIAL--ALL 5 OF THE ABOVE ON DISK OR TAPE---17.95

TERMS: All prices FOB Los Angeles. For fastest service use cashiers check or money order. Add 3% shipping and handling ($3.00 minimum). East of Mississippi 4% (free shipping on all software orders over $100.00). COD to be paid by cash or certified check. All TI products are sold with the original manufacturer's guarantee only(sent on request). Prices and availability subject to change without notice. We reserve the right to limit quantities.

NOTE: Payment in full must accompany all orders. Credit Card, Company Check or Money Order for immediate shipment. Personal checks require up to 4 weeks to clear. California orders add 6½% sales tax.

TEX-COMP

America's Number One TI computer retailer

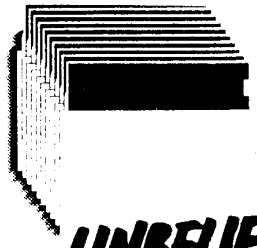
P.O. Box 33084, Granada Hills, CA 91344

VISA & MASTERCARD HOLDERS CALL DIRECT

VISA MasterCard

(818) 366-6631

24 HOURS A DAY
7 Days a Week!



DISCS, DISCS, DISCS!

LOWEST PRICED DISKETTES ANYWHERE!

UNBELIEVABLE SAVINGS!

LOWEST PRICES EVER!

13¢ EACH WHILE STOCKS LAST!

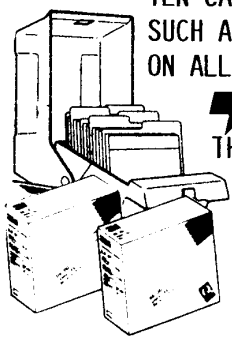
Includes Sleeves & Tabs

FAMOUS BRAND NAMES

SONY Verbatim A Kodak Company MEMOREX BASF Diskettes

Our BUYERS WERE ABLE TO BUY TRUCKLOADS OF THESE PREMIUM BRAND BOXED (NOT BULK) FLOPPY DISKS AT FANTASTIC SAVINGS AND NOW WE ARE PASSING THE SAVINGS ON TO YOU. ALL DISKS ARE PACKAGED IN BOXES OF TEN, FACTORY SEALED AND CERTIFIED AND COMPLETE WITH SLEEVES, LABELS AND WRITE PROTECT TABS. WHILE MANY OF THESE DISKS ARE FACTORY DESIGNATED AS SS/DD, WE HAVE TESTED HUNDREDS AND FOUND THEM TO FORMAT AND TEST DS/DD

BECAUSE OF THIS LABELING, WE ARE ABLE TO OFFER THESE TOP BRANDS AT ONLY $1.29 FOR A FACTORY SEALED CARTON OF TEN PLUS SHIPPING AND HANDLING. AT THESE PRICES WE MUST REQUIRE THAT A MINIMUM OF TEN CARTONS BE ORDERED ($12.90 FOR 100 DISKS). FOR LARGE USERS SUCH AS SCHOOLS, BUSINESSES AND USER GROUPS, WE PAY UPS SHIPPING ON ALL ORDERS OF 100 CARTONS OR MORE (CONTINENTAL US ONLY).



Super Deal: TWO BOXES OF DISKS (10 EA) AND ONE DISK CASE THAT HOLDS UP TO 50 DISKS FOR ONLY $4.95 (A $19.95 VALUE)

ATTENTION 3½" DISK USERS! WE HAVE A LIMITED QUANTITY OF NAME BRAND DISKS ALSO LABELED SS/DD WHICH FORMAT AND TEST AT DS/DD. WE ARE OFFERING THEM WHILE THEY LAST AT ONLY $2.49 FOR A FACTORY SEALED CARTON OF TEN.

SPECIAL ON COMPUTER SUPPLIES: WE HAVE MADE A SPECIAL PURCHASE ON MEMOREX BRAND TRACTOR DRIVE PRINTER PAPER, TRACTOR DRIVE ENVELOPES, AND TRACTOR DRIVE MAILING LABELS. EACH OF THESE PACKAGES RETAIL AT $9.95 AT ALL LEADING STORES. WE CAN OFFER THESE PRODUCTS ON A MIX OR MATCH BASIS IN ANY QUANTITY AT ONLY $1.99 EACH + S&H., AN UNBELIEVABLE BARGAIN. ALL FACTORY FRESH AND FACTORY SEALED.

TEX-COMP

Celebrating Our Tenth Year

P.O. Box 33084, Granada Hills, CA 91344

TERMS: All prices F.O.B. Los Angeles. For fastest service use cashiers check or money order. Add 3% shipping and handling ($3.00 Minimum). East of Mississippi 4½%. Add 3% for Credit Card orders. Prices and availability subject to change without notice. We reserve the right to limit quantities.

AUTHORIZED TI RESELLER

VISA MasterCard

(818) 366-6631

ORDER BY PHONE 24 HOURS A DAY 7 Days a Week!

NOTE: Payment in full must accompany all orders. Credit card, Company check or Money order for immediate shipment. Personal Checks require up to 4 weeks to clear. California orders add 6½% sales tax.

Contents

MICROpendium

MICROpendium (ISSN 10432299) is published monthly for $25 per year by Burns-Koloen Communications Inc., 16606 Terrace Dr., Austin, TX 78728-1156. Second-class postage paid at Austin, Texas, and additional mailing offices. POSTMASTER: Send address changes to MICROpendium, P.O. Box 1343, Round Rock, TX 78680-1343.

No information published in the pages of MICROpendium may be used without permission of the publisher, Burns-Koloen Communications Inc. Only computer user groups that have exchange agreements with MICROpendium may excerpt articles appearing in MICROpendium without prior approval.

While all efforts are directed at providing factual and true information in published articles, the publisher cannot accept responsibility for errors that appear in advertising or text appearing in MICROpendium. The inclusion of brand names in text does not constitute an endorsement of any product by the publisher. Statements published by MICROpendium which reflect erroneously on individuals, products or companies will be corrected upon contacting the publisher.

Unless the author specifies, letters will be treated as unconditionally assigned for publication, copyright purposes and use in any other publication or brochure and are subject to MICROpendium's unrestricted right to edit and comment.

Display advertising deadlines and rates are available upon request.

All correspondence should be mailed to MICROpendium at P.O. Box 1343, Round Rock, TX 78680. We cannot take responsibility for unsolicited manuscripts but will give consideration to anything sent to the above address. Manuscripts will be returned only if a self-addressed stamped envelope is included.

Foreign subscriptions are $30.25 (Mexico); $32.50 (Canada); $30.00, surface mail to other countries; $42 airmail to other countries.

All editions of MICROpendium are mailed from the Round Rock (Texas) Post Office.

Mailing address: P.O. Box 1343, Round Rock TX 78680

Telephone: (512) 255-1512

CompuServe: 75156,3270
Delphi TI NET: MICROPENDIUM
GEnie: J.Koloen

John Koloen.....**Publisher**
Laura Burns.....**Editor**

Regena on BASIC
Fairisle pattern design ..... Page 9

Chicago TI Fair
More than 60 vendors slated at Nov. 3 event ..... Page 12

Extended BASIC
Plotting the flow of oil ..... Page 13

MY-BASIC
A patch and a game of Keno ..... Page 17

TI-Base
Creating a data file ..... Page 19

Newsbytes
A new Texaments catalog, a fair that wasn't, and a new address for KB Computer concepts ..... Page 25

More BBS listings
Numbers for your computer to dial ..... Page 25

Get the picture
Using The Missing Link and TI-Artist to brighten your TI-Writer documents ..... Page 26

Dr. Nim
Play against the computer ..... Page 29

Reviews
Micro-reviews: Extended BASIC Tutorials, Starfleet Drawings III, TIsHUG, Logo Video Instruction ..... Page 33

User Notes
Notes on Diskreview, a Reminders calendar, and PEEKs for converting Apple programs ..... Page 35

Classified ..... Page 38

***READ THIS**

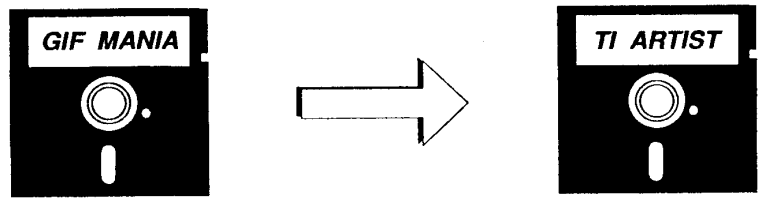
Here are some tips to help you when entering programs from MICROpendium:
1. All BASIC and Extended BASIC programs are run through Checksum, the numbers that follow exclamation points at the end of each program line. Do not enter these numbers or exclamation points. Checksum was published in the October 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 hottest utility of the year has arrived!!!
GIF Mania is a "must have" for all graphics enthusiasts.

GIF MANIA

Imagine having the world's largest collection of clip-art and scanned images at your fingertips. Sounds like a dream come true, right? Perhaps. But what if dreams did come true... if they did, and they sometimes do, this dream would be called GIF Mania!

That's right, now all 99ers have the world's largest collection of artwork at their fingertips. For the first time ever, using GIF Mania, industry standard GIF files can be viewed on an ordinary TI-99/4a. In addition, GIF Mania can convert any GIF file into a standard TI Artist file. When in TI Artist format you can do virtually anything can be with the image -- it can be altered, printed, and even be used to create animated movie sequences!

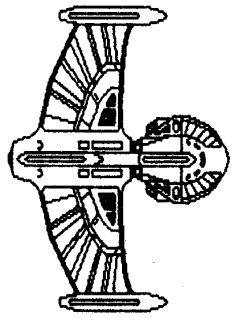


But wait a minute!!! If you don't already know what a GIF image is, you may be scratching your head about now. No need to worry... we'll let you in on this little secret of ours. GIF, which stands for Graphics Interchange Format, is a universal graphics format that was originally developed by CompuServe Information Services. CompuServe (which by the way is the largest provider of on-line information services in the United States) developed this format so that users of all different computers could exchange graphics files regardless of what computer platform (IBM, Apple, Commodore, Atari, or TI) they were using. Well, needless to say, the GIF format took hold and is now a world-wide graphics standard. Over one hundred thousand GIF images exist throughout the world today, many of which are available to you free through on-line services such as CompuServe, Genie and Delphi. In addition, many user group libraries already have GIF files in them.

GIF Mania is not only a true "wonder" program (this is yet another thing the experts said couldn't be done), it's easy-to-use as well. Fully menu driven, GIF Mania puts you in control of the world's largest collection of artwork. **Only $14.95**

A small collection of GIF files is included free with GIF Mania. GIF Mania will operate on the Geneve in GPL mode with the same color limitations of the TI-99/4a.

Starfleet Technical Drawings III



Starfleet III has officially been launched!!! This incredible collection of all new precision drawings features the spacecraft that have appeared in original Star Trek television series, the syndicated Star Trek: The Next Generation television series, and the five Star Trek major motion pictures from Paramount. Drawings included in Starfleet III are: civilian starships from various world members of the Federation (including Earth, Vulcan, Alpha Centauri and Andorian), starships from the Federation adversary worlds (including the Romulans, The Gorn Empire, Orion Pirates and the Tholian Assembly), the latest two versions of the Starship Enterprise as seen on a recent episode of Star Trek: The Next Generation, (1701-B and 1701-C), a chart comparing all five USS Enterprises, numerous recognition charts of Federation, Romulan and Klingon starships shown in scale to each other, and miscellaneous Federation and Klingon starships. In addition to the drawings, each disk of the Starfleet disks includes a small command file that allows the drawings to be viewed in an automated slide show format using Display Master (sold separately). Plus, two extraordinary battle scenes are also included. ***$12.95 for all 4 disks!***

Special Offer!!!
Order all three Starfleet Technical Drawings Volumes for only $27.95!!!

TEXAMENTS

Office: (516)475-3480 53 Center Street, Patchogue, New York 11772 BBS: (516)475-6463

Please add $3.00 for domestic first class (and Canadian) delivery, $8.50 for foreign insured air mail delivery. Orders are usually shipped within a 48 hour period.

Comments

Will Triton mail another catalog?

I am not expecting to see another TI catalog from Triton Products. The most recent catalog was mailed in the fourth quarter last year. That's a long time between mailings for a mail-order company. Until 1990, Triton had mailed at least two catalogs per year. As you may know, Triton was bought out last year by Activision, a company with absolutely no connection with the TI market. I hate to see Triton leave the market, but it is inevitable. Sooner or later the company's profits on TI sales was bound to bottom out. This means that two large vendors of TI products have bowed out of the market, leaving only Tex-Comp still standing.

DIJIT DROPS OUT

DIJIT Systems, which marketed an RGB conversion kit and 80-column card for the TI, is no longer going to produce its 80-column card. Call the Advanced Video Processor Card, the card provides an 80-column display using the 99/4A. Reason for dropping the card is the shrinking size of the market.

But that doesn't mean others aren't producing 80-column cards. Asgard has plans to market the Mechatronics 80-column device — it does not plug into the PEB — and word is that Gary Bowser of O.P.A. will be selling an 80-column board using a 9958 chip that is installed in the 99/4A console. This may be available this fall at a price in the $150 range. Turning the TI console into an 80-column device strikes me as close to being revolutionary.

SOME GOOD NEWS

Now here's some good news: More than 60 vendors will be displaying their wares at the Chicago TI Faire, Nov. 3. If I'm not mistaken, that's an all-time high for TI fairs.

MYARC NOTES

Don't hold your breath, but Myarc was expected to release version .98h of its MDOS program sometime in October. This would upgrade V .97h. If it is released, it would mark the first revision to be released since last fall.

Here is the gist of a download from Delphi about Myarc. It was posted by Beery Miller, who publishes the disk-based 9640 News, and he says the information came from a phone conversation with Lou Phillips.

- Don't look for any new major hardware or software from Myarc. Basically, this means that GEME is dead.
- There aren't many Geneves currently available. The word is that Myarc had shipped the machine to Triton for fall and Christmas sales, but I doubt many will be sold through that venue. According to Miller, only two unsold Geneves are known to be on dealers' shelves. Myarc is supposed to be working to fill back orders.
- No information was available regarding future shipments of the Hard & Floppy Disk Controller.

Lou Phillips of Myarc is working another job, recently adopted a baby and has just about run out of time for anything but small projects. He personally repairs disk controllers and RS232 cards while sending out HFDC and Geneve's out for repairs, according to Sproull. Lou sounds like a very busy man. As we say in the publishing business, welcome to the real world.

BETTER THAN THE MAC

Don Shorock's Japanese disks on the TI have proven to be more useful for studying the language than Japanese tutorials done on the Macintosh, according to a 15-year-old high school sophomore who is studying Japanese. "The Shorock program teaches Katakama and Hiragana, the two Kana, or syllabaries, like print and cursive in the Roman alphabet," he says.

CHANGE OF ADDRESS

Most change of address cards we receive have to do with moving from city to city, or state to state. But change of address cards we've been receiving from some European subscribers reflect country to country changes, such as from West Germany, or the Federal Republic of Germany, to just plain Germany. It's a small change on a envelope but a big change in Bonn and Berlin.

—JK

READER TO READER

Tom Walsh, 65 Bennett Ave., Binghamton, NY 13905, would like to find a program to maintain the statistics and records for a "fantasy football league."

We regret that we failed to give Olden Warren's complete address last month. His complete address is 4016 Weber Way, Lexington, KY 40514.

Quinton Diggs telephoned to thank persons who answered his two inquiries printed last month. At the time of the call, he had received around 20 replies, he says.

60+ vendors to show wares at 8th Chicago TI Faire Nov. 3

Organizers of the Eigth annual TI99/4A fair sponsored by the Chicago Area TI99/4A Users Group, the Chicago TI International World Faire, say that more than 60 vendors of hardware and software are scheduled to have booths at the event Nov. 3 in Rolling Meadows, Illinois.

The Faire is scheduled for 9 a.m.-6 p.m. at the Holiday Inn, 3505 Algonquin Rd., in Rolling Meadows.

A partial list of vendors, according to Hal Shanafield, Faire chairman, includes Bruce Harrison of Harrison Software; Bud Mills Services; Competition Computer; H and H Direct; L.L. Conner Enterprises, TI99/4A and CC40 equipment; Jim Yeaman of Prodigy Services, with the Prodigy Board (a hospitality suite will be sponsored at the Faire by Prodigy Services, a computer network); Notung Software, whose principals are Ray Kazmer and Ken Gilliland; John McDevitt of Rave 99, with the PE/2, a new peripheral expansion box; Roy Hunter of Hunter Electronics; Chris Pratt of ESD, maker of a new hard and floppy disk controller; Mike Sealy and Mickey Schmitt of MS Express; MICROpendium; and a number of users' groups and "generic vendors."

He said potential attendees not yet confirmed at press time included Asgard Software, JP Software, Comprodine Software, Oasis Pensive Abucators, Texaments and Myarc.

A number of seminars are scheduled on the TI99/4A and Geneve, including a "surprise out of town guest" brought in at the group's expense, according to Shanafield.

Faire admission to non-members of the Chicago group is $4.

A social mixer will be held from 8 p.m. to midnight Nov. 2. Admission is $5.

An After-the-Faire Celebration dinner is scheduled for 6-9:30 p.m. Nov. 3. Admission is $15 and reservations are necessary.

Shanafield says prices for the event have remained the same as last year though costs for the group has increased.

Informative seminars are a highlight of the Chicago fair for many visitors.

For more information, contact Shanafield between 2 p.m. and 10 p.m. at (708) 864-8644; the Chicago Area TI Users' Group Hot Line (708) 869-4304; or the BBS, (708) 862-0182.

The Faire is being held in conjunction with the Milwaukee TI Faire, 9 a.m.-5 p.m. Nov. 4 at the Quality Inn, 5311 South Howell Ave., Milwaukee, Wisconsin. Admission to the Milwaukee Faire is $2 (advance tickets $1). For more information on the Milwaukee Faire, contact Gene Hitz at (414) 535-0133.

Features of Triad for Geneve outlined

Triad for the Geneve, by Wayne Stith, is one program that should gain a lot of devotees when it is released. Developed by Wayne Stith, who released Triad for the 99/4A in 1988, provides telecommunications, word processing and floppy disk management functions in one program.

The telecommunications part of the program includes an autodialer, 24K text buffer, and supports ASCII, XMODEM, 1KXMODEM and YMODEM data transfers. It also features macros — up to 76 bytes each — and the ability to boot such telecommunications protocols as Kermit, ZMODEM and BIMODEM. Other features include a script language to automate telecommunications, such as uploading and downloading of files; on-line help screen; and a conference mode with a separate window at the bottom of the screen.

The word processor segment allows the user to hold up to nine documents in memory simultaneously (approximately 90K will be available for files). Other features include true word wrap, the use of highlighted block marking for deleting, copying, moving, printing or saving blocks of text. Control codes for printers will be executed through macros. Keypresses are largely consistent with TI-Writer. Text files can be loaded and saved in D/V80 format, such as with TI-Writer and MY-Word, and in D/F 128 format.

The floppy disk manager performs all of the normal functions — copying, formatting, etc. — and also has provisions for recovering lost files. The manager also supports some hard disk functions, including copying of files between the hard disk and a floppy, a floppy and a hard disk or between directories on the hard disk.

Feedback

Open letter to TI99/4A suppliers

About a month ago, I called 1-800-TI-CARES and requested information regarding availability of software for the TI99/4A. When I found that Tigercub was not on their list, I mailed them a copy of my TI-PD catalog with a letter describing my several years of support of the TI community, and requested that I be added to their list of vendors. I had made a similar request at least twice in the past.

Today I received a reply from Tom Shields, manager of consumer relations of Texas Instruments, stating, "Although we appreciate the information that you provided, we are unable to add Tigercub to our referral list as a third-party supplier."

Today I also received a copy of a letter recently received by a TI user from Consumer Relations of Texas Instruments, stating that, effective April 1, 1984, Texas Instruments no longer sold products for the TI99/4A but "if you are unable to find these items locally, you may want to try companies such as the following: Triton 800/277/6900 and Tenex 800/348/1778." The letter further stated, "We have provided a listing of some third-party suppliers to assist you. While the enclosed list is not comprehensive, we do feel that it may be helpful." The enclosed list gives the addresses and phone numbers of Alboes Computer Supplies, Competition Computer Products, Hunter Electronics, Joy Electronics and Pilgrim's Pride.

Tenex definitely informed me months ago that they no longer carried anything for the TI99/4A, and yesterday I received information that Triton is selling out its stock at greatly reduced prices. The other firms are still in business, as far as I know, but only Joy Electronics is actively advertising to the TI world *(As far as we are aware, Pilgrim's Pride has been out of the TI market for some time. — Ed.)*

I called Mr. Shields for an explanation of his refusal to list my company. He informed me that Texas Instruments had adopted a policy of not adding any more suppliers to its list. He also stated that Texas Instruments wanted only to provide callers with names of firms which had an 800 number, because that is what the callers asked for.

Texas Instruments is infamous for its poor management decisions regarding the TI99/4A computer, and this is another poor decision. By providing such an incomplete list, they are depriving their previous customers of information regarding the wealth of new hardware and software available, they are giving the false impression that very little support remains and they are discriminating in favor of the few companies they have chosen to list.

However, there is little that we can do about it. People are still pulling TIs out of the closet and picking them up at yard sales. They need a way to find the TI world.

As far as I know, only two newsstand publications still contain the word "TI99/4A." Under that heading, *Computer Shopper* carries one little classified ad — by Tigercub Software! — and the bimonthly user group listing contains the names of 47 TI user groups, out of well over 200, who have bothered to keep themselves listed by FOG. *Vulcan's Computer Buyer's Guide* (still not widely available on newsstands) contains an article by Barry Traver, two classified ads — one of them by Tigercub! — and the bimonthly FOG listing of user groups.

My ads do not bring much response, neither does my other advertising, and I expect to go out of business as soon as I can get my ads and my supplies to run out at the same time. If an offer of more than 400 disks full of public domain at $1.50 per disk cannot arouse enough interest to make it worthwhile to continue, I cannot see how anyone can afford to continue trying to support the TI community. However, I would like to see the TI kept alive for as long as possible.

I therefore suggest that the TI hardware and software suppliers get together to jointly run an ad in as many newsstand publications as possible, stating that "the TI99/4A is still alive" and providing an address and phone number where people can obtain a listing of suppliers, catalogs, flyers, etc. However, I am *not* volunteering to be that address or phone number!

One more point. MICROpendium is the one publication that is still holding the TI community together. John Koloen and Laura Burns are extremely generous in publishing product announcements and reviews. Yet only a handful of suppliers are carrying an ad in that magazine. Can't you possibly give them a little support?

Jim Peterson
Tigercub Software
Columbus, Ohio

Tom Shields at TI told MICROpendium that TI "has no problem adding third-party suppliers" to its list. He did confirm that they list suppliers with toll-free numbers because that is what customers request. He says also that the company wants to add only companies with an array of hardware and software and which provide an avenue of service in case of a problem with a product.

TI-Base problem misunderstood

I think that you misunderstood Mr. Joe Williams' problem regarding the instructions for TI-Base (Feedback Sept. 1990).

What Mr. Williams needs is a set of instructions that will take the various bits and pieces described in the instruction booklet and put them together into a usable data base system. The use of CONVERT and PRINTER by Bill Gaskill is good, but one must have a data file and/or command file in order to use them.

I had the same problem as Mr. Williams until I read the "Readme" file on the V. 2.04 disk and obtained the tutorials from Mr. Smoley of the Cleveland Area TI99/4A Users Groups. Following his tutorials has not solved all my problems, but they have made the use of TI-Base a lot more productive.

Robert L. Criswell
Florham Park, New Jersey

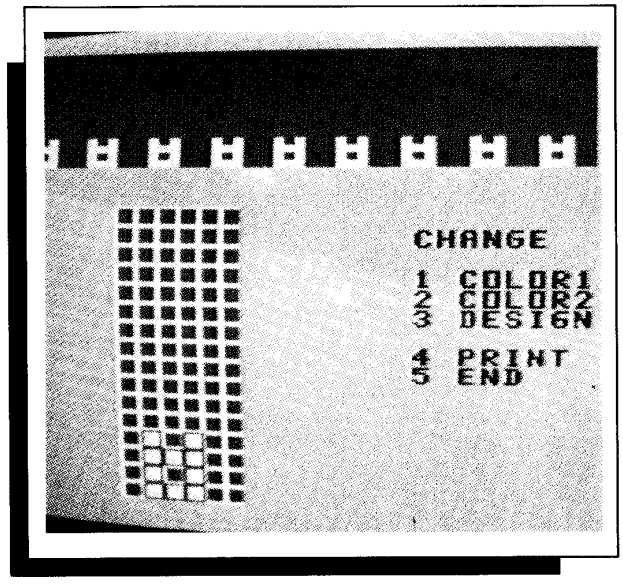
***Feedback is a forum for TI99/4A and Geneve 9640 users. The editor will condense submissions when necessary. We ask readers to restrict themselves to one subject for the sake of simplicity. Mail Feedback items to:* MICROpendium, P.O. Box 1343, Round Rock, TX 78680.**

BASIC

Fairisle pattern design

By REGENA

I have been busy this past month knitting sweaters (both by hand and by machine) in school colors to try to raise money for our high school athletic teams. Some of the patterns are the "nordic" or "islandic" style with a fairisle color design knit in. This style is a pattern using two or more colors. So that I don't get too bored knitting the same kind of sweater each time, I vary the fairisle pattern with each sweater.



The computer can be used to design the patterns so an actual sample doesn't need to be knit for each variation. And, of course, the TI is ideal with its available colors and graphics. This month's program will let you design a pattern, like coloring in graph paper. After one basic design is made, the pattern is shown by repeating the pattern across the screen.

This program isn't just for knitters. You may use these patterns for border designs in cross stitch or filet crochet or Indian beads, or just for fun on the computer.

I limited this program to use a two-color scheme because I prefer working with only two strands of yarn at a time on each row or round. However, more colors may be added by using two colors on one section of the pattern and two different colors on another section. The first step in the program is to choose the two colors. Use the space bar to step through the colors and press the Enter key to select the colors.

The next step is to choose the stitch repeat, 4, 6 or 12. This means the pattern repeats every 4, 6 or 12 stitches. Most patterns seem to fit in these repeat widths. The 12-stitch repeat pattern is ideal for punch-card knitting machines, and the 4- and 6-stitch repeats may be adapted to that 12-stitch card.

After you have chosen the number of stitches in the pattern, the screen clears and a grid is shown the width of the repeat pattern and 16 rows high. Use the arrow keys on the E, S, D, X keys to move the cursor. Use the Enter key to change the color of the indicated square. When you have completed designing the pattern, press the "P" key to see the pattern.

The computer then starts at the bottom of the graph and prings the pattern across the top six rows of the screen with enough repeats that you can see how the pattern would look. In knitting, each stitch is not really a square. For example, with No. 8 needles and four-ply yarn I get four stitches per inch and almost six rows per inch. The pattern drawn at the top of the screen approaches the knit dimension by using "stitches" 3 pixels high and 4 pixels wide. This involves extra programming calculations to define the 8x8 graphic characters. The subroutines in Lines 2500-3090 define the characters depending on the larger basic design you made.

After the pattern is shown, you may change colors or change the design, or print the pattern on the printer, or end the program. To change colors, select 1 or 2 for the color, and then use the space bar to see the colors and the Enter key to select. All the colors in the pattern will change immediately with the design staying the same.

If you choose to change the design, the cursor appears on the bottom row and you proceed just as before with the arrow keys and Enter key. This time whenever you press Enter, the repeated pattern at the top of the screen also shows your change. Press "P" for Pattern when you're through designing.

You may get a printed copy of your pattern if you wish. Be sure to put your printer configuration in Line 2050 as you are typing in this program or before you run the program. The pattern will be printed using X and O characters. If you use a punchcard knitting machine, you may then punch a card using this printed pattern.

L$( ) keeps track of the character definitions. Each character actually has six or eight graph squares in its definition. X$ is a temporary character definition. XX( ) contains variables used when changing the design to calculate the present character number and the right way to redefine the appropriate character.

R is the number of stitches in the repeat, and CR is the number of times that pattern may be printed across the screen. RPT is the number of graphic characters in the width of one pattern. CH is the character number.

Lines 810-1110 contain the arrow key procedure in the design process. Lines 1120-1510 condense the 16 rows into six graphics rows. Lines 1540-1690 print the options after the complete pattern is shown.

The characters used in the big design graph are 96 and 98, and you toggle between colors by using the SGN function. After the design is complete, CALL GCHAR is used to see if the square of color is character 96 or 98 for the two colors. Depending on which row the square is located, the appropriate subroutine is chosen to define the character. SEG$ is used to place "F" or "0" in the character definition in the correct place.

If you prefer to save typing efforts, you may have a copy of this program by sending $4 to *REGENA, 918 Cedar Knolls West, Cedar City, UT 84720.* Be sure to specify that you need "Fairisle Patterns" for the TI and whether you need cassette or diskette. By the way, since I am in the middle of fundraising for my son's football and baseball teams, proceeds from this month's disk orders will be donated to Cedar High School. Thanks!

REGENA ON BASIC—

```
100 REM FAIRISLE PATTERNS !1
86
110 REM BY REGENA !071
120 DIM L$(36),XX(16,3)!074
130 CALL CLEAR !209
140 CALL SCREEN(8)!153
150 CALL CHAR(96,"FF81818181
8181FF")!069
160 CALL CHAR(98,"007E7E7E7E
7E7E")!255
170 CALL CHAR(104,"FF8181818
18181FF")!108
180 PRINT " ** FAIRISLE PATT
ERNS **" !099
190 PRINT : :"YOU MAY CHOOSE
 TWO COLORS" !215
200 PRINT :"THEN DESIGN A PA
TTERN." !004
210 PRINT :"THE PATTERN WILL
 BE REPEATEDACROSS THE SCREE
N." !168
220 FOR C=105 TO 140 !255
230 L$(C-104)="0000000000000
000" !215
240 NEXT C !217
250 FOR C=1 TO 16 !105
260 READ XX(C,1),XX(C,2),XX(
C,3)!039
270 NEXT C !217
280 DATA 1,11,1,2,11,1,3,4,1
,5,11,2,6,11,2,7,8,2,9,11,3,
10,11,3 !160
290 DATA 1,11,4,2,11,4,3,4,4
,5,11,5,6,11,5,7,8,5,9,11,6,
10,11,6 !184
300 PRINT : :"CHOOSE THE FIR
ST COLOR." !027
310 PRINT :"USE THE SPACE BA
R TO CHANGE COLOR; PRESS <EN
TER> TO":"SELECT.": :!128
320 C1=2 !045
330 CALL COLOR(9,2,C1)!045
340 CALL KEY(3,K,S)!190
350 CALL HCHAR(24,10,32)!045
360 CALL HCHAR(24,10,96)!055
370 IF K=13 THEN 410 !207
380 IF K<>32 THEN 340 !075
390 C1=C1+1 !097
400 IF C1=17 THEN 320 ELSE 3
30 !055
410 PRINT : : : :"CHOOSE THE
 SECOND COLOR.": :!036
420 C2=2 !046
430 IF C1<>2 THEN 450 !174
440 C2=3 !047
450 CALL COLOR(10,2,C2)!087
460 CALL KEY(3,K,S)!190
470 CALL HCHAR(24,10,32)!045
480 CALL HCHAR(24,10,104)!09
4
490 IF K=13 THEN 550 !092
500 IF K<>32 THEN 460 !195
510 C2=C2+1 !099
520 IF C2<>C1 THEN 540 !131
530 C2=C2+1 !099
540 IF C2=17 THEN 420 ELSE 4
50 !020
550 FOR S=10 TO 14 !168
560 CALL COLOR(S,C1,C2)!248
570 NEXT S !233
580 PRINT : : : :"CHOOSE: 1
 4-STITCH REPEAT" !238
590 PRINT TAB(9);"2  6-STITC
H REPEAT" !025
600 PRINT TAB(9);"3 12-STITC
H REPEAT" !039
610 CALL KEY(3,K,S)!190
620 IF (K<49)+(K>51)THEN 610
 !120
630 ST=K-48 !168
640 ON ST GOSUB 2180,2220,22
60 !166
650 CALL CLEAR !209
660 PRINT "TO CREATE THE DES
IGN, USE" !007
670 PRINT :"THE ARROW KEYS T
O MOVE THE" !053
680 PRINT :"CURSOR.  PRESS E
NTER TO" !105
690 PRINT :"CHANGE THE COLOR
 OF THAT" !124
700 PRINT :"SQUARE." !030
710 PRINT : :"PRESS P TO SHO
W THE PATTERN" !072
720 PRINT :"ON THE SCREEN."
!210
730 PRINT : : :"PRESS <ENTER
> TO START." !221
740 CALL KEY(3,K,S)!190
750 IF K<>13 THEN 740 !219
760 CALL CLEAR !209
770 CALL COLOR(9,C1,C2)!167
780 FOR ROW=9 TO 24 !037
790 CALL HCHAR(ROW,8,96,R)!2
18
800 NEXT ROW !142
810 X=24 !070
820 Y=8 !024
830 CALL GCHAR(X,Y,G)!154
840 CALL KEY(3,K,S)!190
850 CALL HCHAR(X,Y,32)!131
860 CALL HCHAR(X,Y,G)!155
870 IF S<1 THEN 840 !084
880 IF K=80 THEN 1120 !156
890 IF K=13 THEN 1060 !092
900 IF K<>68 THEN 940 !174
910 IF Y=7+R THEN 840 !114
920 Y=Y+1 !043
930 GOTO 830 !144
940 IF K<>69 THEN 980 !215
950 IF X=9 THEN 840 !096
960 X=X-1 !042
970 GOTO 830 !144
980 IF K<>83 THEN 1020 !251
990 IF Y=8 THEN 840 !096
1000 Y=Y-1 !044
1010 GOTO 830 !144
1020 IF K<>88 THEN 840 !076
1030 IF X=24 THEN 840 !142
1040 X=X+1 !041
1050 GOTO 830 !144
1060 DG=SGN(G-97)!202
1070 G=G-DG*2 !087
1080 CALL HCHAR(X,Y,G)!155
1090 IF T<3 THEN 840 !087
1100 GOSUB 3100 !120
1110 GOTO 840 !154
1120 IF T=3 THEN 1520 !000
1130 ROW=24 !230
1140 PR=6 !095
1150 DCH=105 !238
1160 FOR T=1 TO 2 !068
1170 GS=1 !082
1180 GOSUB 2440 !225
1190 ROW=ROW-1 !106
1200 GS=2 !083
1210 GOSUB 2440 !225
1220 ROW=ROW-1 !106
1230 GS=3 !084
1240 GOSUB 2440 !225
1250 DCH=DCH+RPT !019
1260 PR=PR-1 !190
1270 GS=4 !085
1280 GOSUB 2440 !225
1290 ROW=ROW-1 !106
1300 GS=5 !086
1310 GOSUB 2440 !225
1320 ROW=ROW-1 !106
1330 GS=6 !087
1340 GOSUB 2440 !225
1350 ROW=ROW-1 !106
1360 GS=7 !088
1370 GOSUB 2440 !225
1380 PR=PR-1 !190
1390 DCH=DCH+RPT !019
1400 GS=8 !089
1410 GOSUB 2440 !225
```

(See Page 11)

REGENA ON BASIC —

(Continued from Page 10)

```
1420 ROW=ROW-1 !106
1430 GS=9 !090
1440 GOSUB 2440 !225
1450 ROW=ROW-1 !106
1460 GS=10 !131
1470 GOSUB 2440 !225
1480 ROW=ROW-1 !106
1490 PR=PR-1 !190
1500 DCH=DCH+RPT !019
1510 NEXT T !234
1520 RESTORE 1580 !143
1530 CALL SOUND(200,1000,2)!
171
1540 FOR E=1 TO 38 !111
1550 READ H,V,L !231
1560 CALL HCHAR(H,V,L)!141
1570 NEXT E !219
1580 DATA 10,22,67,10,23,72,
10,24,65,10,25,78,10,26,71,1
0,27,69 !222
1590 DATA 12,22,49,12,24,67,
12,25,79,12,26,76,12,27,79,1
2,28,82,12,29,49 !171
1600 DATA 13,22,50,13,24,67,
13,25,79,13,26,76,13,27,79,1
3,28,82,13,29,50 !162
1610 DATA 14,22,51,14,24,68,
14,25,69,14,26,83,14,27,73,1
4,28,71,14,29,78 !170
1620 DATA 16,22,52,16,24,80,
16,25,82,16,26,73,16,27,78,1
6,28,84 !254
1630 DATA 17,22,53,17,24,69,
17,25,78,17,26,68,17,26,68 !
094
1640 CALL KEY(3,K,S)!190
1650 IF (K<49)+(K>53)THEN 16
40 !132
1660 ON K-48 GOSUB 1700,1870
,1980,2050,3250 !168
1670 CALL SOUND(100,1000,2)!
170
1680 IF K-48=3 THEN 810 !039
1690 GOTO 1640 !189
1700 CALL HCHAR(12,21,98)!05
6
1710 CALL COLOR(9,C1,C2)!167
1720 CALL KEY(3,K,S)!190
1730 CALL HCHAR(12,21,32)!04
4
1740 CALL HCHAR(12,21,98)!05
6
1750 IF K=13 THEN 1810 !077
1760 IF K<>32 THEN 1720 !180
1770 C1=C1+1 !097
1780 IF C1<17 THEN 1710 !022
1790 C1=2 !045
1800 GOTO 1710 !003
1810 FOR S=9 TO 14 !127
1820 CALL COLOR(S,C1,C2)!248
1830 NEXT S !233
1840 CALL HCHAR(12,21,32)!04
4
1850 CALL HCHAR(13,21,32)!04
5
1860 RETURN !136
1870 CALL HCHAR(13,21,96)!05
5
1880 CALL COLOR(9,C1,C2)!167
1890 CALL KEY(3,K,S)!190
1900 CALL HCHAR(13,21,32)!04
5
1910 CALL HCHAR(13,21,96)!05
5
1920 IF K=13 THEN 1810 !077
1930 IF K<>32 THEN 1890 !095
1940 C2=C2+1 !099
1950 IF C2<17 THEN 1880 !194
1960 C2=2 !046
1970 GOTO 1880 !174
1980 FOR H 10 TO 17 !160
1990 CALL HCHAR(H,22,32,8)!2
52
2000 NEXT H !222
2010 RETURN !136
2020 REM PRINTING !069
2030 REM PUT YOUR PRINTER !1
34
2040 REM CONFIGURATION HERE
!246
2050 OPEN #1:"RS232.BA=600"
!222
2060 FOR ROW=9 TO 24 !037
2070 FOR COL=8 TO 7+R !237
2080 CALL GCHAR(ROW,COL,G)!1
91
2090 P$="O" !073
2100 IF G=96 THEN 2120 !139
2110 P$="X" !082
2120 PRINT #1:P$;!112
2130 NEXT COL !116
2140 PRINT #1 !147
2150 NEXT ROW !142
2160 CLOSE #1 !151
2170 RETURN !136
2180 R=4 !013
2190 RPT=2 !175
2200 CR=14 !130
2210 RETURN !136
2220 R=6 !015
2230 RPT=3 !176
2240 CR=9 !085
2250 RETURN !136
2260 R=12 !061
2270 RPT=6 !179
2280 CR=5 !081
2290 RETURN !136
2300 AA=INT(A/2)!124
2310 PC=3+AA !144
2320 CH=DCH+AA !091
2330 X$=L$(CH-104)!196
2340 CALL GCHAR(ROW,A+7,G1)!
020
2350 CALL GCHAR(ROW,A+8,G2)!
022
2360 RETURN !136
2370 L$(CH-104)=X$ !196
2380 CALL CHAR(CH,X$)!174
2390 FOR CC=1 TO CR !016
2400 CALL HCHAR(PR,PC,CH)!09
9
2410 PC=PC+RPT !155
2420 NEXT CC !028
2430 RETURN !136
2440 FOR A=1 TO R STEP 2 !05
3
2450 GOSUB 2300 !084
2460 ON GS GOSUB 2500,2560,2
620,2680,2740,2800,2860,2920
,2980,3040 !124
2470 GOSUB 2370 !155
2480 NEXT A !215
2490 RETURN !136
2500 X$=SEG$(X$,1,10)&"00000
0" !043
2510 IF G1=96 THEN 2530 !087
2520 X$ SEG$(X$,1,10)&"F0F0F
0" !109
2530 IF G2=96 THEN 2550 !108
2540 X$=SEG$(X$,1,11)&"F"&SE
G$(X$,13,1)&"F"&SEG$(X$,15,1
)&"F" !233
2550 RETURN !136
2560 X$=SEG$(X$,1,4)&"000000
"&SEG$(X$,11,6)!007
2570 IF G1=96 THEN 2590 !148
2580 X$ SEG$(X$,1,4)&"F0F0F0
"&SEG$(X$,11,6)!073
2590 IF G2=96 THEN 2610 !169
2600 X$=SEG$(X$,1,5)&"F"&SEG
$(X$,7,1)&"F"&SEG$(X$,9,1)&"
F"&SEG$(X$,11,6)!105
2610 RETURN !136
2620 X$="0000"&SEG$(X$,5,12)
!207
2630 IF G1=96 THEN 2650 !208
```

(See Page 12)

REGENA ON BASIC—

(Continued from Page 11)

```
2640 X$="FØFØ"&SEG$(X$,5,12)
!251
2650 IF G2=96 THEN 2670 !229
2660 X$=SEG$(X$,1,1)&"F"&SEG
$(X$,3,1)&"F"&SEG$(X$,5,12)!
192
2670 RETURN !136
2680 X$=SEG$(X$,1,14)&"ØØ" !
107
2690 IF G1=96 THEN 2710 !012
2700 X$=SEG$(X$,1,14)&"FØ" !
129
2710 IF G2=96 THEN 2730 !033
2720 X$=SEG$(X$,1,15)&"F" !0
81
2730 RETURN !136
2740 X$=SEG$(X$,1,8)&"ØØØØØØ
"&SEG$(X$,15,2)!Ø11
2750 IF G1=96 THEN 2770 !072
2760 X$=SEG$(X$,1,8)&"FØFØFØ
"&SEG$(X$,15,2)!Ø77
2770 IF G2=96 THEN 2790 !093
2780 X$=SEG$(X$,1,9)&"F"&SEG
$(X$,11,1)&"F"&SEG$(X$,13,1)
&"F"&SEG$(X$,15,2)!197
2790 RETURN !136
2800 X$=SEG$(X$,1,2)&"ØØØØØØ
"&SEG$(X$,9,8)!221
2810 IF G1=96 THEN 2830 !133
2820 X$=SEG$(X$,1,2)&"FØFØFØ
"&SEG$(X$,9,8)!Ø31
2830 IF G2=96 THEN 2850 !154
2840 X$=SEG$(X$,1,3)&"F"&SEG
$(X$,5,1)&"F"&SEG$(X$,7,1)&"
F"&SEG$(X$,9,8)!Ø59
2850 RETURN !136
2860 X$="ØØ"&SEG$(X$,3,14)!1
Ø9
2870 IF G1=96 THEN 2890 !193
2880 X$="FØ"&SEG$(X$,3,14)!1
31
2890 IF G2=96 THEN 2910 !214
2900 X$=SEG$(X$,1,1)&"F"&SEG
$(X$,3,14)!Ø37
2910 RETURN !136
2920 X$=SEG$(X$,1,12)&"ØØØØ"
 !203
2930 IF G1=96 THEN 2950 !253
2940 X$=SEG$(X$,1,12)&"FØFØ"
 !247
2950 IF G2=96 THEN 2970 !Ø18
2960 X$=SEG$(X$,1,13)&"F"&SE
G$(X$,15,1)&"F" !Ø3Ø
2970 RETURN !136
2980 X$=SEG$(X$,1,6)&"ØØØØØØ
"&SEG$(X$,13,4)!Ø09
2990 IF G1=96 THEN 3010 !Ø57
3000 X$=SEG$(X$,1,6)&"FØFØFØ
"&SEG$(X$,13,4)!Ø75
3010 IF G2=96 THEN 3030 !Ø78
3020 X$=SEG$(X$,1,7)&"F"&SEG
$(X$,9,1)&"F"&SEG$(X$,11,1)&
"F"&SEG$(X$,13,4)!151
3030 RETURN !136
3040 X$="ØØØØØ"&SEG$(X$,7,1
Ø)!Ø49
3050 IF G1=96 THEN 3070 !117
3060 X$="FØFØFØ"&SEG$(X$,7,1
Ø)!115
3070 IF G2=96 THEN 3090 !139
3080 X$=SEG$(X$,1,1)&"F"&SEG
$(X$,3,1)&"F"&SEG$(X$,5,1)&"
F"&SEG$(X$,7,1Ø)!Ø93
3090 RETURN !136
3100 B=25-X !Ø75
3110 A=1+2*INT((Y-8)/2)!252
3120 CH=104+R*(XX(B,3)-1)/2+
INT(A/2+.5)!Ø96
3130 ROW=X !Ø14
3140 GOSUB 2330 !115
3150 ON XX(B,1)GOSUB 2500,25
60,2620,2680,2740,2800,2860,
2920,2980,3040 !238
3160 L$(CH-104)=X$ !196
3170 CALL CHAR(CH,X$)!174
3180 IF XX(B,2)=11 THEN 3220
 !148
3190 CH=CH+R/2 !166
3200 X$=L$(CH-104)!196
3210 ON XX(B,2)GOSUB 2500,25
60,2620,2680,2740,2800,2860,
2920,2980,3040 !239
3220 L$(CH-104)=X$ !196
3230 CALL CHAR(CH,X$)!174
3240 RETURN !136
3250 CALL CLEAR !209
3260 END !139
```

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.

SEPTEMBER

Seattle TI Convention, Sept. 22, Redmond High School. Call Queen Anne Computer Shoppe TIBBS, (206) 546-1865, Barb Wiederhold, (206) 546-1205, or Russ Norman, (206) 882-2177.

OCTOBER

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.

NOVEMBER

Eighth Annual Chicago TI International World Faire, 9 a.m.-6 p.m. Nov. 3, Holiday Inn, 3505 Algonquin Rd., Rolling Meadows, Illinois. Social mixer Nov. 2, dinner after faire. Contact Hal Shanafield, Faire Manager, Chicago TI99/4A Users Group, P.O. Box 578341, Chicago, IL 60657, or (708) 864-8644 (2-6 p.m.); hot line answering machine, (708) 869-4304; or BBS (708) 862-0182 (leave message to #16 **Milwaukee TI-Faire,** 9 a.m.-5 p.m. Nov. 4, Quality Inn, 5311 South Howell, Milwaukee, Wisconsin. Contact Gene Hitz, Milwaukee Area 99/4A Users Group, 4122, North Glenway, Wauwatosa, WI 53222.

1991 FAIRS

FEBRUARY

Fest West 91, Feb. 16-17, Ramada Main Gate, Anaheim, California. Contact Fest West 91 Committee, c/o Bill Nelson, 11692 Puryear Lane, Garden Grove, CA 92640, or call Users Group of Orange County BBS, (714) 751-4332.

EXTENDED BASIC

Plotting the Flow of Oil

By JERRY STERN
©1990 J.L. Stern

Now that we are paying attention to oil prices again, we'll need software to help us analyze just where that oil is flowing. Individually, we can watch the monthly use of heating oil, or the electricity use from oil-fired power plants, or our gas mileage. Perhaps some bar charts would help us to see patterns hidden in the smoggy exhausts of our gas guzzlers. As the consumption creeps up, we'll know to go for a tune-up, or a general automotive overhaul.

But first, we'll need that bar charting software. BARCHART reads a set of data from a TI-Writer file, requests some basic inputs for titles and scales, and prints out a bar chart of the data from the file. Why a TI-Writer file? First, entering data for plotting any type of chart is too lengthy a process to perform without some sort of editing software. Second, using a file allows multiple copies of the chart, with different scales or titles, from the same keystrokes. Finally, TI-Writer, or any of its equivalent editors, provides a standard type of file that is easily read by a program, and available to all of us.

There are six different bar types. Any bar may be used for any line. Bar number one is black. Bars two, three, and four are progressively lighter gray shades. Bar five is a quadruple stripe, and bar six is a double stripe. The bars are chosen by number in the data file.

BARCHART is set up to plot up to 100 values. That large a graph would take about three pages. Because the calculations for the graphics are done as the bars are printed, only the data names, values and bar types are kept in memory; so a much longer graph could be printed by just changing the values in the DIM statements.

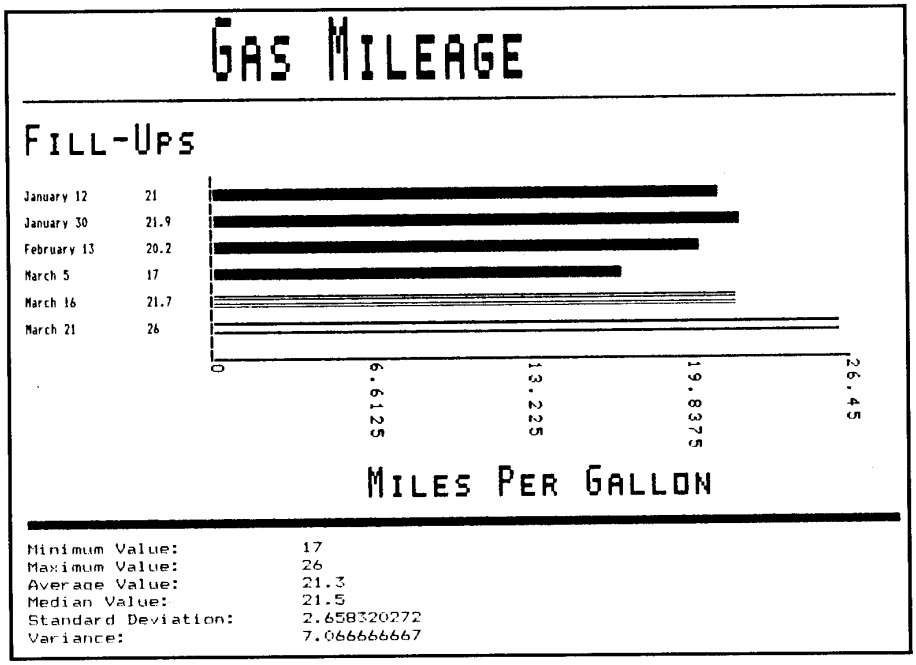
Before using BARCHART, prepare a data file. From TI-Writer, or any compatible word processor, start with a blank page. Set the first two tabs at columns 17 and 30. Leave the left margin at the default position in column zero. Each set of data name, number, and bar type should be alone on one line. Enter the data names, perhaps the dates of each gas fill-up, in the first column. Use the Tab (Function 7) to move to the second column and enter the data value, probably the Miles per Gallon for that fill-up. The numbers will line up by their leftmost digit, not by a decimal point. That's fine; leave them that way. Tab again, and enter a number from one to six in the third column for the bar type. Do not leave any blank lines in the file. When all the data has been entered, save the file normally with the SF command. (Don't use the Print File command; BARCHART uses the TI-Writer saved file's tab line as an end-of-file marker.)

If you would like the data sorted by either the data label or the data value, this file is compatible with CHARTBASE, the sorting database program published here in May of '89.

Now, run BARCHART. The program will take several seconds to set up the graphics in memory for the bar shapes and the numeric landscape font, or sideways numbers, that will be used at the bottom of the graph. While you're waiting, read the reminder screen—it will review the data file requirements. Next, the program will request the disk number and file name of the data file. The default drive number is one, but that can be changed on line number 240.

BARCHART will read the file, and calculate a recommended range for the bar graph. You may use those numbers, which are about five percent beyond the maximum and minimum values in the data, or zero, or you may enter your own data ranges. You may want to round off the suggested values. Be careful! If your car normally gets twenty miles per gallon, and you set the bottom range number to zero, the graph will show a realistic pattern for the variation between fill-ups. But, if you use seventeen for the bottom range, even minor variations will be misleadingly large on the graph. Of course, the graph is marked with the values used, but such misleading use of graphing ranges is standard advertising practice. Of course, that could be useful....

(See Page 14)



EXTENDED BASIC—

(Continued from Page 13)

Next, enter the main title for the chart, and titles for the data names and the data values. For our sample, that would be, in order, "Gas Mileage," "Fill-Ups," and "Miles Per Gallon."

The option that follows allows you to print out some statistics on your data at the bottom of the chart. That information consists of the minimum and maximum values in the data, the average or mathematical mean, the median or middle of the range, the standard deviation, and the variance. Those last two measurements are useful in scientific work, as measures of how much the data varies from a central value, but don't tell your mechanic to tune up the car because the standard deviation of your gas mileage is too high; he'll tune up the car, and charge extra for listening to strangeness.

Finally, change the printer name if needed, and the graphing will begin. Remember to change the default printer name in line 90 of the program.

BARCHART is unusually linear. Most programs branch and twist and tangle, but BARCHART passes straight through a sequence of steps in printing the chart. This is possible because the subprograms take care of the usual diversions, like printing the large print headers, and the dividing lines.

HERE'S HOW IT WORKS

From line 90 to line 220 is setup. The graphics patterns for the six bars are defined on lines 140 to 190. These can be changed if you like; they are calculated as Epson-compatible graphics characters. Each pair of patterns is duplicated in lines 650 and 680 as needed to draw the continuous bars.

Lines 200 and 210 read the data from lines 920 through 1050 for the numeric landscape fonts that print the sideways labels for the bar lengths. The following lines, up to 490, read the data file and ask for ranges and labels.

Printing begins on line 500. HEADER5 is a subprogram that prints out text up to eight times normal size. It creates the chart title and both axis titles. LINE prints a line all the way across the paper, of from one to eight dots tall. BARCHART uses LINE to print a thin line at the top of the chart, and a thicker line at the bottom.

For each line, the main program prints one line that is blank except for a small part of the vertical axis line, and then prints the data name in compressed type, the data number, and then a section of bar. The bar is calculated as a proportion of the difference between the upper and lower ranges. That means that if the ranges are zero and twenty, and the number to be plotted is fifteen, then the bar will be 75 percent of its maximum length of 700 dots, or 525 dots across.

Each bar is printed in sections of 100 dots. That trick helps reduce printer errors. Yes, printers make mistakes, especially when given very long strings of graphics to print. If you get occasional garbage characters when printing complex graphics, try dividing up the graphics this way; it does help. If you can't change the program, check your printer cables to be sure they are not running next to motors, speakers, or power supplies. There are so many numbers sent to the printer in a graphics printout that the system becomes far more likely to randomly print junk.

The bottom axis of the graph is printed in lines 720 to 740, and then the landscape numbers are printed in lines 750 to 780. Line 750 checks to find out how long the longest data tick number will be. That length becomes the size of the printing loop in 760. In that loop, for the upper and lower range numbers and three intermediate values, each character of the strings containing the tick numbers is matched up, using a POS function, to the landscape graphics font that will print that digit sideways.

Finally, BARCHART uses HEADER5 again for the "Miles Per Gallon" label, and calls LINE again, before printing the data statistics and shutting down.

TIPS FOR NON-EPSON PRINTERS

Because there are so many uses of graphics in this program, it may not be easy to convert it to run with a non-EPSON compatible printer, but I'll give you the information you may need to try. If your printer needs graphics codes prepared as a number between zero and 255, where zero is blank, and 255 is eight vertical dots, than the conversion should work fine. If not, try substituting non-graphic characters for the bars, like a capital X.

Line 550: Printer codes 27,48 set line spacing to eight lines per inch, and code 15 turns on compressed print.

Line 570 and in many, many other lines: Codes 27, 76, X1, X2 turn on double density graphic printing, where X1 and X2 are how many data numbers will follow for the graphics information. X1 and X2 are calculated in base 256, and reversed from the usual order; for X1 and X2 of 1 and 5, the data number is 5x56 + 1 = 1281. All of the graphics in BARCHART use less than 256 characters at a time, so X2 is always zero.

Codes 27,75, X1, X2 turn on single density graphic printing. The numbers are calculated in the same way, but the dots are printed farther apart on the page.

Line 28250 and in sub LINE: Codes 27, 65, H sets the line spacing to H/72", and code 18 turns off condensed printing.

Line 28270 and in sub LINE: Codes 27, 50 reset line spacing to 1/6"

Of course, BARCHART can graph more than gas mileage. Like turkey production figures for the fall season, or Halloween candy consumption. Hmmm... Forget the crude oil, it's time for lunch!

BARCHART

```
90 PR$="RS232.DA=8.BA=4800"
! DEFAULT PRINTER !103
100 ! BARCHART !234
110 ! Histogram printer, JLS
 10/90 !195
120 DIM DN$(100),DV(100),DB(
100),LND$(14)!114
130 CALL CLEAR :: CALL BLUE
:: CALL TITLE !082
140 BP$(1)=CHR$(255)&CHR$(25
5)! solid bar pattern !024
150 BP$(2)=CHR$(165)&CHR$(25
5)! dark gray pattern !030
160 BP$(3)=CHR$(129)&CHR$(25
5)! medium gray pattern !254
170 BP$(4)=CHR$(85)&CHR$(170
)!  light gray bar !185
180 BP$(5)=CHR$(165)&CHR$(16
5)! quadruple stripe !024
190 BP$(6)=CHR$(195)&CHR$(19
5)! double stripe !199
200 FOR L=1 TO 14 :: LND$(L)
```

(See Page 15)

EXTENDED BASIC—

(Continued from Page 14)

```
CHR$(27)&CHR$(76)&CHR$(16)&
CHR$(Ø)!1-9 and Ø-.E+ !187
210 FOR L2=1 TO 8 :: READ T
:: LND$(L)=LND$(L)&CHR$(T)&C
HR$(T):: NEXT L2 :: NEXT L !
Ø47
220 LND$(Ø)=" " !Ø14
230 CALL HCHAR(3,1,32,7Ø2)!2
23
240 DISPLAY AT(3,1):"Name of
 data file?":"DSK1." !Ø39
250 ACCEPT AT(4,4)VALIDATE(U
ALPHA,DIGIT,".")SIZE(-28):SF
$ :: SF$="DSK"&SF$ !Ø38
260 IF LEN(SF$)<6 THEN CALL
SOUND(3ØØ,33Ø,Ø,35Ø,Ø):: GOT
O 25Ø !252
270 DISPLAY AT(16,1):"Now op
ening and reading the data f
ile..." !119
280 OPEN #1:SF$,DISPLAY ,VAR
IABLE 8Ø,INPUT !122
290 D=Ø !251
3ØØ LINPUT #1:TM$ :: IF ASC(
TM$)=128 THEN 35Ø ELSE D=D+1
 !173
310 DN$(D)=SEG$(TM$,1,16)!19
2
320 DV(D)=VAL(SEG$(TM$,17,13
))!Ø32
330 DB(D)=VAL(SEG$(TM$,31,1)
)!212
340 GOTO 3ØØ !124
350 CLOSE #1 !151
360 CALL MINIMUM(DV(),D,MN)!
Ø65
370 CALL MAXIMUM(DV(),D,MX)!
Ø77
380 CALL HCHAR(3,1,32,7Ø2)::
 DISPLAY AT(3,1):"The data r
anges from":MN;" to ";MX:!23
2
390 DISPLAY AT(6,1):"Lower d
ata limit for graph:":MIN(Ø,
MN-(MX-MN)*.Ø5)!178
4ØØ DISPLAY AT(9,1):"Upper d
ata limit for graph:":MAX(Ø,
MX+(MX-MN)*.Ø5)!192
410 ACCEPT AT(7,1)VALIDATE(D
IGIT,".-E")SIZE(-1Ø):LL !177
42Ø ACCEPT AT(1Ø,1)VALIDATE(
DIGIT,".-E")SIZE(-1Ø):UL !22
9
43Ø DISPLAY AT(12,1):"Chart
Title?" :: ACCEPT AT(13,1)SI
ZE(18):CT$ !Ø13
44Ø DISPLAY AT(15,1):"Title
for data names?" :: ACCEPT A
T(16,1)SIZE(18):XT$ !116450
DISPLAY AT(18,1):"Title for
data values?" :: ACCEPT AT(1
9,1)SIZE(18):YT$ !248
46Ø DISPLAY AT(2Ø,1):"Print
statistical data?":"Y (y/n)"
 :: ACCEPT AT(21,1)VALIDATE(
"YyNn ")SIZE(-1):TM$ !1Ø5
47Ø IF POS(" NnYy",TM$,1)<4
THEN PS=-1 !242
48Ø DISPLAY AT(23,1):"Printe
r Name?":PR$ :: ACCEPT AT(24
,1)VALIDATE(UALPHA,DIGIT,"=.
/")SIZE(-28):PR$ !212
49Ø DISPLAY AT(23,1):" ":"No
w Printing..." :: CR$=CHR$(1
3)&CHR$(1Ø)!188
5ØØ CALL HEADER5(CT$,6,4,(8Ø
-LEN(CT$)*4)/2,PR$)!221
51Ø OPEN #2:PR$&".CRLF",OUTP
UT,VARIABLE 132 !156
52Ø CALL LINE(2,PR$)!114
53Ø PRINT #2:CR$ !ØØ2
54Ø CALL HEADER5(XT$,3,3,1,P
R$)!Ø11
55Ø PRINT #2:CHR$(27);CHR$(4
8);CHR$(15);CR$;!Ø52
56Ø PRINT #2:CR$ !ØØ2
57Ø AX$=CHR$(27)&CHR$(76)&CH
R$(4)&CHR$(Ø)&RPT$(CHR$(255)
,2)&RPT$(CHR$(Ø),2)!Ø93
58Ø FOR L=1 TO D !133
59Ø PRINT #2:TAB(3Ø);AX$;CR$
;!113
6ØØ PRINT #2:DN$(L);"  ";DV(
L);CHR$(13);TAB(3Ø);AX$;!Ø16
61Ø N=INT(7ØØ*(DV(L)-LL)/(UL
-LL))!179
62Ø N=MIN(7ØØ,N)!188
63Ø N=MAX(Ø,N)!Ø82
64Ø FOR L2=1 TO INT(N/1ØØ)!Ø
29
65Ø PRINT #2:CHR$(27);CHR$(7
6);CHR$(1ØØ);CHR$(Ø);RPT$(BP
$(DB(L)),5Ø);!Ø42
66Ø NEXT L2 !Ø2Ø
67Ø N=N-INT(N/1ØØ)*1ØØ !229
68Ø PRINT #2:CHR$(27);CHR$(7
6);CHR$(N);CHR$(Ø);SEG$(RPT$
(BP$(DB(L)),N/2),1,N);CR$ !1
66
69Ø NEXT L !226
7ØØ PRINT #2:TAB(3Ø);AX$;CR$
;!113
71Ø PRINT #2:TAB(3Ø);AX$;!Ø0
4
72Ø FOR L2=1 TO 7 !115
73Ø PRINT #2:CHR$(27);CHR$(7
6);CHR$(1ØØ);CHR$(Ø);RPT$(CH
R$(3),1ØØ);!Ø52
74Ø NEXT L2 :: PRINT #2:CR$
!152
75Ø LN=Ø :: FOR L=Ø TO 4 ::
TIC$(L)=STR$(LL+L*(UL-LL)/4)
:: LN=MAX(LN,LEN(TIC$(L))):
 TIC$(L)=TIC$(L)&"      " ::
 NEXT L !187
76Ø FOR L=1 TO LN :: FOR L2=
Ø TO 4 !2Ø4
77Ø PRINT #2:TAB(3Ø+L2*25);L
ND$(POS("1234567890-.E+",SEG
$(TIC$(L2),L,1),1));CHR$(13)
!141
78Ø NEXT L2 :: PRINT #2:CR$
:: NEXT L !252
79Ø CALL HEADER5(YT$,3,3,8Ø-
LEN(YT$)*3,PR$)!216
8ØØ PRINT #2:CR$ :: CALL LIN
E(6,PR$)!25Ø
81Ø IF PS THEN 9ØØ !Ø39
82Ø PRINT #2:CR$ :: PRINT #2
:"Minimum Value:";TAB(25);MN
;CR$ !223
83Ø PRINT #2:"Maximum Value:
";TAB(25);MX;CR$ !1Ø3
84Ø CALL MEAN(DV(),D,L)!244
85Ø PRINT #2:"Average Value:
";TAB(25);L;CR$ !235
86Ø PRINT #2:"Median Value:"
;TAB(25);(MN+MX)/2;CR$ !Ø94
87Ø CALL DEVIATION(DV(),D,L)
!123
88Ø PRINT #2:"Standard Devia
tion:";TAB(25);L;CR$ !Ø12
89Ø PRINT #2:"Variance:";TAB
(25);L*L;CR$ !Ø7Ø
9ØØ CLOSE #2 !152
91Ø STOP !152
92Ø DATA 56,16,16,16,16,48,1
6,Ø !2Ø9
93Ø DATA 124,32,16,8,4,68,56
,Ø !158
94Ø DATA 56,68,4,24,4,68,56,
Ø !117
95Ø DATA 8,8,124,72,4Ø,24,8,
```

(See Page 16)

EXTENDED BASIC—

(Continued from Page 15)

```
Ø !103
96Ø DATA 56,68,4,4,12Ø,64,12
4,Ø !2Ø4
97Ø DATA 56,68,68,12Ø,64,32,
24,Ø !ØØ7
98Ø DATA 32,32,32,16,8,4,124
,Ø !143
99Ø DATA 56,68,68,56,68,68,5
6,Ø !24Ø
1ØØØ DATA 48,8,4,6Ø,68,68,56
,Ø !122
1Ø1Ø DATA 56,68,68,68,68,68,
56,Ø !243
1Ø2Ø DATA Ø,Ø,Ø,124,Ø,Ø,Ø,Ø
!169
1Ø3Ø DATA 48,48,Ø,Ø,Ø,Ø,Ø,Ø
!186
1Ø4Ø DATA 124,64,64,12Ø,64,6
4,124,Ø !Ø99
1Ø5Ø DATA Ø,16,16,124,16,16,
Ø,Ø !137
28165 SUB DEVIATION(A(),N,X)
!Ø6Ø
2817Ø ! DEVIATION(ARRAY,# OF
 ELEMENTS IN ARRAY,RETURN VA
RIABLE FOR STANDARD DEVIATIO
N;JLS 1Ø/9Ø !174
28175 ! VARIANCE=DEVIATION^2
 !Ø92
28180 X=A(1):: FOR L=2 TO N
:: X=X+A(L):: NEXT L :: X=X/
N !225
28185 S=Ø :: FOR L=1 TO N ::
 S=S+(A(L)-X)^2 :: NEXT L !1
Ø3
28190 X=SQR(S/N)!187
28195 SUBEND !168
28200 SUB HEADER5(X$,H,W,C,P
R$)!171
28205 ! HEADER5(INPUT$,HEIGH
T OF HEADER IN DOTROWS,WIDTH
 OF HEADER IN DOTROWS PER CH
ARACTER,STARTING COLUMN,PRIN
TER NAME);JLS 1Ø/9Ø !Ø45
28210 ! prints a positionabl
e DOUBLE DENSITY headline up
 to 64 dotrows high !2302821
5 ! EXITS WITHOUT ANY ACTION
 IF STRING/WIDTH OF CHARS. C
OMBINATION IS TOO LONG !164
28220 DIM A$(8Ø),Z$(16)!Ø93
28225 DATA ØØØØ,ØØØ1,ØØ1Ø,ØØ
11,Ø1ØØ,Ø1Ø1,Ø11Ø,Ø111,1ØØØ,
1ØØ1,1Ø1Ø,1Ø11,11ØØ,11Ø1,111
Ø,1111 !24Ø
28230 D=2^H-1 !198
28235 RESTORE 28225 :: FOR L
=1 TO 16 :: READ T$ :: Z$(L)
=CHR$(27)&CHR$(76)&CHR$(W*4)
&CHR$(Ø):: FOR L2=1 TO 4 !16
8
28240 Z$(L)=Z$(L)&RPT$(CHR$(
VAL(SEG$(T$,L2,1))*D),W):: N
EXT L2 :: NEXT L !Ø98
28245 IF LEN(X$)*W*8>96Ø-8*C
 THEN H,W=999 :: SUBEXIT !11
4
28250 OPEN #17:PR$&".CR" ::
PRINT #17:CHR$(13);CHR$(27);
CHR$(65);CHR$(H);CHR$(18)!19
2
28255 FOR L=1 TO LEN(X$):: C
ALL CHARPAT(ASC(SEG$(X$,L,1)
),A$(L)):: NEXT L !Ø72
28260 FOR L=1 TO 15 STEP 2 :
: PRINT #17:TAB(C);:: FOR L2
=1 TO LEN(X$):: FOR L3=L TO
L+1 :: T=ASC(SEG$(A$(L2),L3,
1))-47 :: IF T>1Ø THEN T=T-7
 !231
28265 PRINT #17:Z$(T):!115
28270 NEXT L3 :: NEXT L2 ::
PRINT #17:CHR$(1Ø);CHR$(13):
: NEXT L :: PRINT #17:CHR$(1
Ø);CHR$(27);CHR$(5Ø):: CLOSE
 #17 !181
28275 SUBEND !168
29505 SUB BLUE !149
29510 ! SWITCHES DISPLAY TO
WHITE ON BLUE; JLS 7/88 !23Ø
29515 CALL SCREEN(5):: FOR L
=Ø TO 14 :: CALL COLOR(L,16,
1):: NEXT L :: SUBEND !2Ø2
29665 SUB MEAN(A(),N,X)!181
29670 ! MEAN(ARRAY,# OF ELEM
ENTS IN ARRAY,RETURN VARIABL
E FOR AVERAGE VALUE;JLS 1/88
 !135
29675 X=A(1):: FOR L=2 TO N
:: X=X+A(L):: NEXT L :: X=X/
N !225
29680 SUBEND !168
29735 SUB MAXIMUM(A(),N,X)!1
81
29740 ! MAXIMUM(ARRAY,# OF E
LEMENTS IN ARRAY,RETURN VARI
ABLE FOR MAXIMUM VALUE;JLS 1
Ø/86 !213
29745 X=A(1):: FOR L=2 TO N
!2Ø8
29750 IF A(L)>X THEN X=A(L)!
Ø86
29755 NEXT L :: SUBEND !Ø12
29760 SUB MINIMUM(A(),N,X)!1
79
29765 ! MINIUMN(ARRAY,# OF E
LEMENTS IN ARRAY,RETURN VARI
ABLE FOR MINIMUM VALUE;JLS 1
Ø/86 !21Ø
29770 X=A(1):: FOR L=2 TO N
!2Ø8
29775 IF A(L)<X THEN X=A(L)!
Ø85
29780 NEXT L :: SUBEND !Ø12
31565 SUB TITLE !24Ø
31570 DISPLAY AT(1,1Ø)ERASE
ALL:"BAR CHART" :: CALL CHAR
(95,"ØØFF"):: CALL HCHAR(2,1
2,95,9)!24Ø
31575 DISPLAY AT(6,4):"Print
s Bar Charts from":"    D/V
8Ø Data Listings" !186
31580 DISPLAY AT(9,5):"1990
 Jerry L. Stern" !Ø39
31585 DISPLAY AT(11,1):"The
data file must be in    Disp
lay/Variable 8Ø format, with
 each line starting with" !2
Ø7
31590 DISPLAY AT(14,1):"the
line label, a tab to    colu
mn 17, and the number to" !2
25
31592 DISPLAY AT(16,1):"grap
h. Next, Tab to 3Ø, and ente
r bar type (1 through 6)Do n
ot include titles in thedata
 file." !1Ø5
31595 SUBEND !168
31645 SUB LINE(N,PR$)!2Ø1
31650 ! PRINTS A SOLID BLACK
 LINE TO RS232 FULL WIDTH OF
 PAGE OF THICKNESS N DOTS !1
45
31655 OPEN #77:PR$&".CR",OUT
PUT,VARIABLE 132 :: PRINT #7
7:CHR$(27);CHR$(65);CHR$(2);
CHR$(1Ø):: X=2^N-1 !1Ø1
31660 PRINT #77:CHR$(27);CHR
$(76);CHR$(252);CHR$(3);RPT$
(CHR$(X),255);RPT$(CHR$(X),2
55);RPT$(CHR$(X),255);RPT$(C
HR$(X),255)!Ø84
31665 PRINT #77:CHR$(27);CHR
$(65);CHR$(N);CHR$(1Ø);CHR$(
13);CHR$(27);CHR$(5Ø):: CLOS
E #77 :: SUBEND !133
```

MY-BASIC

A patch and a game of Keno

By JIM UZZELL
©1990 DDI Software

The following is a ptach for the MY-Schedule program published in the August issue. Type it in and run it through CHECKSUM, then save it in MERGE format. Load a copy of MY-schedule and merge this file with it. Then save the program as a new file.

```
2160 OPEN #2:"DSK."&"SCH-DAT
A."&FL$,INPUT ,DISPLAY ,VARI
ABLE 80
2170 FOR W=1 TO 19*ML(M) ::
LINPUT #2:A$(W)
2171 IF SEG$(A$(W),1,1)=Q$ T
HEN A$(W)=" "
2172 NEXT W
2180 FOR W=1 TO 60 :: LINPUT
 #2:EV$(W)
2181 IF SEG$(EV$(W),1,1)=Q$
THEN EV$(W)=" "
2182 IF EOF(2) THEN 2230
2183 NEXT W :: GOTO 2230
2210 FOR W=1 TO 19*ML(M)
2211 IF A$(W)="" THEN A$(W)=
Q$&Q$
2212 PRINT #2:A$(W) :: NEXT
W
2220 FOR W=1 TO 60
2221 IF EV$(W)="" THEN EV$(W
)=Q$&Q$
2222 PRINT #2:EV$(W) :: NEXT
 W
2330 IF K=140 THEN T$=" " ::
 GOTO 2240
```

There are a few more bugs in MY-Schedule, but I do not plan to release patches to fix them because MY-Schedule is one step above freeware and was designed as a demo program to show what can be done with MY-BASIC.

MY-Schedule is a hybrid of Appointment Scheduler, which was commercially release more than a year ago. This program was withdrawn from the market because of the lack of interest.

One of the bugs is — if you are at the end of the month or at the end of the year and you select Next Day (right arrow), the current month will be saved and the next month will be loaded, but the screen will not be displayed properly. To get around this, press ESC and reload the month.

This month's article deals with line extraction, and I'm including a program that demos several drawing commands.

There have been many line extractor programs written for the TI99/4A and some have been published in MICROpendium. MY-BASIC makes those programs obsolete. To illustrate, do the following in command mode (A> prompt). Type KEY LIST. We will be dealing with the last item — PPT PIO. Load a program then at the prompt type LPT DSKx.FILENAME (your choice of drive and filename) then determine the line number or line numbers you want to extract. Using the LLIST command, type LLIST Linenumber or LLIST Linenumber-Linenumber. You have just creaated a D/V80 file in program format. Now you can load this file and save it in merge format for future use. Don't forget to reset PPT (LPT PIO).

The following demo program deals with three drawing commands — DCOLOR, DRAW and FILL — by doing a remake of an old TI game, Keno. See lines 600-820 and 310 for addition.

KENO

```
100 CALL GRAPHICS(2,2) :: DI
M YN(8),CN(20),CH(80) :: RAN
DOMIZE
110 GOSUB 560 :: PRINT TAB(1
5);"MY KENO"
120 PRINT : :"CHOOSE 8 DIFFE
RENT NUMBERS FROM 1 TO 80.";
"COMPUTER PICKS 20 NUMBERS."
:" IF YOU MATCH 5 OR MORE NU
MBERS,"
130 PRINT "
YOU WIN!":"PAYOFF:":" MATCH
5 = WIN 10 TIMES BET" :: PRI
NT " MATCH 6 = WIN 100 TIMES
 YOUR BET"
140 PRINT " MATCH 7 = WIN 20
00 TIMES YOUR BET"
150 PRINT " MATCH 8 = WIN 20
000 TIMES YOUR BET"
160 PRINT :"HOW MUCH MONEY D
O YOU HAVE TO PLAY WITH?" ::
 INPUT "$ ":T
170 T=INT(T*100)/100 :: A=0
:: CALL CLEAR
180 DISPLAY AT(22,1):"YOU'VE
 GOT $ ";STR$(T) :: IF T<=0
THEN 490
190 DISPLAY AT(23,1):"HOW MU
CH DO YOU BET?" :: ACCEPT AT
(23,22):B :: DISPLAY AT(23,1
): :: IF B<=T THEN 210
200 DISPLAY AT(22,1):"YOU DO
N'T HAVE THAT MUCH" :: GOTO
180
210 CALL TCOLOR(14,13) :: FO
R X=1 TO 8 :: CALL VCHAR(6+X
,6,ASC(SEG$(T$,X,1))) :: NEX
T X :: CALL TCOLOR(14,13) ::
 DISPLAY AT(3,14):"EIGHT SPO
T SPECIAL" :: CALL TCOLOR(16
,13) :: GOSUB 600 :: GOTO 27
0
220 DISPLAY AT(23,1):">NUMBE
R MUST BE 1 TO 80    TRY AGA
IN   <" :: CALL SOUND(200,11
0,0) :: GOTO 640
230 FOR J=1 TO I-1 :: IF YN(
I)<>YN(J) THEN 265
240 DISPLAY AT(23,1):">DUPLI
CATE NUMBER<   >   TRY AGAIN
   <"
250 CALL SOUND(200,110,0) ::
 FOR X=1 TO 200 :: NEXT X
260 GOTO 650
265 NEXT J :: GOTO 660
270 DISPLAY AT(22,1):"NOW TH
E COMPUTER":" WILL CHOOSE 20
 NUMBERS AT RANDOM" :: FOR I
=1 TO 20
280 CN( I)=INT(RND*80)+1 ::
IF I=1 THEN 310
290 FOR J=1 TO I-1 :: IF CN(
I)=CN(J) THEN 280
300 NEXT J
310 CALL SOUND(50,110+RND*70
0,3) :: NEXT I :: FOR I=1 TO
 20 :: FN=CN(I) :: GOSUB 750
 :: CALL DCOLOR(5,2) :: CALL
 FILL(YY,XX)
320 CALL SOUND(50,110+RND*70
0,3) :: NEXT I
330 M=0 :: FOR I=1 TO 8 :: F
OR J=1 TO 20 :: IF YN(I)<>CN
(J) THEN 350
340 M=M+1 :: GOTO 360
350 NEXT J
360 NEXT I :: IF M>0 THEN 39
```

(See Page 18)

MY-BASIC—

(Continued from Page 17)

```
Ø
37Ø DISPLAY AT(22,1):"SORRY-
NO MATCHES" :: DISPLAY AT(23
,1):
38Ø CALL SOUND(3ØØ,11Ø,Ø) ::
 T=T-B :: GOTO 44Ø
39Ø IF M=5 THEN 5ØØ
4ØØ IF M=6 THEN 51Ø
41Ø IF M=7 THEN 52Ø
42Ø IF M=8 THEN 53Ø
43Ø DISPLAY AT(22,1):"YOU MA
TCHED ONLY";M;"OUT OF 8":"SO
RRY-NO WINNINGS THIS TIME" :
: T=T-B :: CALL SOUND(2ØØ,40
Ø,Ø) :: CALL SOUND(2ØØ,3ØØ,Ø
)
44Ø DISPLAY AT(24,1):"PLAY A
GAIN? (Y/N)"
45Ø CALL KEY(Ø,K,S) :: Z=RND
 :: IF S=Ø THEN 45Ø
46Ø IF (K=89)+(K=121) THEN 1
7Ø
47Ø IF (K=78)+(K=11Ø) THEN 4
9Ø
48Ø GOTO 45Ø
49Ø DISPLAY AT(22,1):"GAME O
VER":"YOU END UP WITH $";STR
$(T):"GOOD LUCK NEXT TIME" :
: END
5ØØ GOSUB 54Ø :: DISPLAY AT(
22,1):"YOU GOT 5 NUMBERS RIG
HT":"YOU WIN $";B*1Ø;"!" ::
T=T+B*1Ø :: GOTO 44Ø
51Ø GOSUB 54Ø :: GOSUB 54Ø :
: DISPLAY AT(22,1):"YOU GOT
6 NUMBERS RIGHT":"YOU WIN $"
;B*1ØØ;"!" :: T=T+B*1ØØ :: G
OTO 44Ø
52Ø GOSUB 54Ø :: GOSUB 55Ø :
: DISPLAY AT(22,1):"WOW! YOU
 GOT 7 NUMBERS RIGHT":"YOU W
IN $";B*2ØØØ;"!!" :: T=T+B*2
ØØØ :: GOTO 44Ø
53Ø GOSUB 54Ø :: GOSUB 55Ø :
: CALL SOUND(1,4ØØØØ,3Ø) ::
GOSUB 55Ø :: DISPLAY AT(22,1
):"JACKPOT!!":"YOU WIN $";B*
2ØØØØ;"!!!" :: T=T+B*2ØØØØ :
: GOTO 44Ø
54Ø CALL SOUND(2ØØ,392,Ø) ::
 CALL SOUND(1ØØ,33Ø,Ø) :: CA
LL SOUND(2ØØ,392,Ø) :: RETUR
N
55Ø CALL SOUND(15Ø,392,Ø,33Ø
,2,262,2) :: CALL SOUND(1ØØØ
,392,Ø,33Ø,2,262,2) :: RETUR
N
56Ø CALL CLEAR :: CALL CHAR(
96,"ØØ385450381454ØØ") :: CA
LL TCOLOR(16,13) :: CALL HCH
AR(1,1,96,96Ø) :: T$="MY  KE
NO" :: FOR R=1Ø TO 14
57Ø CALL HCHAR(R,15,32,12) :
: NEXT R :: FOR C=1 TO 8
58Ø CALL HCHAR(12,C+16,ASC(S
EG$(T$,C,1))) :: NEXT C :: F
OR I=1 TO 8 :: CALL SOUND(5Ø
,22Ø+2Ø*I,Ø,33Ø+2Ø*I,Ø) :: F
OR D=1 TO 12Ø :: NEXT D :: N
EXT I
59Ø CALL CLEAR :: RETURN
6ØØ CALL DCOLOR(7,5) :: I=Ø1
 :: Y=5
61Ø FOR X=8 TO 36 STEP 3 ::
DISPLAY AT(Y,X):ASC(CHR$(I))
; :: FN=I :: CH( FN)=X :: I=
I+1 :: CALL DRAW(1,(Y*6)+2,(
X*6)+6,(Y*6)+45,(X*6)+6) ::
NEXT X :: IF I<8Ø THEN Y=Y+2
 :: GOTO 61Ø
62Ø Y=5 :: CALL DRAW(1,(Y*6)
+2,(X*6)+7,(Y*6)+13Ø,(X*6)+7
) :: FOR X=1 TO 9 :: CALL DR
AW(1,32+A,54,32+A,234) :: A=
A+16 :: NEXT X :: A=Ø :: FOR
 X=1 TO 8
63Ø CALL DRAW(1,42+A,55,42+A
,234) :: A=A+16 :: NEXT X
64Ø FOR I=1 TO 8 :: DISPLAY
AT(22,1):"ENTER #(1-8Ø)"
641 ON WARNING NEXT
65Ø ACCEPT AT(22,15)BEEP :YN
(I) :: DISPLAY AT(23,1): ::
IF (YN(1)=INT(YN(I)))*(YN(I)
>Ø)*(YN(I)<81) THEN 23Ø ELSE
 22Ø
66Ø FN=YN(I) :: GOSUB 67Ø ::
 CALL DCOLOR(2,2) :: CALL FI
LL(YY,XX) :: NEXT I :: RETUR
N
67Ø IF YN(I)<11 THEN YY=(5*6
)+1Ø :: XX=(CH(FN)*6)+21 ::
RETURN
68Ø IF YN(I)>1Ø AND YN(I)<21
 THEN YY=(7*6)+14 :: XX=(CH(
FN)*6)+21 :: RETURN
69Ø IF YN(I)>2Ø AND YN(I)<31
 THEN YY=(9*6)+19 :: XX=(CH(
FN)*6)+2Ø :: RETURN
7ØØ IF YN(I)>3Ø AND YN(I)<41
 THEN YY=(11*6)+23 :: XX=(CH
(FN)*6)+2Ø :: RETURN
71Ø IF YN(I)>4Ø AND YN(I)<5_
 THEN YY=(13*6)+26 :: XX=(CH
(FN)*6)+21 :: RETURN
72Ø IF YN(I)>5Ø AND YN(I)<61
 THEN YY=(15*6)+3Ø :: XX=(CH
(FN)*6)+21 :: RETURN
73Ø IF YN(I)>6Ø AND YN(I)<71
 THEN YY=(17*6)+34 :: XX=(CH
(FN)*6)+21 :: RETURN
74Ø IF YN(I)>7Ø AND YN(I)<81
 THEN YY=(19*6)+38 :: XX=(CH
(FN)*6)+21 :: RETURN
75Ø IF CN(I)<11 THEN YY=(5*6
)+14 :: XX=(CH(FN)*6)+21 ::
RETURN
76Ø IF CN(I)>1Ø AND CN(I)<21
 THEN YY=(7*6)+18 :: XX=(CH(
FN)*6)+21 :: RETURN
77Ø IF CN(I)>2Ø AND CN(I)<31
 THEN YY=(9*6)+23 :: XX=(CH(
FN)*6)+2Ø :: RETURN
78Ø IF CN(I)>3Ø AND CN(I)<41
 THEN YY=(11*6)+26 :: XX=(CH
(FN)*6)+2Ø :: RETURN
79Ø IF CN(I)>4Ø AND CN(I)<51
 THEN YY=(13*6)+3Ø :: XX=(CH
(FN)*6)+21 :: RETURN
8ØØ IF CN(I)>5Ø AND CN(I)<61
 THEN YY=(15*6)+34 :: XX=(CH
(FN)*6)+21 :: RETURN
81Ø IF CN(I)>6Ø AND CN(I)<71
 THEN YY=(17*6)+38 :: XX=(CH
(FN)*6)+21 :: RETURN
82Ø IF CN(I)>7Ø AND CN(I)<81
 THEN YY=(19*6)+42 :: XX=(CH
(FN)*6)+21 :: RETURN
216Ø OPEN #2:"DSK."&"SCH-DAT
A."&FL$,INPUT ,DISPLAY ,VARI
ABLE 8Ø
217Ø FOR W=1 TO 19*ML(M) ::
LINPUT #2:A$(W)
2171 IF SEG$(A$(W),1,1)=Q$ T
HEN A$(W)=" "
2172 NEXT W
218Ø FOR W=1 TO 6Ø :: LINPUT
 #2:EV$(W)
2181 IF SEG$(EV$(W),1,1)=Q$
THEN EV$(W)=" "
2182 IF EOF(2) THEN 223Ø
2183 NEXT W :: GOTO 223Ø
221Ø FOR W=1 TO 19*ML(M)
2211 IF A$(W)="" THEN A$(W)=
Q$&Q$
2212 PRINT #2:A$(W) :: NEXT
```

(See Page 19)

THE TI-BASE USER'S GUIDE — 5

Creating a data file

By BILL GASKILL
©1990 by B. Gaskill

To illustrate what you will end up with after a file has been designed and then saved to disk, we will create a sample file that will be used in storing data from back issues of MICROpendium. But before a file can be created we will need to have a data disk to store it on. So first make sure that you have a newly formatted floppy disk available, and that it is in the active DATDISK drive. If you are operating with multiple drives you may do so by loading TI-Base and then typing in the FORMAT directive or you may of course use your favorite disk manager. Single disk drive owners cannot access FORMAT because it is a program segment, something that we will discuss in article No. 7. Assuming that you have the data disk ready and that you have TI-Base up and running, from the dot prompt type in;

CREATE MICROPEN

CREATE is the directive that is typed in at the dot prompt to start any new file. Besides typing in CREATE MICROPEN you could also have typed in CREATE DSK#.MICROPEN, where the pound sign is the number of the disk drive where the file to be named MICROPEN is to be created.

When you enter CREATE MICROPEN the CREATE screen appears and displays a message that advises you to press the space bar to change (toggle) the data types in a field and that you need to press <Enter> to advance the cursor to the next field. The CREATE editing line appears as follows;

FIELD ^^ DESCRIPTOR ^^ TYPE ^^ WIDTH ^^ DEC

Like most traditional data base and file management programs, TI-Base subscribes to the field, record, file format. That means that MICROPEN will be a file, that contains individual records, and each record will be made up of from 1-17 fields. A FIELD is the smallest element of a file. Data collected in fields make up RECORDs. Records saved to disk under one structure, with one name, make up a FILE.

In TI-Base the Field column is automatically numbered from 1 to 17 as you create each field in the record. The DESCRIPTOR column allows you to enter up to 10 characters to describe or name the input field. Aside from the underline and pound sign characters, you will find that only normal letters and numbers are allowed in field names. The TYPE column is used to define the data that will be entered into the field. Three data "types" are supported, Character, Date and Numeric. You may choose the appropriate type by pressing the space bar to toggle through the available choices or you may simply type in the letter C, D or N to designate the data type. The WIDTH field allows you to specify a maximum length for the input in the field. A maximum of 255 characters per field is permitted. If you specify a Date field type then TI-Base automatically inserts an "8" as the field width. The DEC column lets you specify the number of digits to appear to the right of a decimal point in a numeric field. A range of 0-99 is permitted.

When you have defined the first field in any TI-Base data base you simply press Enter at the last column of the field and the cursor drops down to the next field definition line. If you are done defining the file simply press F8 to save it. Pressing F9 will abort the effort. Once you press F8 the file definition is written to the data disk, under the name you specified but with a /S extension, and is then ready to accept record input. In fact, you will be asked if you want to APPEND records immediately after the file definition is saved.

To create MICROPEN key in the following structure. It will serve as the basis for the future programs that we create.

```
FIELD^^DESCRIPTOR^^TYPE^^WIDTH^^DEC
-----^^----------^^----^^-----^^---
^01^^^^SUBJECT^^^^^^C^^^^^032^^^^00
^02^^^^SOURCE^^^^^^C^^^^^020^^^^00
^03^^^^TYPE^^^^^^^^C^^^^^015^^^^00
^04^^^^DATE^^^^^^^^C^^^^^005^^^^00
^05^^^^PAGE^^^^^^^^C^^^^^003^^^^00
```

MY-BASIC—

(Continued from Page 18)

```
W
2220 FOR W=1 TO 60
2221 IF EV$(W)="" THEN EV$(W
)=Q$&Q$
2222 PRINT #2:EV$(W) :: NEXT
 W
2330 IF K=140 THEN T$=" " ::
 GOTO 2240
```

McCann Software has new address

New address for McCann Software is 4411 North 93rd St., Omaha NE 68134.

Mike McCann of the company says that although it is no longer developing new software for the TI99/4A or the Geneve 9640, it continues to sell and support its products: Business Graphs 99, The Printer's Apprentice, TPA Toolbox, TI-Forth for MDOS, The Geometers Apprentice and TPA for MDOS.

McCann notes that TPA for MDOS will not print under MDOS version .97H because of changes of the MDOS call specifications, published only in Paul Charlton's Genprog package. Because of this and future versions which would have more changes, McCann says McCann Software decided to stop development on new MDOS software.

USER GROUP UPDATE

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

Michigan

Great Lakes Computer Group Inc., P.O. Box 152, Roseville, MI 48066-0152 (new mailing address).

Canada

Kawawartha 99ers, 224 Woodward Ave., Peterborough, Ontario, Canada K9L 1J7 (change of mailing address).

9T9 User Group, c/o Steve Mickelson, 15 Kersdale Ave., Toronto, Ontario, Canada M6M 1C9 (new address). Meetings monthly except July/August, 10 monthly newsletters and disk of the month. Membership $30/yr., subscriptions $20/yr., disk of the month subscriptions $30/yr. Steve Mickelson (416) 657-1494; Randy Rosetto (416) 469-3468.

AUTHORIZED DEALER

FREEWARE

•• THE TOP IN QUALITY, SELECTION AND VALUE

•• Public Domain and Shareware for the Texas Instruments TI-99/4A Computer.

TEX★COMP Celebrating Our Tenth Year

ONLY $4.95 Per Disk

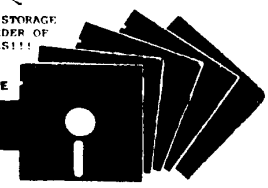
BONUS

FREE DELUXE DISK STORAGE CASE WITH EACH ORDER OF FOUR OR MORE DISKS!!!

NEW FOR 90' INCREDIBLE SOFTWARE

GAMES • BUSINESS • GRAPHICS • WORD PROCESSING • UTILITIES • DATABASE • MUSIC • COMMUNICATIONS • HOME

Your biggest bargain in the computer market



Choose from the BEST!

#123. GREAT 99/4A GAMES, VOL V
THE FIFTH IN OUR BEST SELLING GAME COLLECTION SERIES. TWO DISK SIDES PACKED WITH THE BEST!

#124. GREAT 99/4A GAMES, VOL VI
TWO MORE DISK SIDES FILLED WITH THE THE BEST GAMES AVAILABLE.

#125. BLACKJACK & POKER
A DISK BACKUP FOR MODULE OWNERS.

#126. VIDEO CHESS
A DISK BACKUP FOR OWNERS OF THE ORIGINAL MODULE. LOADS IN ESBASIC!

#127. PIX-GRAPHICS UTILITY
THIS IS THE FREEWARE VERSION OF JIM REISS' UTILITY THAT CAN DISPLAY TI-ARTIST, GRAPHX AND RLE GRAPHICS AND CONVERT FORMATS.

#128. TETRIS--THE SOVIET MIND GAME!
THIS INTERNATIONAL HIT IS NOW AVAILABLE FOR THE 99/4A. EXBASIC AUTOLOAD AND ENGLISH INSTRUCTIONS.

#129. CASH DRAWER
A COMPUTERIZED CASH REGISTER PROGRAM THAT PRINTS RECEIPTS, COMPUTES DAILY TOTALS AND EVEN FIGURES SALES TAX.

#130. THE ORGANIZER
THE ORIGINAL ORGANIZER PROGRAM WHICH LETS YOU ORGANIZE, SCHEDULE AND ARRANGE BUSINESS AND PERSONAL ACTIVITIES!

#131. COMPUTER CRAPS
THE BEST CASINO CRAPS GAME AVAILABLE FOR THE 4A. COMES WITH FULL DOCUMENTATION.

#132. AMBULANCE
A DISK BACKUP OF THE ARCADE MODULE BY FUNWARE. LOADS IN EXBASIC!

#133. DRIVING DEMON
A DISK BACKUP OF THE ARCADE MODULE BY FUNWARE. LOADS IN EXBASIC!

#134. ROTO-RAIDER
A DISK BACKUP OF THIS HIT MODULE BY ROMOX. LOADS IN EXBASIC.

#135. ARCTURUS
A DISK BACKUP OF THE HIT SUNWARE ARCADE MODULE. TI'S ANSWER TO ZAXXON!

#136. ANT-EATER
A DISK BACKUP OF THIS HIT ROMOX MODULE

#137. CROSSFIRE
A DISK BACKUP FOR OWNERS OF THE ORIGINAL TI ACTION MODULE FROM SIERRA ON-LINE.

#138. FIREHOUSE COOKBOOK
A TWO DISK SIDE COLLECTION OF THE BEST FIREHOUSE RECEIPES. FOR ANY BIG GROUP!

#139. MOONMINE
A DISK BACKUP FOR OWNERS OF THE MODULE

#140. MASH
A DISK BACKUP FOR OWNERS OF THE ORIGINAL

#141. MOONSWEEPER
A DISK BACKUP FOR OWNERS OF THE ORIGINAL

#142. TOUCH TYPING TUTOR
A DISK BACKUP FOR OWNERS OF THE ORIGINAL

#143. CONGO BONGO
A DISK BACKUP FOR OWNERS OF THE ORIGINAL

#144. STAR TREK
A DISK BACKUP FOR OWNERS OF THE ORIGINAL

#145. BUCK ROGERS
A DISK BACKUP FOR OWNERS OF THE ORIGINAL

#146. THE PRESIDENTS
A TI FIRST! THE BIOGRAPHIES OF EVERY U.S. PRESIDENT ON TWO DISK SIDES. GREAT FOR SCHOOL, TRIVIA AND HISTORY BUFFS.

#147. CALENDAR-NOTEPAD
THE BEST "CALENDAR MAKER" PROGRAM WE HAVE SEEN. KEEP TRACK OF APPOINTMENTS, SPECIAL OCCASIONS AND PRINT OUT ANY MONTH. INCLUDES A GREAT CALENDAR UTILITY FOR ANY DAY/DATE IN THE FUTURE!

#148. KENO & SLOTS
TWO TOP RATED GAMES BY BOB GASTONI. THE VERY BEST AND REALISTIC KENO GAME WE HAVE SEEN., JUST LIKE VEGAS!

#149. GREAT 99/4A GAMES VOL. VII
FEATURES "BLOCKBUSTER" THE ULTIMATE MULTI-LEVEL BREAKOUT GAME PROGRAMMED IN C.

#150. ULTIMATE TRIVIA
A COLLECTION OF SEVEN INFORMATIVE AND THINKING TYPE TRIVIA GAMES-THE BEST!!

ATTENTION!!! ATARISOFT OWNERS!
NOW GET DISK BACKUPS OF ALL YOUR MODULES FOR ONLY $4.95 EACH. EXBASIC AUTOLOAD!

JUNGLE HUNT · POLE POSITION · DONKEY KONG · PROTECTOR II
PAC MAN · CENTIPEDE · DEFENDER · SHAMUS
Ms. PAC MAN · DIG DUG · PICNIC PARINOIA · MOON PATROL

$4.95 each

24 HOURS A DAY
7 Days a Week!

(818) 366-6631

Charge-it On Your Visa or MasterCard ORDER BY PHONE

TEX★COMP
AMERICA'S NUMBER ONE TI COMPUTER RETAILER
P.O. Box 33084, Granada Hills, CA 91344

TERMS: All prices F.O.B. Los Angeles. For fastest service send cashiers check or money order. Personal checks require up to 15 days to clear. Prices reflect a 3% discount for cash or approved check. Add 3% for Credit Card orders. Prices and availability are subject to change without notice. We reserve the right to limit quantities. California orders add 6.5% sales tax.

TEX-COMP
Celebrating Our Tenth Year

FREEWARE

•• THE TOP IN QUALITY, SELECTION AND VALUE

ONLY $4.95 Per Disk

•• Public Domain and Shareware for the Texas Instruments TI-99/4A Computer.

INCREDIBLE SOFTWARE

BONUS

FREE DELUXE DISK STORAGE CASE WITH EACH ORDER OF FOUR OR MORE DISKS!!!

GAMES • BUSINESS • GRAPHICS • WORD PROCESSING • UTILITIES • DATABASE • MUSIC • COMMUNICATIONS • HOME

The TEX-COMP Freeware program is a disk distribution service which is operated to support the TI-99/4A user and programmer and to keep the TI-99/4A the best value in the computer world. The nominal charge (4.95) that is charged for each title is for distribution services only and includes the cost of duplication, premium grade disks, labels, advertising and packaging including plastic disk cases that we include at no extra cost with orders of four or more disks. When a program requires more than one disk side, we supply a flippy or even a second disk at no extra cost. The programs we distribute come from all over the world and are either public domain or the author has expressly agreed to freeware distribition or has placed the program into freeware distribution by providing it to a commercial bulletin board service.

#1. THE SINGING TI-99/4A SPEECH & MUSIC DISK
This is the disk everyone is talking about. The computer voice actually sings to animated graphics. Includes routines by master programmer Ken Gilliland. Bert & Earnie, Maltilda & much much more. 2 disk sides, speech & 32 K req. Exbasic autoload.

#2. WHEEL OF FORTUNE, BLACKJACK & JOKER POKER
Three fantastic freeware programs on one disk. Professional quality and the best "wheel" game around at any price. Vanna would love it !

#3. DUMPIT
This disk helps you transfer many TI modules to disk. Recommended for users with some programming ability. Ed/Assembler and "widget" recommended.

#4. PRINTART
Two disk sides filled with files that print out great quality pictures on most printers. Many famous TV and comic characters on this disk. "Beam me up Scotty."

#5 ORIGINAL TI SALES DEMO DISK WITH TI-TREK GAME
This disk is packed full of assorted files of all types. Graphics, speech etc. Contains complete TI-TREK game for Speech Editor or TE-II module.

#5A. TI MUSIC/GRAPHICS
A great collection of music and matching graphics. Great examples of music & sprite programming.

#6. EXBASIC MUSIC
A two disk side collection of music & graphics that we consider some of the best.

#7. SPACE SHUTTLE MUSIC/GRAPHICS
One of the real outstanding examples of programming. This disk has it all. Great graphics, music, and continuity. A real salute to the space program. It is almost like watching a movie!

#8. LOTTO PICKER
This program randomly generates numbers for use in the various state lotto games and even runs a simulated lotto game. Easy to modify for pick 6 etc. games. A great learning and fun disk.

#9. MONA LISA PRINT OUT
This disk prints out a near photo quality picture of that lady with the clssic smile. We understand it was made by digitizing the original with a super powerful computer and converting the output to run on the TI-99/4A. Impresses everyone who sees it! Requires Epson printer compatibility.

#10. GOTHIC PRINT
This disk lets you type out a phrase on the screen and then print it out in gothic (Old English) style. Looks like hand-lettered calligraphy. Use for invitations, announcements and business cards.

#11. ANIMATED CHRISTMAS CARD "WOODSTOCK"
This disk was actually originally sent to TEX-COMP as a greeting from master programmer Ray Kazmer. It was just too good not to share! One of the best examples of computer animation and graphics you will see on any computer!

#12. TI-99 OLOPY
This great piece of programming actually simulates and plays the famous board game. For legal reasons we cannot name the game but "do not pass Go! but go directly to Jail!"

#13. STRIP POKER (PG RATED)
Play Poker against your TI-99/4A. When you win a hand she loses--a piece of her clothes that is. Don't worry about being a lousy poker player. Another file is included where you don't even have to know an ace from a king.

#14. FIGURE STUDY (PG RATED)
A collection of Playboy type centerfolds that can be printed out at your command. Use with any printer.

#15. STAR/EPSON PRINTER DEMO
This 2 sided disk contains a large collection of demo programs to put your Star/Epson compatible printer through its paces. Learn what control codes can do! Lots of text and graphics examples. Second side has a great tutorial on printer graphics with examples!

#16. SIDEWAYS PRINTOUT
This program allows you to print out the material from your printer sideways. Great for spreadsheets, banners and large graphics. Second side contains some new enhancements for Multiplan not available on the TI upgrade.

#17. TI FORTH DEMO
This demo disk was released by TI to show the power of Forth. Fantastic music and graphics. Ed/Assem and 32K required!

#18. TI DIAGNOSTIC
This program loads into the Mini-Memory module and checks out your entire system. Much better than disk based diagnostics that cannot be used if a problem in the disk system is at fault. Complete documentation on second side.

#19. TI WRITER/MULTIPLAN UPGRADE
This disk released by TI adds real lower case to your TI Writer, speed to Multiplan and other enhancements. Easy to use., just substitute new files for old! Instructions included.

#20. ACCOUNTS RECEIVABLE
This self contained prize winning program loads and runs in Exbasic and has all the features found in a progessional accounting system. Complete with documentation and a second disk side with report generating programs.

#21. DATA BASE DEMO DISK
A progessional data base program that was originally written to store various magazine articles from computer magazines and then find them by name, subject, key word, or publication. Fast, easy to use and easy to adapt for other applications. Come complete with sample data to make learning data base processing easy. Completely menu driven and unprotected.

Send order and make checks payable to **TEX-COMP**

P.O. BOX 33084 — GRANADA HILLS, CA 91344

TERMS: All prices F.O.B. Los Angeles. For faster service use cashiers check or money order. Add 3% shipping and handling ($3.00 Minimum). Foreign Add 3% for Credit Card orders. Prices and availability subject to change without notice. We reserve the right to limit quantities.

AUTHORIZED DEALER
TEXAS INSTRUMENTS

VISA MasterCard

24 Hour Order Line
(818) 366-6631

NOTE: Payment in full must accompany all orders. Credit card, company check or Money order for immediate shipment. Personal Checks require up to 4 weeks to clear. California orders add 6½% sales tax.

TEX+COMP
Celebrating Our Tenth Year

FREEWARE••

•• Public Domain and Shareware for the Texas Instruments TI-99/4A Computer.

ONLY $4.95 Per Disk

Public Domain and Shareware Programs to Meet Your Every Computing Need.

BONUS

FREE DELUXE DISK STORAGE CASE WITH EACH ORDER OF FOUR OR MORE DISKS!!!

#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.

Send order and make checks payable to **TEX+COMP**
P.O. BOX 33084 — GRANADA HILLS, CA 91344

TERMS ...

AUTHORIZED DEALER
TEXAS INSTRUMENTS

VISA MasterCard

24 Hour Order Line
(818) 366-6631

NOTE ...

TEX★COMP
Celebrating Our Tenth Year

FREEWARE••

•• Public Domain and Shareware for the Texas Instruments TI-99/4A Computer.

ONLY $4.95 Per Disk

Public Domain and Shareware Programs to Meet Your Every Computing Need.

BONUS

FREE DELUXE DISK STORAGE CASE WITH EACH ORDER OF FOUR OR MORE DISKS!!!

#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/KEYBOARD 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 junto 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.

#81. HOME ACCOUNTING SYSTEM
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.

#82. CROSSWORD PUZZLES
This program from Australia creates a different puzzle each time you run it. Self contained with definitions and vocabulary taken from a leading crossword dictionary. Great crossword fun.

#83. HOME APPLICATION PROGRAMS
A two disk side collection of useful programs for the home. Includes banking, cooking, home bar guide, utility records, and much much more. Something for everyone.

Send order and make checks payable to **TEX★COMP**

P.O. BOX 33084 — GRANADA HILLS, CA 91344

TERMS All Orders F.O.B. Our Agency. Minimum Advertising Order. Add 5% shipping and handling. $3.00 Minimum. Easy Money Back. Add 5% for Credit Card orders. Prices and availability subject to change without notice. We reserve the right to limit quantities.

AUTHORIZED DEALER
TEXAS INSTRUMENTS

24 Hour Order Line
VISA MasterCard **(818) 366-6631**

NOTE Payment must accompany all orders. Cashiers checks or Money Orders accepted. Personal Checks require up to 4 weeks to clear. California residents add 6% sales tax.

TEX✦COMP
Celebrating Our Tenth Year

FREEWARE••

•• Public Domain and Shareware for the Texas Instruments TI-99/4A Computer.

ONLY $4.95 Per Disk

Public Domain and Shareware Programs to Meet Your Every Computing Need.

BONUS

FREE DELUXE DISK STORAGE CASE WITH EACH ORDER OF FOUR OR MORE DISKS!!!

#84. GALACTIC BATTLE/SPY ADVENTURE
A pair of great commercial quality games from EB Software of TI Runner fame. Galactic Battle is a space "trek" type strategy game for one or more players. Spy Adventure is an adventure game that will keep you guessing for hours.

#85. AUTOBOOT UTILITY
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 knockout 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, ASCII, 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

#120. BITMAC
The original BITMAC is now available at $4.95 with all original documentation. A powerful graphics program for the 4A which lets you print where you want..even over pre-existing text. Create great graphics in 16 colors, print text sideways, mirror image, upside down etc. etc. A **must** for anyone into 99/4A graphics. Comes with second bonus disk with utilities such as sign & banner makers. Even can computer generate your own signature!

#121. SUPER YAHTZEE & WHEEL II
If you like Yahtzee this disk is for you. A great version written in high speed assembly. Also included is another version of Wheel of Fortune which also lets you create your own puzzles with a puzzle edit program included.

#122. ADULT ADVENTURE
A trily adult adventure for use with the TI Adventure Module. Also included is a bonus adventure (not adult) "LOST GOLD" which is one of the better ones we have seen recently.

Send order and make checks payable to: **TEX✦COMP**

P.O. BOX 33084 — GRANADA HILLS, CA 91344

TERMS: All prices F.O.B. Los Angeles. For faster service use cashier's check or money order. Add 5% shipping and handling ($3.00 Minimum). East of Mississippi add 6%. Add 5% for Credit card orders. Prices and availability subject to change without notice. We reserve the right to limit quantities.

AUTHORIZED DEALER
TEXAS INSTRUMENTS

24 Hour Order Line
VISA MasterCard
(818) 366-6631

NOTE: Payment in U.S. funds must accompany all orders. Credit card is company check or money order for immediate shipment. Personal Checks require up to 4 weeks to clear. California orders add 6% sales tax.

More TI Bulletin Board Listings

The following list of TI Bulletin Board Services was compiled by Mike McGaughey of the Midland 99ers User Group of South Carolina. It was completely updated, as of Sept. 1, 1990. The first installment appeared in the September MICROpendium. This listing will be completed next month.

CITY	STATE	PHONE	NAME	BAUD	SL#'s	PCP	SYSOP
W. Memphis	AR%	501-735-9980	The Midnight Hour	24	1551		Mike Dorman
Clinton	DC	202-292-1482	BBBBs	24	552	DCWAS	Bob Fowler
Worcester	MA*%	617-329-4237	TISIG	12	8796		Helen Holmes
Weymouth	MA*%	617-335-8475	B.C.S. #2	12	8796	MABOS	Wendell Davis
Cambridge	MA	800-544-4005	DELPHI/TISIG	24			Art Byers
Clinton	MD*%	301-292-1483	BBBBs	24	552		Bob Fowler
Clinton	MD%	301-292-1482	BBBBs	24	4600		Bob Fowler
Laural	MD*%	301-596-1044	The Harvester/TISIG	12	4600		Bob Hoffman
Rockville	MD	800-538-9636	GEnie/TISIG	24			Barry Traver
Flint	MI%	313-787-8284	TI Port-All	12	8794		Jim Herron
Taylor	MI*%	313-291-4415	Taylor Town TI	24	8794	MIDET	Kenny English
St. Bonifacius	MN*%	612-446-1419	OOPS BBs	12	3494	MNMIN	Ralph Johnson
St. Louis	MO*%	314-878-4289	TIBBs	12	8978	MOSLO	Ron Courtois
Springfield	MO	417-865-0810	TI Depot PBBs	24			Curtis Finney
Kansas City	MO*%	816-436-9074	KC 99er	24	8615	MOKAN	Gary Burns
Jackson	MS	601-373-2269	Jackson TIBBs	12			David Dent
Biloxi	MS	601-392-8717	The Keep TIKsoft	12			Larry Levy
Grand Forks	NB	701-594-9797	The Rendezvous PBBs	12			Bill Overton
Greensboro	NC	919-621-2623	Groundstar ROS/TISIG	24			Daniel Post
Sayreville	NJ%	201-238-8170	Beaver Board	12	7618		Dan Gazzsy
Roselle Park	NJ%	201-241-8902	TICOFF BBs	12	7618		Bob Guellnitz
Lakewood	NJ%	201-370-0835	Jersey Shore TI	12	7618		John Herbert
Howell	NJ%	201-370-4756	TI-NET	12	7618		Rick Dickens
Passaic	NJ%	201-472-2632	StashBox	12	7618		John Bauiera
Passaic	NJ%	201-472-1799	NNJ TIBBs	12	7618		Ed Platlow
Succasunna	NJ%	201-584-5373	Ramer 99	12	7618		Jeff Eggenburgerg
Old Bridge	NJ%	201-679-0549	O.B.T. Techie	24	7618		Jackie Reiss
Elmwood Park	NJ%	201-794-3175	GS99ers BBs	12	7618		Scott Mueller
Las Vegas	NV	702-648-1247	S.N.U.G. BBs	24			John Martin
New York	NY*%	212-547-4210	After Hours	12	1059	NYNYO	Ed Scham
Patchogue	NY%	516-475-6463	TI-Source Texaments	24	582		Steve Lamberti
Saratoga Spring	NY	518-426-8349	Sam's Place/TISIG	24			Phyllis Maiorelli
Saratoga Spring	NY	518-583-2193	Saratoga 99ers	24			Phyllis Maiorelli
N. Tonawanda	NY	716-837-2818	The 39 Steps	12			Robert Coffe
Port Jervis	NY	914-858-8722	West End BBs	12			Richard VanHouten
Struthers	OH*%	216-724-1963	Penn-Ohio U.G.	12	4222	OHCLV	Ed Luptak
Toledo	OH	419-385-7484	TI-Comm PBBs	24	1190		Bud Mills
Columbus	OH%	614-263-3412	Spirit of 99	12	9347		Irwin Hott
Columbus	OH%	614-268-1994	Chuck's BBs	24	9347		Chuck Grimes
Columbus	OH	800-848-8199	CompuServe/TISIG	24			Jim Horn
Philo	OH%	614-674-4942	ParTIcle 99 PBBs	12	9347		Jim Davis
Oklahoma City	OK%	405-672-8270	OK Sooner Techie	12	9165		Jerry Robertson
Portland	OR*%	503-233-6804	P.U.N.N. BBs	12	9164	ORPOR	Ron Mayer
Gresham	OR*%	503-667-4992	Net-Work 99 BBs	12	9164	ORPOR	Chris George
Easton	PA	215-252-8867	WWIV BBs	24			Mike Mattes
Hatboro	PA%	215-672-4051	TId Bits	24	9581		Bob Rowe
Leesport	PA	215-926-1661	TI-Line	12			Pete Baney
Philadelphia	PA*%	215-927-6432	Philly TIBBs	12	9581	PAPHI	Tom Burke
Philadelphia	PA*%	215-729-0401	Bullwinkle's Corner/TISIG	24	9851		Steve Clarke
New Castle	PA	412-654-8268	Mailbox BBs	24			Jeff Bishop
Pittsburgh	PA%	412-341-4820	Pittsburgh U.G.	24	7408		Gary Taylor
Pittsburgh	PA%	412-344-1931	The Harvester/TISIG	24	7408		Bob Hoffman
Pittsburgh	PA%	412-344-1315	The Harvester/TISIG	24	7408		Bob Hoffman
Harrisburg	PA%	717-657-4992	The Data Factory/TISIG	12	1707		Dave Ratcliffe
Harrisburg	PA%	717-657-4997	The Data Factory/TISIG	24	1707		Dave Ratcliffe
Mechanicsburg	PA	717-790-7925	Navsealogcen RBBs/TISIG	24			David Hultberg
State College	PA	814-238-5559	Central PA U.G.	24			Alan Claver

Legend: *=accessible via PC-Pursuit; %=accessible via Starlink;SL#=Starlink number;BAUD 3=300; 12=300/1200; 24=300/1200/2400; 96=300/1200/2400/9600.

Texaments releases fall/winter catalog

Texaments has released its 1990 fall/winter TI catalog, available free on request. The catalog is automatically included with all orders placed directly with the company, according to Steve Lamberti, Texaments president.

To obtain a catalog, write Texaments, 53 Center St., Patchogue, NY 11772, or call (516) 475-3480 (voice) or (516) 475-6463 (BBS).

Group honors MP

The Users Group of Orange County, California, voted John Koloen and Laura Burns, publisher and editor of MICROpendium, into its TI99/4A Hall of Fame for the month of August 1990.

According to Bill Nelson, the group's awards chairman, the Hall of Fame was created to recognize members of the 4A community who have made significant contributions to this home computer and to encourage continued support.

Fair cancelled

The Fourth Annual CPUG Computer/Electronics Exhibition, scheduled for Oct. 7 in Palmdale, Pennsylvania, was cancelled by its sponsor, the Central PA 99/4A Users Group.

Reluctance and apathy by members of the TI community were cited as reasons for cancellation by the organizers.

For further information, contact the Central PA 99/4A Users Group, P.O. Box 14126, Harrisburg, PA 17104-0126, or Anthony (Tony) DeDonatis, president, (717) 534-2056.

KBCC adds service

KB Computer Concepts has moved to a new location and teamed up with the On-Demand Information service. New address is KB Computer Concepts, c/o Bergman, 634 Parks Tower, 3001 West Bancroft St., Toledo, OH 43606.

On-Demand, in Dover, Ohio, may be reached at 300-9600 baud at (216) 343-7717. According to Keith Bergman of KBCC, after a user logs on and reaches the main menu and enters S for subdivisions and 5 for online shopping, he is in the KBCC base. Users can purchase new and used hardware, get information about KBCC software, and get upgrades to existing KBCC programs.

Get the picture

Using TML and TI-Artist to brighten your TI-Writer documents

By HARRY WILHELM

One of the most frustrating aspects of being a TI computer enthusiast is the difficulty of combining the output of such excellent programs as TI-Writer and TI-Artist. I've snipped out and rubber cemented pictures onto pages of text more times than I care to remember. TI-Writer+TI-Artist was written to fill that void by making it possible to place TI-Artist format pictures anywhere you want them in a text document.

TI-Writer+TI-Artist requires The Missing Link (available from Texaments) in order to work. It is written entirely in Extended BASIC. Among the features that The Missing Link adds to Extended BASIC are the ability to load and display TI-Artist format pictures and the ability to do a screen dump. Combine that new capacity with XB's ability to read Display/Variable 80 files and send them to the printer and you should get an idea of how such a program could be written. Best of all, that fact that TIW+TIA is written in XB means that you can easily modify it if you want to customize it to suit your needs. And even if you're not a programmer, every user group has at least one expert in Extended BASIC who can help you. This ease of modification is one of the biggest advantages XB has over assembly language. Ever try modifying an assembly language program when you don't have the source code?

U.S. Postal Service

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

Required by 39 U.S.C. 3685)

1A. Title of Publication	1B. PUBLICATION NO.	2. Date of Filing
MICROpendium	0 0 3 5 4 7	10/1/90
3. Frequency of Issue	3A. No. of Issues Published Annually	3B. Annual Subscription Price
monthly	12	$25.00

4. Complete Mailing Address of Known Office of Publication *(Street, City, County, State and ZIP+4 Code) (Not printers)*
16606 Terrace Dr., Austin, TX 78728-1156

5. Complete Mailing Address of the Headquarters of General Business Offices of the Publisher *(Not printer)*
P.O. Box 1343, Round Rock, TX 78680-1343

6. Full Names and Complete Mailing Address of Publisher, Editor, and Managing Editor *(This item MUST NOT be blank)*

Publisher *(Name and Complete Mailing Address)*
John Koloen, P.O. Box 1343, Round Rock, TX 78680

Editor *(Name and Complete Mailing Address)*
Laura Burns, P.O. Box 1343, Round Rock, TX 78680

Managing Editor *(Name and Complete Mailing Address)*

7. Owner *(If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given. If the publication is published by a nonprofit organization, its name and address must be stated.) (Item must be completed.)*

Full Name	Complete Mailing Address
Burns-Koloen Communications Inc.	P.O. Box 1343, Round Rock,TX 78680
John Koloen	16606 Terrace Dr., Austin, TX 78728
Laura Burns	16606 Terrace Dr., Austin, TX 78728

8. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities *(If there are none, so state)*

Full Name	Complete Mailing Address

9. For Completion by Nonprofit Organizations Authorized To Mail at Special Rates *(DMM Section 423.12 only)*
The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes *(Check one)*

(1) ☒ Has Not Changed During Preceding 12 Months ☐ Has Changed During Preceding 12 Months (2) *(If changed, publisher must submit explanation of change with this statement.)*

10. Extent and Nature of Circulation *(See instructions on reverse side)*	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
A. Total No. Copies *(Net Press Run)*	4854	4250
B. Paid and/or Requested Circulation 1. Sales through dealers and carriers, street vendors and counter sales	641	549
2. Mail Subscription *(Paid and/or requested)*	3068	2761
C. Total Paid and/or Requested Circulation *(Sum of 10B1 and 10B2)*	3709	3310
D. Free Distribution by Mail, Carrier or Other Means Samples, Complimentary, and Other Free Copies	177	73
E. Total Distribution *(Sum of C and D)*	3886	3383
F. Copies Not Distributed 1. Office use, left over, unaccounted, spoiled after printing	966	867
2. Return from News Agents	2	0
G. TOTAL *(Sum of E, F1 and 2—should equal net press run shown in A)*	4854	4250

11. I certify that the statements made by me above are correct and complete — Signature and Title of Editor, Publisher, Business Manager, or Owner: John Koloen, Publisher

PS Form 3526, Feb. 1989 *(See instructions on reverse)*

USING TIW+TIA

As usual, the first thing you have to do is type in the program. Use the CHECKSUM utility if you like and save TIW+TIA to disk once all is correct. Then you have to use the CONVERT utility that comes with The Missing Link to convert it from Program to I/V254 format. Simply follow the instructions on page 23 of the TML manual. (If TML is loaded it will automatically save in I/V254 format, but then you can't use the checksums.)

At this point I have to confess to an error that crept into some early copies of TML and tell you how to fix it. Put The Missing Link disk (preferably a backup) into drive No.1 and Enter OLD DSK1.TML.

Then type 210 and press FCTN X.

If there is an IP$ in line 210, change it to A$. (If there's no IP$ in this line you can skip the next steps.) Then type:

SAVE DSK1.TML <Enter>

SAVE DSK1.LOADER,MERGE <Enter>

After you have saved this modified version of TML, you don't have to follow this procedure every time you load it.

The next thing to do is go into the Editor of TI-Writer. Prepare the text to be printed in whatever way you feel most comfortable. At those places where you want a picture to be printed you simply have to include two lines, as shown below: (Make sure the line of text above the picture ends in a carriage return.)

```
... text above the picture
+DSK1.PICTURE
.SP 17
Continue with text...
```

The above example will make the left hand margin of PICTURE come out even with the paragraph indentation point. To move the picture further to the right you can add circumflexes until the picture is where you want it to be, or else you can reposition it in either direction with .IN:

```
... text above the picture
^^^^^^^^ +DSK1.PICTURE
.SP 17
Continue with text ...
```

Or:

```
... text above the picture
.IN -5
+DSK1.PICTURE
.SP 17
.IN +10
Continue with text ...
```

It doesn't matter whether the picture was generated by The Missing Link, drawn with TI-Artist PLUS or converted from another format. As long as it is in TI-Artist format it can be printed. However, you cannot print two pictures side by side.

(See Page 27)

TI-WRITER & TI-ARTIST—

(Continued from Page 26)

When finished, save the file to disk. Then load the Formatter and print the file. But when asked for the "Print Devicename:" you should type "DSKn.ANY_NAME" which prints the formatted file to disk instead of to your printer.

After formatting the file,you may want to check to be sure that the pictures haven't been split between two pages. You can do this with PaperSaver or by loading the formatted file back into TI-Writer's editor, or else by simply printing the file with TIW+TIA. If any pictures have been split, you should include a .BP (Begin Page) just above them to force them to begin at the top of the next page.

Now it's time to print the file. Load TML and choose 2 disk files and 16 colors at the prompts. (Choose 16 colors even if you have a monochrome monitor.) Then RUN TML+TIA. Put the disk with the formatted TI-Writer file into a disk drive. (Dón't use the original file — use the file that the formatter printed to disk.) When prompted, enter the name of the file that you want to print.

Next you will be asked the question: "Prompt for filenames of pictures? (Y/N)" Selecting "Y" for this option will generate prompts that give you time to swap disks when loading a picture or when returning to the text after loading and printing a picture.

Make the appropriate response when asked whether you want to pause at the end of the page and whether you're in NLQ mode. Make sure your printer is turned on, press a key, and you're printing!

MODIFYING THE SCREEN DUMP

It would be great if you could simply type in TIW+TIA and use it as it is, but since everyone's printer works a little differently it's not that easy. Consequently, you'll probably have to make some small changes to the program so that it works with your equipment. But before doing anything, try out the program as published — you might be lucky and not need to make any changes!

TIW+TIA is set up to work with a line spacing of 1/6 inch. Normally, this is the default line spacing on a printer, but if your printer is set up differently, you should change the line spacing with the appropriate DIP switch.

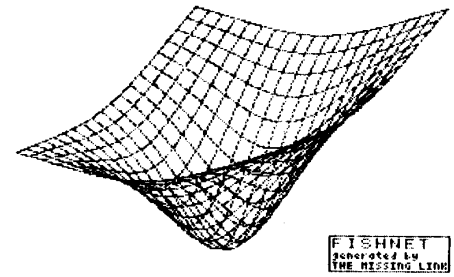
In line 270 is a variable called LFC. This is a linefeed correction that may be necessary when using NLQ or double-strike characters. Without this correction, my printer gives a slightly shorter screen dump when printing in NLQ, which effects the appearance of the screen dump and the length of the page. The best way to fine tune this variable is by printing a one page document that contains two pictures. Print the document in both draft and NLQ and adjust the value of LFC until the printouts in the two modes match in size. LFC should probably be either 0, 1 or 2.

The printer device name in line 320 should match the printer device name that you normally use when printing with TI-Writer or FUNNELWEB.

Just before a screen dump is performed, line 410 will send codes to the printer that set the line spacing to 24/216 inch (or one-ninth inch) plus the line feed correction for NLQ. Your printer manual will tell what codes do this. You may need to set it to 20/180, 16/144, or 8/72 depending on what conventions

(See Page 28)

I have sent you an article that you may wish to consider for possible publication in MICROpendium. The article describes an Extended BASIC program that I wrote called TI-WRITER + TI-ARTIST. What TIW+TIA does is make it possible to easily include TI-ARTIST format pictures in text that has been prepared with TI-WRITER.



TIW+TIA requires THE MISSING LINK from TEXAMENTS in order to work. In case you don't have it, I've included a copy of THE

Sample of TI-Writer output with graphics (reduced).

HORIZON RAMDISK MEMEX P-GRAM+

HORIZON BARE BOARD, Manuals,ROS 8.12 $45
ALL KITS INCLUDE THE NEW ROS 8.12 $10
K Zero K Kit= Above + parts, NO memory $100
I NEW 128k Chips allow 1.5 MEG on one layer.
T 128k $170, 256k $235, 384k $300, 512k $365
S 800k $475 ; One Meg $600 ; 1.5meg $CALL
the following are used with the GENEVE
Add 128k Boot to any above kit $90
PHOENIX KITs 128/384k $390, 256/800k $635
All Horizons can add one chip at a time.
THE RAMBO MOD for any HORIZON $45
P-GRAM kit 72k $150 or with Clock $170
NEW P-GRAM+ kit 192k $240 w/Clock $260
Pre-Built READY TO RUN ADD $30 to kit price
* * * * * * * * * * *
MEMEX MEMory EXpansion for the GENEVE
MEMEX 504k without GENEVEMOD $245 NO KIT
A MEMEX over 504k requires a GENEVEMOD.
MEMEXs with GENEVEMOD, 504k $345,
1008k $395, 1512k $445, 2016k $495
GENEVEMOD runs ZERO WAITSTATE Operation
of the MEMEX MEMORY up to 1.5 meg and
all external Bus operations EXCEPT DSRs.
2 meg Zero w/s disables GENEVE 512 and
replaces the GENEVE Eprom.
* * * * * * * * * * *
Ohio Residents add 6% sales tax
Ship OverSeas ADD $5 Surface or $10 AIR,
or orders under $50 add 10% for AIR.
FREE Shipping in U.S. and CANADA.
PRICES may change if memory costs go UP.
Please Call or Write for ORDER or info.
Bud Mills Services, 166 Dartmouth Dr.
Toledo Ohio 43614. Ph 419-385-5946.
Call TI-COMM BBS on 419 385 7484 for
the latest prices or information.
300 Baud,7bit,e / 1200,8,n / 2400,8,n
AmEX or MasterCard or Visa ADD %10
Phone orders CALL Bud on 419-385-5946
OR Disk Only Software 1-800-736-4951

TI-WRITER & TI-ARTIST—

(Continued from Page 27)

your printer uses.

Line 420 is used to set the tab indentation to the value of T. Look in your printer manual for the codes needed to set a horizontal tab position.

When doing a screen dump, The Missing Link goes through a loop 24 times, sending 256 bytes of graphics data to the printer with each loop. Before each of the 24 lines of graphics data is sent, TML sends nine bytes of code to the printer. As written, these 9 bytes do a linefeed, set the line spacing to 24/216", and tell the printer to expect 256 bytes of normal density graphics. Because there was no provision for horizontal tabs, the line spacing controls had to be moved to line 410 of the XB program. This makes enough room to include a horizontal tab (ASCII 9) among these nine bytes. Line 430 changes these bytes to be: 3 backspaces (which are used as fillers), 1 linefeed, 1 horizontal tab, and 4 codes telling your printer to expect 256 bytes of normal density graphics. If your printer uses different codes to set the bit image graphics mode, change the 27,75,0,1 to whatever codes are required. If you make any changes, make sure exactly nine bytes are sent! Since the backspaces are just there as fillers, you can delete one or more of them as needed to get nine bytes of data.

TML ends a screen dump by sending three bytes to the printer. Normally they reset the printer and do a linefeed. The last thing you want to do is reset the printer in the middle of printing a document, so line 440 changes those 3 bytes to 3 backspaces, which basically have no effect when sent. You will not have to change this line.

After the screen dump has been completed, line 500 restores the linefeed spacing to 36/216 of an inch or one-sixth inch. Consult your printer manual if necessary to find out how to change the linespacing.

Phew! That sounds more complicated than it really is, and once you've made any necessary changes and tested them, you simply save TIW+TIA and your changes will be saved along with it.

Now you can put up those scissors and throw away that bottle of rubber cement!

TIW+TIA

```
100 ! TIW+TIA by Harry Wilhe
lm !179
110 ! Requires THE MISSING L
INK to work.  Select 2 disk
files and 16 color mode. !14
0
120 ! Make sure TML is confi
gured so that the screen dum
p works properly, then modif
y lines 270,320,410,420,430,
440,500 to suit your particu
lar printer. !143
130 ! Note the use of PENHUE
(1,1) in line 170.  Also, no
 sprites are used in the tit
le screen! !011
140 !!131
150 CALL PEEK(-31888,X):: IF
 X<>27 THEN PRINT "Reload TH
E MISSING LINK,     select 2
disk files, and     RUN this
program again." :: END !174
160 CALL SCREEN(5):: CALL LI
NK("COLOR",16,5):: CALL LINK
("PU"):: CALL LINK("PENHUE",
7,12):: CALL LINK("FILL",1,7
0,115,170)!207
170 CALL LINK("PENHUE",13,12
):: CALL LINK("FILL",100,70,
115,170):: CALL LINK("PD")::
 CALL LINK("PENHUE",1,1)!066
180 CALL LINK("CHSIZE",8,8):
: FOR C=1 TO 85 :: CALL LINK
("PRINT",47,(C),"TI-WRITER")
:: NEXT C !159
190 CALL LINK("WINDOW",0,116
,193,125):: FOR R=121 TO 15
STEP -1 :: CALL LINK("PRINT"
,(R),1,"TI ARTIST"):: NEXT R
 :: CALL LINK("WINDOW")!018
200 CALL LINK("PUTPEN",8,112
,90):: FOR I=1 TO 4 :: CALL
LINK("FWD",16,90):: CALL LIN
K("FWD",34,-90):: CALL LINK(
"FWD",34,90):: NEXT I !042
210 CALL LINK("CHSIZE",6,9):
: FOR R=140 TO 100 STEP -1 :
: CALL LINK("PRINT",(R),72,"
By Harry Wilhelm"):: NEXT R
:: CALL LINK("CHSIZE",6,8)!1
16
220 CALL LINK("PRINT",150,1,
"Enter name of formatted TI-
WRITER file:"):: FILE$="DSK1
.FILENAME" !244
230 ON ERROR 520 :: CALL LIN
K("INPUT",160,1,FILE$,25,FIL
E$):: OPEN #1:FILE$,INPUT !2
23
240 ON ERROR STOP :: CALL LI
NK("PRINT",184,1,"Prompt for
 filenames of pictures? (Y/N
)")!231
250 CALL KEY(3,KX,S):: IF KX
<>78 AND KX<>89 THEN 250 !00
2
260 CALL LINK("PRINT",184,1,
"In NLQ or Double Strike mod
e? (Y/N)     ")!097
270 CALL KEY(3,K,S):: IF K<>
78 AND K<>89 THEN 270 ELSE I
F K=89 THEN LFC=2 !Line feed
 correction for screen dump
when in NLQ or double strike
 mode !113
280 CALL LINK("PRINT",184,1,
"Pause at end of page? (Y/N)
          ")!200
290 CALL KEY(3,PEP,S):: IF P
EP<>78 AND PEP<>89 THEN 290
!241
300 CALL LINK("PRINT",184,1,
"Turn your printer on, then
press any key")!153
310 CALL KEY(3,K,S):: IF S<1
 THEN 310 !128
320 FF$=CHR$(12):: OPEN #2:"
PIO.LF" !033
330 CALL LINK("CLEAR"):: CAL
L LINK("COLOR",16,5):: CALL
LINK("PRINT",140,1,"Printing
 "&FILE$)!038
340 LINPUT #1:A$ :: IF EOF(1
)THEN PRINT #2:A$ :: CLOSE #
1 :: CLOSE #2 :: PRINT "Fini
shed Printing "&PF$ :: END !
174
350 T=POS(A$,"+DSK",1):: IF
```

(See Page 29)

TI-WRITER & TI-ARTIST—

(Continued from Page 28)

```
1?Ø THEN 38Ø !254
36Ø PRINT #2:A$ :: IF POS(A$
,FF$,1)=Ø OR PEP=78 THEN 34Ø
 ELSE CALL LINK("PRINT",184,
1,"Put paper in printer, the
n press any key")!119
37Ø CALL KEY(3,K,S):: IF S<1
 THEN 37Ø ELSE 33Ø !Ø81
38Ø PF$=SEG$(A$,T+1,LEN(A$)-
T-1):: T=T-2 !181
39Ø IF KX=78 THEN 41Ø !Ø5Ø
4ØØ CALL LINK("CLEAR"):: CAL
L LINK("PRINT",14Ø,1,"Enter
 name of TI ARTIST picture:")
:: CALL LINK("INPUT",15Ø,1,P
F$,25,PF$)!143
41Ø PRINT #2:CHR$(27);CHR$(5
1);CHR$(24+LFC)! Set line sp
acing to 24/216 or 1/9 and a
dd correction for NLQ or dou
ble strike !254
42Ø PRINT #2:CHR$(27);CHR$(6
8);CHR$(T);CHR$(Ø)! Set tab
to T !198
43Ø CALL LOAD(14474,8,8,8,1Ø
,9,27,75,Ø,1)! 9 bytes sent
before each graphics line. 3
 backspaces,linefeed,tab,256
 bytes normal density graphi
cs !222
44Ø CALL LOAD(14483,8,8,8)!3
 bytes of closing data for d
ump - 3 back spaces !2Ø3
45Ø ON ERROR 53Ø :: CALL LIN
K("LOADP",PF$,1):: CALL LINK
("DUMP"):: ON ERROR STOP !21
8
46Ø CALL LINK("CLEAR"):: IF
KX=78 THEN 49Ø !Ø59
47Ø CALL LINK("PRINT",1ØØ,1,
"Put disk with Text File int
o "&SEG$(FILE$,1,4)&",    Th
en press any key.")!171
48Ø CALL KEY(Ø,K,S):: IF S=Ø
 THEN 48Ø !Ø37
49Ø FOR I=1 TO 16 :: LINPUT
#1:A$ :: NEXT I !Ø13
5ØØ PRINT #2:CHR$(27):CHR$(5
1);CHR$(36);CHR$(1Ø)! Restor
e linefeed spacing to 36/216
" OR 1/6" !Ø41
51Ø GOTO 33Ø !154
52Ø CALL LINK("PRINT",176,1,
"Can't find """&FILE$&""""):
: GOSUB 54Ø :: RETURN 23Ø !1
63
53Ø CALL LINK("PRINT",176,1,
"Can't find """&PF$&""""):
GOSUB 54Ø :: RETURN 4ØØ !196
54Ø CALL LINK("PRINT",184,1,
"Press any key to try again"
)!Ø57
55Ø CALL KEY(3,K,S):: IF S=Ø
 THEN 55Ø ELSE CALL LINK("PE
"):: CALL LINK("FILL",176,1,
192,24Ø):: RETURN !2Ø3
```

Dr. Nim

Can you beat the computer?

The following program is by Louis D. King of Sebring, Florida.

The program, called Dr. Nim, is of unknown origin. The game involves removing "sticks" from 3 or 4 piles in a 1, 3, 5, 7 or 3, 5, 7 pile configuration. The player takes turns with the computer removing from 1 to all from any one pile. Play alternates until a player has to take the last stick. Whichever player has to pick up the last stick is the loser.

Input is through the keyboard (documenation is included with the program).

Players will find Dr. Nim a tough opponent.

DR. NIM

```
1ØØ REM *** DOCTOR NIM BY LO
UIS D. KING 6/6/9Ø *** !122
11Ø REM BASIC OR X-BASIC !22
8
12Ø CALL CLEAR !2Ø9
13Ø CALL SCREEN(12)!197
14Ø PRINT "WANT INSTRUCTIONS
? (Y/N)" !Ø16
15Ø CALL KEY(Ø,KY,STATUS)!16
5
16Ø IF STATUS=Ø THEN 15Ø !Ø4
6
17Ø IF KY=78 THEN 34Ø !237
18Ø IF KY=11Ø THEN 29Ø !223
19Ø CALL CLEAR !2Ø9
2ØØ PRINT "*YOU ARE PLAYING
A GAME AND YOUR OPPONENT IS
DOCTOR NIM." !Ø87
21Ø PRINT "*THERE ARE 3 OR 4
 PILES OF  STICKS AND PLAYER
S REMOVE  FROM 1 TO ALL STI
CKS IN A  PILE ON THEIR TUR
N." !116
22Ø PRINT !156
23Ø PRINT "*THE OBJECT OF TH
E GAME IS  TO LEAVE YOUR OPP
ONENT WITH THE LAST STICK. W
HOEVER  HAS TO PICK THE L
AST STICK  IS THE LOSER." !1
98
24Ø PRINT !156
25Ø PRINT "*USE S AND D KEYS
 TO MOVE  THE PILE CHOICE I
NDICATOR." !Ø49
26Ø PRINT "*USE NUMBER KEYS
TO SELECT  THE QUANTITY OF S
TICKS TO BEREMOVED FROM THAT
 PILE." !176
27Ø PRINT "*USE ENTER KEY TO
 REMOVE THENUMBER OF STICKS
SELECTED." !Ø15
28Ø PRINT !156
29Ø PRINT "**ALPHA LOCK MUST
 BE ON.**" !2Ø7
3ØØ PRINT !156
31Ø PRINT "*PRESS ANY KEY TO
 CONTINUE*";!1Ø8
32Ø CALL KEY(Ø,KY,STATUS)!16
5
33Ø IF STATUS=Ø THEN 32Ø !21
7
34Ø CALL CLEAR !2Ø9
35Ø INPUT "ENTER YOUR INITIA
LS (UP TO 3)":PL$ !129
36Ø IF LEN(PL$)<1 THEN 35Ø !
Ø23
37Ø IF LEN(PL$)>3 THEN 35Ø !
Ø26
38Ø CALL SCREEN(6)!151
```

(See Page 30)

DR. NIM—

(Continued from Page 29)

```
390 PL=-1 !022
400 GAME=1 !210
410 T=400 !113
420 L=3 !006
430 CALL CLEAR !209
440 FOR N=2 TO 10 !111
450 CALL COLOR(N,6,6)!008
460 NEXT N !228
470 A$="PLAYER  SCORE" !128
480 B$="PLAY AGAIN? (Y/N)" !
182
490 C$="PRESS ANY KEY TO STA
RT GAME" !139
500 D$="_D O C T O R  N I M_
" !197
510 E$="YOU LOSE-TOO BAD" !2
10
520 F$="YOU WIN-CONGRATULATI
ONS_^^^" !119
530 PL1$="  NIM     0" !117
540 FOR N=1 TO 13 !113
550 CALL HCHAR(16,N+9,ASC(SE
G$(A$,N,1)))!134
560 NEXT N !228
570 FOR N=1 TO LEN(PL1$)!118
580 CALL HCHAR(18,N+9,ASC(SE
G$(PL1$,N,1)))!020
590 NEXT N !228
600 FOR N=1 TO LEN(PL$)!069
610 CALL HCHAR(20,11+N,ASC(S
EG$(PL$,N,1)))!006
620 NEXT N !228
630 FOR N=1 TO LEN(D$)!237
640 CALL HCHAR(4,6+N,ASC(SEG
$(D$,N,1)))!082
650 NEXT N !228
660 CALL HCHAR(3,6,104,22)!2
23
670 CALL HCHAR(5,6,105,22)!2
26
680 CALL HCHAR(4,6,97)!217
690 CALL HCHAR(4,27,97)!013
700 CALL HCHAR(9,6,104)!004
710 CALL HCHAR(13,6,105)!049
720 CALL HCHAR(9,9,104,3)!18
2
730 CALL HCHAR(13,9,105,3)!2
27
740 CALL HCHAR(9,14,104,5)!2
29
750 CALL HCHAR(13,14,105,5)!
018
760 CALL HCHAR(9,21,104,7)!2
29
770 CALL HCHAR(13,21,105,7)!
018
780 CALL HCHAR(20,2,48)!049
790 DIM P(4),W(44)!237
800 FOR N=1 TO 4 !064
810 READ P(N)!162
820 NEXT N !228
830 FOR N=1 TO 44 !117
840 READ W(N)!169
850 W(N)=W(N)-123 !005
860 NEXT N !228
870 CALL CHAR(104,"00000000F
FFFFFFF")!142
880 CALL CHAR(105,"FFFFFFFF0
0000000")!143
890 CALL CHAR(93,"2424FF2424
FF2424")!048
900 CALL CHAR(94,"0018181818
001800")!226
910 CALL CHAR(95,"0000000000
000000")!182
920 CALL CHAR(96,"3C3C3C3C3C
3C3C3C")!103
930 CALL CHAR(97,"0000000000
000000")!184
940 TOTAL=1357 !222
950 RANDOMIZE !149
960 REM ENTRY FOR RESTART !1
52
970 A=INT(TOTAL/1000)!016
980 IF A=0 THEN 1030 !255
990 CALL HCHAR(9,6,104)!004
1000 CALL HCHAR(13,6,105)!04
9
1010 CALL VCHAR(10,6,96,3)!1
95
1020 CALL HCHAR(14,6,49)!008
1030 B=INT((TOTAL-A*1000)/10
0)!160
1040 CALL HCHAR(14,10,51)!04
5
1050 C=INT((TOTAL-A*1000-B*1
00)/10)!147
1060 CALL HCHAR(14,16,53)!05
3
1070 D=INT(TOTAL-A*1000-B*10
0-C*10)!043
1080 CALL HCHAR(14,24,55)!05
4
1090 IF PL=-1 THEN 1130 !129
1100 CALL HCHAR(20,10,32)!04
1
1110 CALL HCHAR(18,10,62)!05
1
1120 GOTO 1150 !209
1130 CALL HCHAR(18,10,32)!04
8
1140 CALL HCHAR(20,10,62)!04
4
1150 FOR N=1 TO B !133
1160 CALL VCHAR(10,8+N,96,3)
!212
1170 NEXT N !228
1180 FOR N=1 TO C !134
1190 CALL VCHAR(10,13+N,96,3
)!001
1200 NEXT N !228
1210 FOR N=1 TO D !135
1220 CALL VCHAR(10,20+N,96,3
)!255
1230 NEXT N !228
1240 PN=2-INT(TOTAL/1000)!04
2
1250 CALL SCREEN(6)!151
1260 FOR N=2 TO 8 !069
1270 CALL COLOR(N,7,16)!059
1280 NEXT N !228
1290 CALL COLOR(10,12,6)!019
1300 CALL COLOR(9,2,12)!230
1310 CALL HCHAR(8,P(PN),93)!
053
1320 GOSUB 3340 !105
1330 FOR N=1 TO LEN(C$)!236
1340 CALL HCHAR(23,3+N,ASC(S
EG$(C$,N,1)))!128
1350 NEXT N !228
1360 REM ANY KEY TO START !0
28
1370 CALL KEY(0,KY,STATUS)!1
65
1380 IF STATUS=0 THEN 1370 !
247
1390 CALL HCHAR(23,1,32,32)!
221
1400 CALL SOUND(500,262,2,33
0,2,392,2)!018
1410 FOR N=1 TO 250 !165
1420 NEXT N !228
1430 IF PL=1 THEN 2310 !096
1440 REM START PLAY !158
1450 CALL KEY(0,KY,STATUS)!1
65
1460 CALL HCHAR(20,10,32)!04
1
1470 CALL HCHAR(20,10,62)!04
4
1480 IF STATUS=0 THEN 1450 !
071
1490 IF KY=68 THEN 1560 !181
1500 IF KY=83 THEN 1650 !012
1510 KEY=KY-48 !067
1520 IF KEY<8 THEN 1530 ELSE
```

(See Page 31)

DR. NIM—

(Continued from Page 30)

```
1540 !249
1530 IF KEY>0 THEN 1760 !133
1540 GOTO 1450 !254
1550 REM MOVE CURSOR RIGHT !
141
1560 PN=PN+1 !181
1570 IF PN>4 THEN 1580 ELSE
1600 !026
1580 PN=4 !089
1590 GOTO 1450 !254
1600 CALL HCHAR(8,6,32,20)!1
77
1610 CALL HCHAR(8,P(PN),93)!
053
1620 CALL SOUND(250,440,2)!1
34
1630 GOTO 1450 !254
1640 REM MOVE CURSOR LEFT !0
58
1650 PN=PN-1 !182
1660 IF PN<2-INT(TOTAL/1000)
THEN 1670 ELSE 1700 !168
1670 PN=1 !086
1680 GOTO 1450 !254
1690 REM ENTRY FOR NIM !087
1700 CALL HCHAR(8,6,32,20)!1
7
1710 CALL HCHAR(8,P(PN),93)!
053
1720 CALL SOUND(250,440,2)!1
34
1730 IF PL=1 THEN 1850 !146
1740 REM SELECT QUANTITY !02
5
1750 GOTO 1450 !254
1760 ON PN GOTO 1770,1790,18
10,1830 !054
1770 IF KEY>A THEN 1450 !150
1780 GOTO 1850 !144
1790 IF KEY>B THEN 1450 !151
1800 GOTO 1850 !144
1810 IF KEY>C THEN 1450 !152
1820 GOTO 1850 !144
1830 IF KEY>D THEN 1450 !153
1840 GOTO 1850 !144
1850 CALL HCHAR(8,P(PN),KEY+
48)!223
1860 IF PL=1 THEN 1930 !226
1870 REM "ENTER" QUANTITY !0
27
1880 CALL KEY(0,KY,STATUS)!1
65
1890 IF STATUS=0 THEN 1880 !
247
1900 IF STATUS=-1 THEN 1880
!186
1910 IF KY<>13 THEN 1450 !25
3
1920 IF PL=-1 THEN 1950 !184
1930 FOR N=1 TO 300 !161
1940 NEXT N !228
1950 CALL HCHAR(8,P(PN),93)!
053
1960 REM ERASE STICKS !027
1970 ON PN GOTO 1980,2020,20
80,2140 !054
1980 A=A-1 !252
1990 CALL VCHAR(10,6,97,3)!1
96
2000 CALL HCHAR(14,6,48)!007
2010 GOTO 2190 !229
2020 B=B-KEY !237
2030 FOR N=1 TO 3-B !067
2040 CALL VCHAR(10,8+N,97,3)
!213
2050 NEXT N !228
2060 CALL HCHAR(14,10,B+48)!
054
2070 GOTO 2190 !229
2080 C=C-KEY !239
2090 FOR N=1 TO 5-C !070
2100 CALL VCHAR(10,13+N,97,3
)!002
2110 NEXT N !228
2120 CALL HCHAR(14,16,C+48)!
061
2130 GOTO 2190 !229
2140 D=D-KEY !241
2150 FOR N=1 TO 7-D !073
2160 CALL VCHAR(10,20+N,97,3
)!000
2170 NEXT N !228
2180 CALL HCHAR(14,24,D+48)!
061
2190 TOTAL=A*1000+B*100+C*10
+D !236
2200 CALL SOUND(250,587,2)!1
46
2210 IF TOTAL=0 THEN 2900 !1
51
2220 REM SWAP PLAYERS !053
2230 PL=PL*-1 !117
2240 IF PL=-1 THEN 2280 !003
2250 CALL HCHAR(20,10,32)!04
1
2260 CALL HCHAR(18,10,62)!05
1
2270 GOTO 2300 !083
2280 CALL HCHAR(18,10,32)!04
8
2290 CALL HCHAR(20,10,62)!04
4
2300 IF PL=1 THEN 2310 ELSE
1450 !089
2310 REM LOOK FOR WIN !004
2320 IF TOTAL=357 THEN 2670
!033
2330 IF TOTAL=1000 THEN 2740
!138
2340 IF TOTAL=100 THEN 2780
!129
2350 IF TOTAL=10 THEN 2820 !
121
2360 IF TOTAL=1 THEN 2860 !1
12
2370 FOR N=21-A*20 TO 44 !15
4
2380 IF TOTAL-W(N)=1000 THEN
2550 !159
2390 IF TOTAL-W(N)=300 THEN
2570 !133
2400 IF TOTAL-W(N)=200 THEN
2570 !132
2410 IF TOTAL-W(N)=100 THEN
2570 !131
2420 IF TOTAL-W(N)=50 THEN 2
600 !116
2430 IF TOTAL-W(N)=40 THEN 2
600 !115
2440 IF TOTAL-W(N)=30 THEN 2
600 !114
2450 IF TOTAL-W(N)=20 THEN 2
600 !113
2460 IF TOTAL-W(N)=10 THEN 2
600 !112
2470 IF TOTAL-W(N)<8 THEN 24
80 ELSE 2520 !249
2480 IF TOTAL-W(N)>0 THEN 24
90 ELSE 2520 !252
2490 X=TOTAL-INT(TOTAL/100)*
100 !091
2500 Y=W(N)-INT(W(N)/100)*10
0 !120
2510 IF INT(X/10)=INT(Y/10)T
HEN 2630 !018
2520 NEXT N !228
2530 REM GOTO RANDOM PLAY !0
42
2540 GOTO 2670 !199
2550 PN=1 !086
2560 GOTO 1700 !249
2570 PN=2 !087
2580 KEY=B-INT((W(N)-A*1000)
/100)!217
2590 GOTO 1700 !249
2600 PN=3 !088
```

(See Page 32)

DR. NIM—

(Continued from Page 31)

```
2610 KEY=C-INT((W(N)-A*1000-
B*100)/10)!204
2620 GOTO 1700 !249
2630 PN=4 !089
2640 KEY=D-INT(W(N)-A*1000-B
*100-C*10)!100
2650 GOTO 1700 !249
2660 REM RANDOM PLAY AND END
 !187
2670 IF TOTAL<>357 THEN 2710
 !010
2680 PN=INT((3)*RND)+2 !087
2690 KEY=1 !161
2700 GOTO 1700 !249
2710 PN=INT((4)*RND)+1 !087
2720 ON PN GOTO 2730,2770,28
10,2850 !189
2730 IF A=0 THEN 2770 !209
2740 KEY=1 !161
2750 PN=1 !086
2760 GOTO 1700 !249
2770 IF B=0 THEN 2810 !250
2780 KEY=INT((B)*RND)+1 !231
2790 PN=2 !087
2800 GOTO 1700 !249
2810 IF C=0 THEN 2850 !036
2820 KEY=INT((C)*RND)+1 !232
2830 PN=3 !088
2840 GOTO 1700 !249
2850 IF D=0 THEN 2730 !172
2860 KEY=INT((D)*RND)+1 !233
2870 PN=4 !089
2880 GOTO 1700 !249
2890 REM KEEP SCORE !123
2900 IF PL=-1 THEN 2990 !204
2910 SC1=SC1+1 !007
2920 CALL HCHAR(20,20,SC1+48
)!185
2930 FOR N=1 TO LEN(F$)!239
2940 CALL HCHAR(23,N+3,ASC(S
EG$(F$,N,1)))!131
2950 NEXT N !228
2960 GOSUB 3570 !079
2970 CALL HCHAR(23,1,32,32)!
221
2980 GOTO 3050 !068
2990 SC0=SC0+1 !005
3000 CALL HCHAR(18,20,SC0+48
)!191
3010 FOR N=1 TO LEN(E$)!238
3020 CALL HCHAR(23,N+7,ASC(S
EG$(E$,N,1)))!134
3030 NEXT N !228
3040 GOSUB 3520 !029
3050 CALL HCHAR(8,6,32,20)!1
77
3060 REM RESTART !223
3070 FOR N=1 TO LEN(B$)!235
3080 CALL HCHAR(23,7+N,ASC(S
EG$(B$,N,1)))!131
3090 NEXT N !228
3100 CALL KEY(0,KY,STATUS)!1
65
3110 IF STATUS=0 THEN 3100 !
192
3120 IF KY=89 THEN 3150 !244
3130 IF KY=78 THEN 3330 !167
3140 GOTO 3100 !119
3150 CALL HCHAR(23,7,32,18)!
231
3160 GAME=GAME+1 !173
3170 IF GAME=5 THEN 3180 ELS
E 3190 !023
3180 GAME=1 !210
3190 ON GAME GOTO 3200,3230,
3260,3300 !102
3200 PL=-1 !022
3210 TOTAL=1357 !222
3220 GOTO 970 !028
3230 PL=1 !084
3240 TOTAL=1357 !222
3250 GOTO 970 !028
3260 PL=-1 !022
3270 TOTAL=357 !172
3280 CALL VCHAR(9,6,32,7)!14
8
3290 GOTO 970 !028
3300 PL=1 !084
3310 TOTAL=357 !172
3320 GOTO 970 !028
3330 END !139
3340 CALL SOUND(T/3,294,L)!1
44
3350 CALL SOUND(T/3,294,L)!1
44
3360 CALL SOUND(T/3,294,L)!1
44
3370 CALL SOUND(2*T,392,L,24
7,L,196,L)!196
3380 CALL SOUND(2*T,587,L,24
7,L,196,L)!202
3390 X=0 !015
3400 CALL SOUND(T/3,523,L,19
6,L,165,L)!193
3410 CALL SOUND(T/3,494,L,19
6,L,165,L)!200
3420 CALL SOUND(T/3,440,L,19
6,L,165,L)!191
3430 CALL SOUND(2*T,784,L,24
7,L)!172
3440 CALL SOUND(T,587,L,247,
L)!239
3450 X=X+1 !041
3460 IF X=1 THEN 3400 !098
3470 CALL SOUND(T/3,523,L,17
5,L)!165
3480 CALL SOUND(T/3,494,L,17
5,L)!172
3490 CALL SOUND(T/3,523,L,17
5,L)!165
3500 CALL SOUND(2*T,440,L,18
5,L)!162
3510 RETURN !136
3520 CALL SOUND(T,220,L)!197
3530 CALL SOUND(T,165,L,220,
L)!222
3540 CALL SOUND(T,131,L,165,
L,220,L)!240
3550 CALL SOUND(2*T,110,L,13
1,L,165,L)!172
3560 RETURN !136
3570 CALL SOUND(T*2,110,L)!1
29
3580 CALL SOUND(T*2,165,L)!1
39
3590 CALL SOUND(T*2.5,220,L)
!232
3600 CALL SOUND(T/2,330,L/3,
440,L/3,523,L/3)!242
3610 CALL SOUND(T*4,330,L/3,
440,L/3,554,L/3)!247
3620 RETURN !136
3630 DATA 6,10,16,24 !055
3640 DATA 1454,1443,1436,142
5,1353,1344,1335,1326,1278,1
267 !220
3650 DATA 1256,1245,1233,122
4,1177,1168,1155,1146,1134,1
123 !202
3660 DATA 479,470,453,444,43
5,426,380,369,354,343,336,32
5 !032
3670 DATA 277,268,255,246,23
4,223,178,167,156,145,133,12
4 !018
```

Peter Gleed dies

According to the LA 99ers TopIcs, newsletter of the LA 99ers Users Group, Peter Gleed of Australia died recently.

Gleed was coordinator for the TI99/4A Users Group — Melbourne Inc., and editor of the group's newsletter, the Melbourne Times. He was an organizer of the group's TI fair and served as auctioneer during the event.

MICRO-REVIEWS

XBASIC and Logo tutorials

By HARRY BRASHEAR

Ratings for the products 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.

Hi 99ers. Bet you wondered if this was ever going to appear again didn't you? Well, you can't keep a good TI man down, so here we go with the 20th Micro-review column.

Comments first this month: As John Koloen explained a couple of months back, I had for the most part run out of stuff to review so I took the summer off, in hope that I would receive lots of goodies to start fresh with this fall. That hasn't really happened. Yes, I have what I need for the moment, but I am still very short of review items. If we miss a month here and there, don't be surprised.

It would also seem that I have given my public a chance to take a swat at me based on the letters pages for the last couple of months. That doesn't bother me. When someone takes the time to call me a "bad boy," I know it's only because they truly respect my opinion and wish to give their own. Fair is fair, but I would like to defend myself on one point, concerning my abbreviated review of the Rave Memory card.

This hardware item has been around now for almost three years, maybe more. No average TIer had any idea of what it was good for, based on the ads and the way it was being marketed, including myself. With no ego intended, there are a lot of people out there that wait for someone like me to say "it's okay!" That's what I did. I looked at the card, determined what it did, that it was an excellent, well manufactured product, well worth the money asked.

I stated up front that the Rave card needed a full-fledged review. I would interpret that as meaning, someone should sit down and complete what I started. To date, no one has done a major review, only taken time to write long letters of critique or saying, "it's okay".

'Nuff said.

★★★★

EXTENDED BASIC TUTORIALS

One of the top user groups in this hemisphere is the Ottawa gang. I can't tell you how many fabulous programs, or how much invaluable information has come from them, DM-1000 included. A quality group generally produces a quality newsletter with topnotch articles, not the least of which has been Lucie Dorais' Fast Extended BASIC column. It has been appearing in Ottawa's newsletter for three years running, read by many of the community's novice programmers. It has been a very good column.

Lucie has now taken all of her tutorials and the accompanying XBASIC programs and put them on three disks. When you boot the disk you are presented with a menu of the program titles. You can select to run the XBASIC program or read the tutorial on the screen. Of course you can go through with TI-Writer/Formatter and print them all out too.

Lucie's programs not only excellent to learn programing, but the finished programs are often educational as well. I thought her flag programs were second to none, including a bit of history in the tutorial, and quizzes in the program. One of the meatiest ideas that Lucie came up with was eliminating all the "busy" stuff from the flags so that people could learn them easier. Emblems were omitted for the most part so you basically work with the patterns, making them easy to recognize. Also, true to the name of the column, the program is FAST.

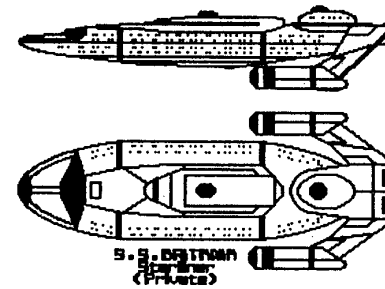
The price for these three disks is incredibly cheap, $2 each for DSSD, or $3 for a pair of SSSD. There are three sets, 1987-88, 1988-89, and 1989-90, the flag program is in the latter. "Harry's rules" apply here, send a disk for the program when it's under five bucks. Send to: Ottawa TI99/4A Users Group, P.O. Box 2144 Station D, Ottawa, Ont. K1P 5W3.

Ask for info on joining this group too, folks. It's one of the better ones, with a huge library.

★★★★

STARFLEET DRAWINGS III

It's hard to believe, I really thought they were done, could Stephen Barackman be THAT much of a Treky to come up with four more disks of Startrek pictures? In a word, "yes!" Set No. 3 is out, containing four more disks full, 7-10, for a total of 70 pictures to date. As with set No. 2, I shall not bore you with details, but let a sample speak for me.



If you don't happen to recognize that one, don't let it bother you — neither did I. This group contains a lot of ships that may have just slipped your notice because they may have been just sitting in the background somewhere. This group even includes the illusive Enterprise 1701-C that only appeared for a fleeting moment in "Yesterday's Enterprise," one of the 1989-90 season New Generation series.

The for disk titles are: No. 7 — Federation Adversaries and Their Ships, No. 8 — Civilian Starships of Various Federation Members, No. 9 — Miscellaneous Starships Including Enterprise Chart (all of them, scaled), and No. 10 — Starship recognition Charts.

The set of four disks cost $12.95 plus $2.50 postage and handling. They're from: Texaments, 53 Center St., Patchogue, NY 11772. Call (516) 475-3480 for COD orders.

P.S. Stephen, just in case you have run out of things to draw, how about a series on Battlestar Galactica.

★★★★★

TIsHUG

Nobody made a mistake there folks, I

(See Page 34)

MICRO-REVIEWS—

(Continued from Page 33)

added an extra star — something I have never done before — but this one deserves it. TIsHUG stands for Texas Instruments Sydney Home computer User Group. This is an incorporated group in Australia that in its heyday boasted over 1,400 members. Now they are down to 160 paid-ups. (Poor guys, some of our groups should be so lucky) They have a regular newsletter that they put out that is one of the finest I have laid eyes on. According to the letter I received, in 1989 they produced 12 newsletters with a total of 408 pages. WOW! And we are talking about 81/2x12 inch paper, 2 columns and every word completely readable — heavyweight cover too.

As I browsed through the TIsHUG News Digest, (the name of the newsletter) I was impressed by the fact that this was truly an international publication. Yes, there were reprints from the USA included, but every one had been retyped, edited, and bugs cleaned up on programs, etc. Another thing that impressed me was that TIsHUG seems to be an outlet for the Australian hardware projects, many kits available, and new projects written up with easy to read schematics. A hardware hackers paradise. If anything convinced me that they were doing it right, the treasurers report says they have over $7,000 in the kitty. That tells me they are a very honest group, with lots of followers. I also took note that they had eight regional meetings a month. How would you like to keep up with that? What a staff they must have.

Along with my newsletter I also received a volume that was labeled TIsHUG November 1988 Tutorial. The title of the article was "Controlling A Small Train Set Using The Wire Accessory Interface and TI99/4A" by Ross Mudie — same size as the newsletter and 56 pages long. Oh my aching back! It contained all of the wiring diagrams necessary, the program object code, plus detailed explanations of everything. I have no idea how this gets distributed, whether it costs extra or what, but it is one fantastic publication.

Let me say that the Aussies have been beating on this computer of ours a lot harder and lot more seriously than we have for a long time. If nothing else convinces you of that, take a better look at your last FunnelWriter disk. They have hardware and software that we haven't seen over here, and from what I can understand it's top notch stuff. This group has a library of over 600 volumes. I bet there's a lot in there that would make you take a second look at your old TI.

Anyway, I would like to recommend the joining of this group. The price is $24 US for the dues, plus $12 for surface mail or $22 for monthly air mail. Take it from me, surface is the pits. It has taken me as much as three months to get a package that way from Australia — GO AIRMAIL, it's worth it. I'm sure you will receive catalogs and stuff with your membership. The address is: TIsHUG (Austrailia) Limited, P.O. Box 214, Redfern, N.S.W 2016, Australia.

★ ★ ★

LOGO VIDEO INSTRUCTION

One person that has made her mark on this community, in a round about way, is Eunice Spooner, a teacher in Oakland, Maine. A staunch supporter of the educational TI, she formed the Oakland Computer Club around our machine and proceeded to make her students computer literate with whatever she could lay her hands on. Not the least of her tools has been Logo. TI made the Logo package to teach young children how to program, but unfortunately, in recent years, Logo has gotten trampled under the heels of highly sophisticated languages like "C", Fortran, and XBASIC. None of those languages is suitable for elementary school, though. Good grief, if we older folks don't want to fool with them, why should an eight-year-old?

Anyway, the point I am trying to make is that Logo is a language of choice for kids, and there are a lot of those old packages floating around that nobody wants. If you have young kids at home, dig one of them up the Logo packages, that is. You don't want to dig the kids up until they're 21) and complete the package with Mrs. Spooner's following offer.

This is a three-hour videotape on how to program with Logo. It is divided up in five segments starting with the basic command of TELL TURTLE, and rounding up with music and sprites. The instruction is handled by showing you a little at a time, just the same way you learned basic on the TI — starting with a simple command and then expanding on it until it actually performs a task. Logo is a very powerful graphics command language, and this tape proves it all the way through.

I recommend this package to anyone with small kids, and certainly to any teacher that has a TI still hanging around the closet. Watching the tape, and performing the functions at the same time will teach anyone how to use the computer.

Mrs. Spooner is requesting a minimum of $5 for the tape, and $10 will get you the demo program disk as well. If you're going to be that cheap, Harry's rules apply; send a tape to put the video on. The money goes to support the Oakland computer club. We're going to need these kids in the coming years to keep the TI going, let's support them.

Send your money to: Mrs. Eunice Spooner, Webb Rd. Box 3720 RFD, Waterville, ME 04901.

If you would like me to review your software in this column, send it to the address below, and if you would like it returned, include a SASE. Come on folks, let make this the most exciting TI winter ever: Harry T. Brashear, 2753 Main St., Newfane NY, 14108.

MADHUG ceases newsletter publication

The Minnesota and Dakota Home User Group has ceased to publish its newsletter because of failure to find an editor for the publication, according to MADHUG treasurer Rich Jurgens.

As the group's $12 annual dues were used solely for production of the newsletter, members were refunded the difference between the last month of newsletter production and the month of their membership expiration, Jurgens says.

MADHUG still meets 7-9 p.m. the 2 nd and 4th Tuesdays of the month in the computer room of the Grand Forks Public Library in Grand Forks, North Dakota.

Jurgens says newsletter publication will resume if an editor can be found.

MADHUG's address is 509 Reeves Dr., Grand Forks, ND 58201.

User Notes

Diskreview useful but has small bug

This comes from John Bulakowski, of the Nutmeg (Connecticut) TI99ers. He writes:

Version 4.2 of Funnelweb has a useful utility program called Diskreview. It is a combination disk directory, file review and program loader. With this program you can:

- Call up/print a directory of a disk in any drive.
- Protect/unprotect files.
- Delete/rename/view files.
- Load and run any E/A or Extended BASIC programs.

The last feature is particularly nifty because you don't have to know anything about the program structure that you're trying to run. All you do is place the cursor next to the program that has been listed by the directory feature, press R (for Run), press FCTN 6 (Proc'd), and then a number (usually 1 to 3 in the case of assembly programs) of what the Diskreview program suggests as appropriate. That's all. The selected program will then load and run. No more guesses as to trying E/A 1, 2 or 3. No more wondering what an "object" file is, or its name. I have gotten into the habit of running most of my programs through Diskreview. It's also quick to load and run, which makes it a real competitor to other XB loaders. This, by the way, leads me to the only problem that I have found to date using this.

It appears that this program "seeds" the RANDOMIZE statement in XB programs with the same number each time the XB program is loaded and run. To give a practical example of what this means to the user, let's run an XB program that would generate a random sequence of five, one digit numbers. The following is such a program:

```
1 OPEN #1:"PIO" :: RANDOMIZE ::
FOR I=1 TO 5 :: NUMB=INT(RND*9)
:: PRINT #1:NUMB, :: NEXT I :: CLOSE
#1 :: END
```

If this program is run through Diskreview, it would produce the following sequence on my computer: 3, 5, 1, 8 and 4. If it is loaded and run through Diskreview again, it would generate the same sequence of numbers instead of the expected different (random) set of numbers. By following this through, any XB program that utilizes a random number generator will always start the same each time it is loaded and run through Diskreview. In the case of a card game, this dooms one to playing the same hand every time.

There are several ways out of this problem. One is to alter the Diskreview program. I'm not smart enough to do this. The other is to clear (FCTN 4) the XB program from running once it has been loaded through Diskreview and then type in RUN (and press Enter). This will clear the "seed" number out and permit the program to run as advertised.

Notwithstanding the above, Diskreview is a fine program.

80-column fix for Diskreview

The Diskreview program discussed above has a bug in some 80-column versions that can be corrected with the following changes:

For the 2-file version (DR/DS supplied as DR80 and DR81):

Using a sector editor, locate the value >D068 in file DS. It should be in sector >13 at byte >8E. Do the same for >D069. It should be in the same sector at byte >D6. Interchange the two values and write the sector back to disk.

In the 3-file version of DR, find >D06A and >D06B in the same sector, but one word later, and switch them.

This fix is not necessary on more recent versions of Diskreview. The fix was provided in late July 1990.

Reminders calendar

Reminders is a date tracking system designed to work with the NotePad screen editor that appeared in the Feb '90 MICROpendium. The system was created by Bill Gaskill. MICROpendium is publishing the various parts of the system over several months. Refer to last month's article and programs for basic information about the system.

The complete Reminders system consists of the following programs;

NPLOAD — Brad Snyder's program that creates the 40-column screen display. It is a Fairware application and is available from him for $7. Write to Brad Snyder at, 148 Ave. A, Palmerton PA18071.

NPMENU and NPBROWSE — published in the September 1990 MICROpendium; and NP — published in the February 1990 edition.

NPCALENDAR — a 28-column XB program (see below for listing) to display or print a calendar for any year up to 1999.

NPCATALOG-a system utility for displaying or printing the contents of a disk, or for deleting user selected files from the disk.

NPSEARCH — a program to locate specific information between two dates or between two dates with a text string search parameter.

CALENDAR PROGRAM

The Calendar program is a 28 column Extended Basic program that I found on one of Jim Peterson's Public Domain disks. I modified it to provide a nicer looking calendar that displays on the screen within a grid.

To use the program simply enter the month and year of the calendar to be generated and then decide if you want it displayed only, or printed and displayed. With either choice, the calendar is displayed and you are prompted to press Y or N to an "Another? Y/N" question.

MODIFYING NOTEPAD

The last thing that you must do prior to

(See Page 36)

THE BUNYARD HARDWARE MANUAL
FOR THE
TI 99 / 4A

- ☐ CONSOLE DESIGN
- ☐ CUSTOM CHIP OPERATION
- ☐ TMS 9900 H/W ORGANIZATION
- ☐ TMS 9900 INSTRUCTION SET
- ☐ INTERFACING PITFALLS
- ☐ CONSOLE SCHEMATICS
- ☐ PEB CARD DESCRIPTION
- ☐ GROM SIMULATOR DESIGN
- ☐ EXTENDED BASIC MODULE DESCRIPTION & SCHEMATICS

U.S. $21.95 CHECK OR MONEY ORDER.
CANADA & FOREIGN $26.00 U.S. FUNDS.
VOLUME RATES AVAILABLE
SEND ORDER TO:
THE BUNYARD GROUP
P.O. BOX 62323, COLO. SPRINGS
COLORADO 80962-2323
719-488-2572

User Notes

(Continued from Page 35)

using the Reminders System is to change line 900 in the NotePad program. To do so, load NotePad, type in 900 and then press Fctn X. When line 900 appears change the word END to;
RUN "DSK.NP.NPMENU"

Now save the NotePad program under the name NP and you are done.

FINAL NOTE

You will notice that all path names in the Reminders system are written for a disk that is named NP instead of the usual DSK1 configuration, and all programs in the system begin with the letters NP. Neither of these conventions is required. You may alter them to any path you like and you may call the programs any name that you want to. Just make sure that you alter the NPMENU load choices if you do.

```
1 !NPCalendar 07/29/90
   Bill Gaskill
   Grand Junction, Co. !000
2 !Requires Brad Snyder's
   40-Column Utilities !054
100 CALL LINK("NORM"):: CALL
 CLEAR :: FOR I=0 TO 14 :: C
ALL COLOR(I,16,5):: NEXT I :
: ON BREAK NEXT !164
110 DATA "JANUARY","FEBRUARY
","MARCH","APRIL","MAY","JUN
E","JULY","AUGUST","SEPTEMBE
R","OCTOBER","NOVEMBER","DEC
EMBER" !191
120 DATA 31,28,31,30,31,30,3
1,31,30,31,30,31 !110
130 IMAGE ## !179
140 DISPLAY AT(5,1):"      C
 A L E N D A R" !021
150 DISPLAY AT(15,1):"Print
Calendar? (Y/N):N" :: ACCEPT
 AT(15,23)SIZE(-1):AN$ :: IF
 AN$<>"Y" THEN 170 !081
160 DISPLAY AT(17,1):"Printe
r:PIO" :: ACCEPT AT(17,9)SIZ
E(-20):PRINT$ :: OPEN #2:PRI
NT$,OUTPUT !170
170 DISPLAY AT(22,1):"Enter
month,year to print:" :: DIS
PLAY AT(24,1):"Month:01  Yea
r:1990" !135
180 ACCEPT AT(24,7)SIZE(-2)V
ALIDATE(DIGIT):M :: ACCEPT A
T(24,16)SIZE(-4)VALIDATE(DIG
IT):Y !095
190 DIM M$(12),D(12)!038
200 IF M<0 OR M>12 OR Y<1753
 OR Y>20000 THEN 170 !160
210 IF M>2 AND Y-INT(Y/4)*4=
0 THEN L=1 ELSE L=0 !103
220 IF Y-INT(Y/400)*400=0 TH
EN 240 !153
230 IF Y-INT(Y/100)*100=0 TH
EN L=0 ELSE 240 !023
240 CALL CLEAR :: MD=L !238
250 RESTORE 120 :: MD=MD+1 !
242
260 FOR K=1 TO M-1 :: READ M
M :: MD=MD+MM :: NEXT K !028
270 RESTORE 110 !203
280 FOR I=1 TO 12 :: READ M$
(I):: NEXT I !012
290 DISPLAY AT(22,2):"Calend
ar for ";M$(M);Y !241
300 IF AN$="Y" THEN PRINT #2
:TAB(22);"Month of ";M$(M);Y
 !049
310 RESTORE 120 !213
320 FOR H=1 TO M :: READ D(M
):: NEXT H !001
330 N=D(M)!010
340 IF M=2 AND Y-INT(Y/4)*4=
0 THEN N=N+1 ELSE 370 !175
350 IF M=2 AND Y-INT(Y/100)*
100=0 THEN N=N-1 ELSE 370 !1
10
360 IF Y-INT(Y/100)*400=0 TH
EN N=N+1 ELSE 370 !175
370 YDIF=Y-1752 :: LY=INT((Y
DIF-1)/4):: CY=INT(Y/100)-17
 :: C4Y=INT(Y/400)-4 !227
380 DT=365*YDIF+LY-CY+C4Y+MD
 !085
390 S=DT-(INT(DT/7)*7)!051
400 K=1 :: J=1 !135
410 IF Y-INT(Y/100)*100=0 TH
EN S=S+1 !249
420 IF Y-INT(Y/400)*400=0 TH
EN S=S-1 !000
430 IF S=2 THEN J=5 !070
440 IF S=3 THEN J=9 !075
450 IF S=4 THEN J=13 !120
460 IF S=5 THEN J=17 !125
470 IF S=6 THEN J=21 !121
480 IF S=7 THEN J=25 !126
490 IF S=8 THEN J=1 !072
500 IF S=0 THEN J=25 !119
510 RR=5 :: GOSUB 730 !014
520 FOR I=K TO N :: DISPLAY
AT(RR,J):USING 130:I;:: J=J+
4 !048
530 IF J>26 THEN J=1 :: RR=R
R+2 !182
540 NEXT I !223
550 IF Y-INT(Y/4)*4=0 AND Y-
INT(Y/100)*100<>0 OR Y-INT(Y
/400)*400=0 THEN PRINT Y;"LE
AP YEAR" !144
560 IF AN$="Y" THEN 570 ELSE
 710 :: J=21 !148
570 IF S=1 THEN J=21 !116
580 IF S=2 THEN J=25 !121
590 IF S=3 THEN J=29 !126
600 IF S=4 THEN J=33 !122
610 IF S=5 THEN J=37 !127
620 IF S=6 THEN J=41 !123
630 IF S=7 THEN J=45 !128
640 IF S=8 THEN J=21 !123
650 IF S=0 THEN J=45 :: K=1
!254
660 PRINT #2:TAB(22);"S   M
  T   W   T   F   S    `";!
166
670 FOR I=K TO N :: PRINT #2
:TAB(J);:: PRINT #2:I;!215
680 J=J+4 :: IF J>48 THEN PR
INT #2:: J=21 !006
690 NEXT I !223
700 PRINT #2:!073
710 DISPLAY AT(24,1):"Anothe
r? (Y/N):" :: ACCEPT AT(24,1
6):Q$ !185
720 IF Q$="Y" THEN 100 ELSE
ON ERROR 840 :: RUN "DSK.NP.
NPMENU" !056
730 CALL CHAR(128,"000000FF"
,129,"0101010101010101",130,
"010101FF01010101",131,"0000
00FF01010101")!208
740 CALL CHAR(132,"010101FF"
,133,"8080808080808080",134,
"000406FF0604",135,"000000FF
FCFCFCFC")!242
750 CALL CHAR(136,"00FCFCFF"
)!217
760 FOR C=2 TO 26 STEP 4 ::
CALL VCHAR(4,C,129,13):: NEX
T C !048
770 FOR R=4 TO 16 STEP 2 ::
CALL HCHAR(R,3,128,28):: NEX
T R !082
780 FOR R=6 TO 14 STEP 2 ::
FOR C=6 TO 26 STEP 4 :: CALL
 HCHAR(R,C,130,1):: NEXT C :
```

(See Page 37)

User Notes

(Continued from Page 36)

```
: NEXT R !083
790 FOR C=6 TO 26 STEP 4 ::
CALL HCHAR(4,C,131,1):: NEXT
 C !235
800 FOR C=6 TO 26 STEP 4 ::
CALL HCHAR(16,C,132,1):: NEX
T C !032
810 CALL VCHAR(4,31,133,13)!
031
820 DISPLAY AT(3,2):"SUN MON
 TUE WED THU FRI SAT" !104
830 RETURN !136
840 RUN 850 !199
850 DISPLAY AT(21,1):" ":"
Incorrect disk in drive.
 Exit has been aborted.":" "
 :: RUN !129
```

Getting into XB from Ramdisk OS or boot menu screen

This item is reprinted from the Adelaide (Australia) TI Computer Club. The author is unknown.

In the Horizon RAMdisk Operating System (ROS) and in John Johnson's Boot program for floppy drives it appears that if you want to get into Extended BASIC all you need do is press the O key option. Correct, but a little time-consuming waiting for a DSK1 access for a load program.

Two suggestions follow but I like mine the best.

One suggestion to overcome this delay is to have a tiny XB program selectable from the option screen that loads and executes some code that virtually wipes itself out. Here is the program:

```
10 CALL INIT
20 CALL LOAD(-31952,255,0,255,0)
```

My method of getting into Extended BASIC from the menu screen is to simply press three keys in quick sequence: The X, / and Enter keys. Almost immediate response. How?

Pressing X indicates that I want to run an XBASIC program and the menu supplies the default option filename DSK1.UTIL1 with the cursor over the 1.

I press 7 changing the pathname to DSK7.UTIL1 because I don't have a drive numbered 7.

When I press Enter, the menu program sets up XBASIC somehow and looks for the program. Not finding a drive numbered 7, it drops out with the screen prompt READY.

Load CC Manager from E/A Option 3

This program originally appeared in 1984 in the Smart Programmer. It's a routine that is used to load the CorComp disk manager from Editor/Assembler using Load and Run (Option 3)

Enter the program using Editor/Assembler and save it under the name LOADCC/S. Then load the Assembler. Load the program and give it the object file name LOADCC/O and save it using the R,C options. To load the CC Disk Manager from Option 3, enter Option 3, type in DSK1.LOADCC/O for the file name and then type in MGR as the program name.

Program to load CC Manager from E/A

```
Labels Instr  Operands     Comments
       IDT    'LOADMNGR'  title for assembler
       AORG   >2700       Absolute lload address
       DEF    MGR         start name for REF/DEF table
MGR    LWPI   >83E0       get workspace address
       MOV    R11,@>8300  save return address
       LI     R12,>1100   CRU address of dc into R12
       SBO    0           turn on card
       SBZ    11          select correct bank of ROM
       BL     @>44F2      jump to routine in ROM
       NOP                error return
       SBZ    0           turn off card
       MOV    @>8300,R11  restore return address
       B      *R11        go to it
       END                assembler quits here
```

The disk manager will then load.

Apple PEEKS

Here are some PEEKs used in Apple BASIC programs. The information may be helpful when converting Apple programs to Extended or Myarc Advanced BASIC. The information was provided by Mike Callaghan.

Hex Address	PEEK	Explanation
AA68	-21912	gives default drive #
AA6A	-21910	gives default slot #
C000	-16384	read keyboard
C010	-16368	clear keyboard strobe
C020	-16352	toggle cassette output
C030	-16336	toggle speaker, 1 click
C050	-16304	graphics mode
C051	-16303	text mode
C052	-16302	all text or graphics
C053	-16301	mix text 'A' GR mode
C054	-16300	primary page 1
C055	-16299	secondary page 2
C056	-16298	lo-res graphics
C057	-16297	hi-res graphics
C060	-16288	cassette output
C061	-16287	read pushbutton 0
C062	-16286	read pushbutton 1
C063	-16285	read pushbutton 2
C064	-16284	read game paddle 0
C066	-16282	read game paddle 2
C065	-16281	read game paddle 1
C067	-16281	read game paddle 3
C057	-16227	hi-res graphics
C100	-16128	read slot 1
C200	-15872	read slot 2
C300	-15616	read slot 3
C400	-15360	read slot 4
C500	-15104	read slot 5
C600	-14848	read slot 6
C700	-14592	read slot 7
CC02	32	window left
0021	33	window width
0022	34	window top
0023	35	window bottom

Tips on making a printer cable

This item appeared in the Cin-Day News, the newsletter of the Cin-Day (Ohio) 99ers. It was written by Gene Bohot.

I helped one of our members make up a parallel printer cable for a new printer, and it turned out to be so easy that I decided to share it so you can make a spare for your system.

The easiest way to do this is to use some insulation-displacement connectors (IDC) and ribbon cable. You don't have to do any soldering, but you can use hooded connectors and 12-conductor cable to make a

(See Page 38)

User Notes

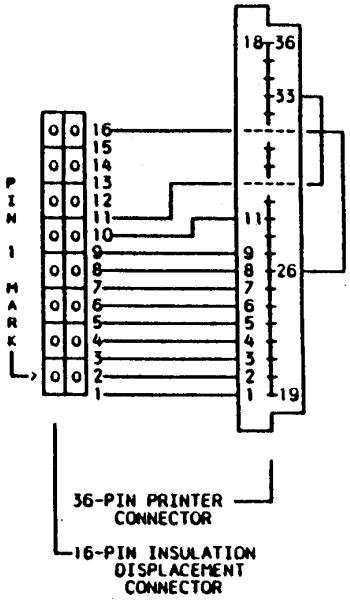
(Continued from Page 37)

fancier hookup. If you use 16-conductor ribbon cable, use the multi-colored type—it's a lot easier to keep track of the lines. Six feet of it costs about $3. The 16-pin femal IDC connector is about $2 and the 36-pin Centronics male connector is about $4.

All you have to do is clamp the 16-conductor ribbon in the 16-pin connector on one end and split the wires on the other end so you can separate the 3 that don't go in order. Notice that the numbering scheme is different on the opposite end of the cable, the the No. 1 pin is marked with an arrow on the computer end and the printer end is marked on pins 1 and 19, and pins 18 and 36. This means that on the printer end, with an IDC connector, you use every other wire slot for 1-9.

Be sure the wire is firmly inserted into each terminal pin so the insulation is displaced (hence the name insulation-displacement connector).

Or you can use 36-connector cable and use every other wire on the 16-pin plug end for 1-9.



Two-line program copies D/V80 files

The following program was written by Glenn Bernasek of TI-Chips of Cleveland, Ohio. It's called TEXT/COPY and is a handy routine used to copy any D/V80 file from one disk to another using two disk drives. It runs in Extended BASIC.

Because the program uses more than five screen lines per program line you'll need to press Enter after entering the first five screen lines of each program line and then press FCTN-8 to bring the lines back on the screen. Then cursor down to the end of the fifth screen line and finishing entering the line.

```
100 CALL CLEAR :: INPUT "PUT
 MASTER IN #1 AND COPY   IN
#2; THEN PRESS <ENTER>.":A$
:: INPUT "ENTER FILE NAME:":
D$ :: OPEN #1:"DSK1."&D$,INP
UT ,VARIABLE :: OPEN #2:"DSK
2."&D$,OUTPUT,VARIABLE :: LI
NPUT #1:P$ :: PRINT #2:P$ !0
64
110 LINPUT #1:P$ :: IF EOF(1
)THEN CLOSE #1 :: CLOSE #2 :
: CALL CLEAR :: INPUT "<FCTN
/4>&""RUN"" FOR MORE OR <ENT
ER> TO QUIT.":A$ :: END :: E
LSE PRINT #2:P$ :: GOTO 110
:: !TEXT/COPY (C)1990 G.W.BE
RNASEK !111
```

Working with sound

This program by Dutch programmer Koen Holtman, doesn't do much, but what it does it does better than any other program. Enter the CALL LOADs and save it as PLOP. Then enter the second program. Load and run PLOP and then run the second program. The results have to do with sound.

```
1 CALL INIT !157
2 CALL LOAD(16368,79,85,84,3
2,32,32,36,254)!048
3 CALL LOAD(16376,80,76,79,8
0,32,32,36,244)!045
4 CALL LOAD(8194,37,48,63,24
0)!098
5 CALL LOAD(9460,2,0,37,2,20
0,0,131,196,4,91,4,192,16,25
1,2,1,1,0,144,96,131,206)!17
2
6 CALL LOAD(9482,22,248,2,0,
37,24,160,65,216,1,131,206,1
6,240,2,0,37,32,4,193,16,249
)!139
7 CALL LOAD(9504,2,0,37,2,20
8,96,131,206,22,231,2,1,1,0,
16,241,62,192)!081
8 CALL LINK("OUT")!198
9 CALL LINK("PLOP")!010

120 FOR T=1 TO 10 !116
130 CALL SOUND(100,120,10)!1
71
140 NEXT T !234
150 FOR T=1 TO 100 :: NEXT T
 !017
160 CALL LINK("PLOP")!010
170 FLAG=FLAG+1 !173
180 IF FLAG=1 THEN 120 !071
190 FLAG=0 !209
200 CALL LINK("OUT")!198
210 GOTO 120 !199
```

Classified

SOFTWARE

"BOOT PROGRAM"

Copyrighted by the Miami Users Group Feb. 1989. Not available from any other source or Mail Order Co.

Latest up-to-date version by the original author, John Johnson.

"BOOT" is in assembly language and uses the Horizon RAM Disk "MENU" program, without a RAM Disk.

You will be able to:

1. View a file
2. Catalog a disk
3. Run a program, XB, EA, or cartridges.
4. Access any program on any drive
5. Even run XB programs over 42 sectors.
6. Print any file or disk catalog.

Send $7.95 to:

MIAMI USERS GROUP
YVETTE MCKENZIE
6775 TAMIAMI CANAL ROAD
MIAMI, FL 33126

v7n10

Classified

SOFTWARE

SUPER MARIO BROS. FOR 99/4A!
A great replica $9.50! Other titles $4.00. All use disk, 32K, XB required. TURBO 2056 — fast 2pl racing, over 50 screens. RECON 17 — top secret 1 pl action*(E/A). LINKAGE — space challenge, 3D graphics, Now try LINKAGE II. FOOTBALL — best 2 pl football on any system. X*MASTERS sure to drive you nuts *(EA). 4*WHEELIN' — Now race off road style. Order separate or try Super Game Pack, any 4 (excluding MARIOS) for the price of 3, $12.00. Add $1.50 S&H. CK or MO to BAKER SOFTWARE, 8301 Stevenson Ave., Sacramento, CA 95828. Catalog or COD — (916) 689-6946. v7n9

TI-PD PUBLIC DOMAIN AND FAIRWARE
400 DISKS just $1.50 EACH! And orders for 8 or more disks are postpaid.
Thousands of programs selected from the best from the U.S., Canada, Australia, England, Germany, Holland and Belgium. FAIRWARE IS OFFERED BY AUTHOR'S WRITTEN PERMISSION ONLY. Disks as full as possible, arranged by exact category, BASIC programs converted to XBASIC, assembly programs with XBASIC loader, disks with autoloader by full program name.
Send $1.00 (deductible from first order) for 13-page catalog listing all programs and authors. Catalog also available on disk.
TIGERCUB SOFTWARE, 156 Collingwood Ave., Whitehall, OH 43213 v7n11

HARDWARE

TI EQUIPMENT
Too numerous to list. Includes consoles, P-Boxes, speech, cards, including Horizon RAMdisks. Priced dirt cheap: Example — P-Box FULL $150. Call (813) 681-8954 after 6 p.m. Eastern Standard Time. v7n10

RAMDISK 384K
With 32K memory replaces 32K card in PE box, wired, ready to add chips up to one meg. Used only short time as a spare, no longer needed. $250, 216-226-5177; C. Gilbert, Box 770607, Lakewood, OH 44107 v7n9

Policy

The cost of classified advertising is 25 cents per word. Classified display (i.e., special formatting or graphics) is $9 per column inch. Classified advertisements must be paid in advance. Classified advertisers may request a category under which they would like their advertisements to appear, but the final placement decision is the responsibility of the publisher.

Classified deadlines will be kept open for as long as practical. For the purpose of classified advertising deadlines, any classified ad received later than the first day of any month cannot be assured of placement in the next edition. We will do our best to include every advertisement that is submitted in the earliest possible edition.

The publisher offers no guarantee that any advertisement will be published in any particular issue. Any damages that result either from errors in copy or for failure to be included in any particular edition will be limited to the amount of the cost of the advertisement itself. The publisher reserves the right to reject any advertisement.

The advertiser may elect to publish the advertisement in subsequent editions at the same charge, payable prior to publication. The deadline for carryover classifieds is the same as for new advertising.

In submitting an ad, please indicate whether you would like a refund if it is not published in the requested edition or whether you would like us to hold it for the next edition. Cancellations and refunds cannot be made after the second day of the month.

Send classified advertising to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

HARDWARE

SYSTEMS

FOR SALE
TI99/4A, PEB, DSSD, TI Controller, 32K, TI-Writer, Multiplan, DMII, Ex-BASIC, TI-Logo II, Acorn99, $350.00 or best offer, (301) 464-1444. v7n9

FOR SALE
Excellent condition TI99/4A w/RS232, memory expansion, disk drive. Two consoles, two peripheral boxes, TI-Printer, Speech Synthesizer. TI-Writer, Multiplan, Extended BASIC. Lots of books, games on cartridges and on disk/tape. Asking $500. Call 1-614-373-8951 after 6:00 p.m. eastern. v7n9

MISCELLANEOUS

ENORMOUS TI99/4A INVENTORY
Catalogs $2.00. Braatzs Computer Services, 719 E. Byrd St. Appleton, WI 54911. 1-414-731-3478. v8n8

GAMES! EDUCATIONAL! HARDWARE!—TI99/4A
CALL OR WRITE FOR FREE CATALOG:
JOY ELECTRONICS, INC; P.O. BOX 542526
DALLAS, TEXAS 75354-2526
(800) 527-7438, OUTSIDE DALLAS AREA
(214) 243-5371, DALLAS AREA v7n9

MISCELLANEOUS

PASCAL COMPLETE SYSTEM	$149
2400 BAUD MODEM NEW HAYS/COMP	$ 99
FULL TI PE/BOX—RS232—32K—DRIVE	$300
EMPTY TI PE/BOX	$120
18" P-BOX EXTENSION CABLE	$ 25
12 GEMINI/OKIDATA REEL RIBBONS	$ 10
SPEECH SYNTHESIZER used	$ 45
PARALLEL PRINTER CABLE 6'	$ 20
PE-BOX TECH TRAINING MANUAL	$ 30
TI ORIGINAL COLOR MONITOR	$150
SERVICE MANUAL (CONSOLE/P BOX)	$ 25
4A FACTORY REPAIR MANUAL	$ 25
DISK CONTROLLER REPAIR MANUAL	$ 10
32K MEMORY CARD REPAIR MANUAL	$ 10
TI COLOR MONITOR SERVICE MANUAL	$ 15
PLATO INTERPRETER MODULE	$ 25
SCHMETICS/CARDS CONSOL PBOX/ea	$ 5
CC40 (TI hand held computer)	$ 99
USED TI99/4A, HARDWARE, SOFTWARE BOOKS AND PARTS. Call or write for complete free list. 5% S&H	
JIM LESHER, 722 HUNTLEY DALLAS, TEXAS 75214, 214 821 9274	v7,n9

FOR SALE
Geneve 9640 new, $400; TI99/4A w/full PE/box, $350; Seikosha GP250 printer, $1.50; Speech Synthesizer, $40; parallel printer cable, $15; TI modem, $35; Volksmodem w/cable, $35; Anchor 1200 baud modem, $55; Extended BASIC w/manual, $30; assorted software, $3; Plato software, $20. TCM, Box 6016, Lou., KY 40207, 502-425-4959. v7n9

The ONLY monthly devoted to the TI99/4A

Subscription Fees

$25 for 12 issues via domestic second class mail
$30.25 (U.S. funds) Mexican delivery
$32.50 (U.S. funds) Canadian delivery
$30.00 (U.S. funds) for 12 issues other foreign delivery via surface mail
$42.00 (U.S. funds) for 12 issues other foreign delivery via air mail

Outside U.S., pay via postal or international money order or credit card; personal checks from non-U.S. banks will be returned

Address Changes

Subscribers who move may have the delivery of their most recent issue(s) delayed unless MICROpendium is notified six weeks in advance of address changes. Please include your old address as it appears on your mailing label when making an address change.

Back Issues

Back issues of MICROpendium are available to subcribers only. Those wishing back issues may notify us of the issue(s) desired and include $2.50 per issue desired in a check or money order or by credit card. (Minimum credit card order is $9.) No shipping charge in U.S. and Mexico; Texas residents add 7.75% sales tax. Shipping charge of 30 cents per issue to Canada. For other foreign delivery, add 50 cents per issue surface mail, $2 per issue air mail. No discounts on orders of sets. All prices U.S. funds.

OUT OF STOCK: Vol 1, nos. 1-2, Vol 2, no. 1

Miscellany

TI-Forth Disks (2 disks, program and demo disks, no manual).....**$6.00**
MICROpendium Index (2-SSSD disks, XBASIC required).....**$6.00**
Disk of programs from one issue of MICROpendium (must be a subscriber to order).....**$4.00**
12 monthly disks (April 1990-March 1991) of programs appearing in each edition of MICROpendium (must be a subscriber to order).....**$40.00**
Magazine holders (12/set-add $1 shipping/order).....**$3.00**

Send name, address, product(s) ordered, check, money order or Visa/MasterCard number and expiration date ($9 minimum on credit card orders $9) to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680. Foreign orders write for postage fees.

Tell us about it

Please let us know what columns or features you like the most about MICROpendium. Rank your selections in order of preference using this form. Return it to us when you renew your subscription.

1. _____
2. _____
3. _____
4. _____

Other suggestions:_____

_____

_____

Send me the next 12 issues of MICROpendium. I am enclosing $ in a check or money order in U.S. funds. Or bill my ☐ ☐ (Check one)

Exp. Date _____

Card No. _____

Minimum credit card order is $9

Signature _____

(required on credit card orders)

Mail to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680

Name_____

Address_____

City_____

State____**ZIP**_____

The numbers on the left of your mailing label indicates the cover date of the last issue on your subscription.

SECOND CLASS