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**MULTI - FUNCTION USER GROUP
MONTHLY NEWSLETTER - PUBLIC DOMAIN LIBRARY
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Issue #92 - November 1992

Editor: James Notini

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**FROM THE
EDITOR'S DESK**

by Jim Notini

Oh, the wows of an ADAM Newsletter Editor! Only three months after I had finally gotten back on schedule with the newsletter, I have fallen exactly a month behind once again. I just never seem to be able to keep my head above water, but on the bright side N.I.A.D. still is publishing a newsletter on a regular basis and once again we start the fight to get back on schedule. I know many of you, our loyal members, are anxiously awaiting each and every issue so that you may devour all the latest ADAM news, but don't fret when the newsletter is a little late. We are as committed (in one way or another!) to supporting the ADAM and the ADAM community as we have ever been and will not let you down, now or in the future.

Unfortunately due to this issue being so late I have to wish you a belated "MERRY CHRISTMAS", but this issue should reach you before the new year so "HAPPY NEW YEAR"!

The ADAM community has experienced the loss of two more well known mail-order firms in the last month, M.W. RUTH CO. and S.M. VIDEO. As far as I can tell, both companies closed due to ever decreasing profits from the sales of ADAM products, not because they no longer care about the ADAM or the ADAM community. Over the last three years we have witnessed such well known supporters as ALPHA-1, E&T SOFTWARE and DIGITAL EXPRESS close down also, but this did not destroy the ADAM community. In fact, everytime this happens it seems like there is always someone else just coming aboard to provide products through mail-order like ADAM SERVICES, operated by Rich Clee, in Canada. So you see, there will always be someone providing the products and services that ADAM owners require. At this point in time the major mail-order companies are ADAMLink of Utah, ADAM's House, ADAM Services and ourselves. There are also many other smaller mail-order companies, such as R&R SOFTWARE, for the ADAM and the majority of the hardware and software developers do sell direct to customers.

Of late the growing trend amongst ADAM owners has been to move onto another computer such as an IBM compatible what with prices being slashed left and right. I have fielded a number of questions as to whether this is the way to go this past month and fortunately I have experience selling IBM compatibles and using them. The single most important factor to consider is what type of use do you require of a computer. Is it word processing, database work, accounting, educational, for work, to play games, etc. You really have to have an idea as to what you and family members will be using it for. Once you have come to a conclusion, you should research the options you have available to you with your ADAM computer and only if the ADAM can't perform the needed tasks satisfactorily should you turn to another computer. It is not an easy decision to make, but that is what people like ourselves, Terry Fowler, Alan Neely, Ron Collins, Guy Cousineau, Mark Gordon, etc. are here to do for you - make your decision process and choices that much easier.

I hate to see former ADAM owners just jump into the purchase of another computer only to find out that the ADAM was capable of performing similar tasks at a considerably smaller price. Considering that it will cost you around \$1500 on up to \$2500 to purchase a new computer that is current with today's standards, it is much cheaper to make three or four calls to insure that there isn't or won't be a program or programs that will perform the functions which you so desire. If there isn't an option available for the ADAM than you have spent a couple dollars on phone calls, but if there is an option available in all likelihood you will spend less than \$30.00 for a program and save yourself a large chunk of money.

Not only are IBM and MAC computers expensive, but they are also much more difficult to learn how to operate than the ADAM and software is usually five to fifty times the price of ADAM software. The computer skills that you have acquired through the use of ADAM will aid you immensely when moving onto another computer, but once again you will end up having to spend a lot of time reading through manuals that are large in size and short in content. Over a period of a year or so you will eventually realize that you have spent more money on software than you did on the purchase of the computer, especially if the company / store you buy the computer from doesn't bundle software with the computer.

All points to ponder, so before you jump into the wonderful world of IBM or MAC give an ADAMite a call, it is well worth it!

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N.I.A.D. SPECIALS

MEMBERS ONLY - LIMITED SUPPLIES - PHONE ORDERS ONLY



ADAM BOOKS & MANUALS

- | | WAS | NOW |
|--|------------|------------|
| ● THE ADAM SURVIVAL GUIDE by A.N.N. | \$24.95 | \$17.95 |
| ● BASIC PROGRAMMING TUTORIAL by Adam's House | \$14.95 | \$8.95 |
| ● FROM BASICS TO BASIC WITH ADAM by Mel Ostler | \$19.95 | \$12.95 |
| ● HACKER'S GUIDE TO ADAM VOL. I by Hinkle Public. | \$11.95 | \$7.95 |
| ● HACKER'S GUIDE TO ADAM VOL. II by Hinkle Public. | \$11.95 | \$7.95 |
| ● LEARNING TO READ WITH ADAM by Mel Ostler | \$24.95 | \$15.95 |

ADAM HARDWARE

- | | | |
|---------------------------------------|---------|---------|
| ● ADAM KEYBOARD | \$24.95 | \$14.95 |
| ● ADAM PRINTER POWER SUPPLY | \$49.95 | \$29.95 |
| ● ADAMLINK 300 BAUD INTERNAL MODEM | \$49.95 | \$34.95 |
| ● ROLLER CONTROLLER WITH SLITHER CART | \$44.95 | \$29.95 |

ADAM SOFTWARE

- | | | |
|---|---------|---------|
| ● ADAM'S DESK TOP by Walters Software Co. | \$39.95 | \$29.95 |
| ● ADAM'S TOOLKIT by Walters Software Co. | \$24.95 | \$14.95 |
| ● BOLD GLORY by Eyezod Graphics | \$16.95 | \$11.95 |
| ● DRAGON'S LAIR by Coleco Electronics | \$16.95 | \$9.95 |
| ● INVOICER III by ADAM's House | \$19.95 | \$12.95 |
| ● LABEL WORKS by Walters Software Co. | \$24.95 | \$14.95 |
| ● POWERTOOLS by Eyezod Graphics | \$16.95 | \$11.95 |
| ● SPEEDYWRITE SPELL by White Co. | \$24.95 | \$17.95 |
| ● TAX HELPER 1991 by Gary Hoosier Software | \$19.95 | \$9.95 |
| ● TEMPLE OF THE SNOW DRAGON by Digital Adven. | \$19.95 | \$16.95 |

USED HARDWARE & SOFTWARE

- | | |
|--------------------------------------|---------|
| ● EXPANSION MODULE #3 MEMORY CONSOLE | \$30.00 |
|--------------------------------------|---------|

MICRO INNOVATIONS SPECIALS

FLOPPY & HARD DISK DRIVES

- | | |
|--|----------|
| ● M.I. 3 1/2" 720K ADAMnet FLOPPY DISK DRIVE | \$229.95 |
| ● M.I. 3 1/2" 1.44Mb ADAMnet FLOPPY DISK DRIVE | \$269.95 |
| ● M.I. PowerMATE 20Mb HARD DISK DRIVE | \$269.95 |
| ● M.I. PowerMATE 40Mb HARD DISK DRIVE | \$359.95 |
| ● M.I. PowerMATE SLOT #2 HARD DRIVE INTERFACE | \$24.95 |

ADAM HOME AUTOMATION SPECIAL

N.I.A.D. has available one ADAM HOME AUTOMATION PACKAGE available with a DIMMER SWITCH and APPLIANCE SWITCH MODULE and to top it off an EVE SP-1 SERIAL / PARALLEL INTERFACE with both SERIAL and PARALLEL CABLES and a bundle of software (including TDOS V4.59, Printer Patch software for SmartWRITER, SmartBASIC and other Coleco software titles). Only one is available at the price of only **\$149.95**. First come, first serve.

USED SEGA MASTER SYSTEM

Sega 8-Bit Master System with Control Pad, Control Stick, Light Phaser, 3-D Glasses and 25 games: Afterburner, Alien Syndrome, Astro Warrior, Double Dragon, Gangster Town, Global Defense 3-D, Golvelius, Hang-On/Safari Hunt, Marksman/Trap Shooting, Miracle Warriors, Rambo II, Rambo III, Outrun, Parlour Games, Posedien Wars 3-D, Quartet, R-Type, Shanghai, Shooting Gallery, Space Warrior, Teddy Boy, Thunderblade, Vigilante, Wanted and World Grand Prix. Everything for only **\$200.00!** First come, first serve.



N.I.A.D. PROCEDURES



⇒ N.I.A.D. is published monthly, except for the months of May / June and July / August, which are combined issues by the Northern Illiana ADAM User's Group. Individual issues may be purchased for the current month or a backissue for \$3.00 (always check Product List for current pricing). The November issue of N.I.A.D. is the 92ND issue published by N.I.A.D., there are 91 preceding issues. When ordering backissues, please specify the number of the issue, month and year.

⇒ The standard membership rate for 10 issues is **\$22.00 USA First Class** and **\$26.00 Canadian First Class** and it's possessions. Contact us for membership rates outside of these areas.

⇒ N.I.A.D. welcomes contributions of original reviews, programs, articles, questions, suggestions and comments. Please include a SASE (Self-Addressed-Stamped-Envelope) if you want a written reply. Also, any contribution sent in on DDP or DISK will be eligible to receive a Public Domain program or volume in return at no charge!

⇒ Your N.I.A.D. member ID number is on the first line of your mailing label (affixed to the newsletter). The first four digits are the month and year of the final issue in your current membership. Please check this number each month to insure that issues are not missed.

⇒ N.I.A.D. will not be held liable for any issues missed due to an address change which we are not informed of. Please send this information to us as soon as possible so as not to cause any type of difficulties. Also, include your member ID number any time that you send us any kind of letter, package or order.

⇒ N.I.A.D. accepts advertising for ADAM related products and services. Cost is \$35 for a half page ad and \$60 for a full page ad for one month. Contact us for multi-issue discounts. Well over a thousand ADAM owners receive our newsletter each month and many more get to see it second hand. You may send in your ad in either SmartWRITER, SpeedyWRITE, PowerPAINT, PrintWORKS, other ADAM formats, IBM ASCII or IBM PUBLISH IT! DTP format files or even supply us with a high quality print out for reproduction in the newsletter. N.I.A.D. reserves the right to not advertise certain products or services which may be offered.

⇒ If 1192 are the first four digits in your member number, this is the last issue you will receive in your current membership, it is time to renew your membership to insure that you do not miss an issue.

⇒ N.I.A.D. welcomes software developers to submit their programs for us to evaluate for possible commercial sale. Send in your products for us to test and to review in the newsletter. N.I.A.D. offers a 50 / 50 split of the sale price on all items that we handle distribution of for all developers. You will find that this is one of the best offers around in the ADAM community. We will also publish a review on the product as soon as possible and handle distribution of demo copies.

⇒ **We have exercised due care in the preparation of this newsletter. No warranty, expressed or implied with regard to the information contained herein is given, either by interpretation, use or misuse. The opinions expressed herein do not reflect those of the editor or staff unless noted.**



N.I.A.D. NEWS & UPDATES

⇒ **N.I.A.D. CHRISTMAS SPECIALS** went into affect as of November 16th and are still valid through December 31st of this year. There haven't been too many people taking advantage of these specials which is a bit surprising to myself that you guys wouldn't want free products. Maybe it is just a sign of the economy that people don't even want things for free! One thing I failed to make notice of was the fact that if you don't specify on your order form or when you are ordering over the phone what free product(s) you would like to receive, you can still receive them at a later date but a Shipping & Handling charge will be levied. If you have any questions at all please call first.

⇒ **ZIP-CODES, ETC.** has been released by Terry Fowler of ADAM's House. Zip-Codes, Etc. is a program that prints labels on the ADAM or a Dot Matrix Printer. It will supply either the city or zip-code where one or the other is missing. It provides a look-up feature for either the city or zip-code, too. An address database is available for creation and use. Simply fill in the NAME of the person and the program gets the address information. Single or multiple labels can be printed. The program is available on a single 1.44Mb disk, or multiple 3 1/2", 5 1/4", or data pack versions for \$14.95 through ADAM's House. As soon as a review copy is received a review will be supplied in the newsletter.

⇒ **TAX HELPER 1992** is in the final stages of completion by Gary Hoosier of Hoosier Software and ADAM's House expects it's arrival in the beginning of December. Tax Helper 1992 is said to be much faster now, loading 15 times faster than previous versions, and includes all the features one needs for fast accumulation of tax data and computation. If you are an owner of previous versions of Tax Helper, you can order the upgrade through ADAM's House for only \$10, plus \$3 S/H. The standard retail price is only \$19.95 and we hope to have it available shortly.

⇒ **ADAM'S HOUSE**, operated by Terry Fowler, has reported word that they are finalizing a deal with a source in Europe to bring to North America a number of cartridge games that were never released in the United States or Canada. One title that is already known to be involved is Meteoric Shower (this is the game built into the TeleGames Personal Arcade System which is Colecovision compatible). Watch for further updates, pricing and hopefully some reviews in an upcoming issue.

ADAM'S HOUSE
c/o Terry Fowler
1829-1 County Rd. 130
Pearland, TX 77581
(713) 482-5040

⇒ **BONAFIDE SYSTEMS**, operated by Chris Braymen, is hard at work on a major update to the SEQuel software used to run the MIDI-Mite Interface. This new update will require a memory expander, offer a sound editor / librarien feature for the FB01 and similar synthesizers and will have an ECHO feature that will allow users to play notes on your Casio (or any other keyboard) and echo the notes through to another keyboard or synthesizer. Watch for further news and a release date as soon as the information becomes available.

BONAFIDE SYSTEMS
c/o Chris Braymen
45280 S. Oakview Dr.
Oakhurst, CA 93644
(209) 658-8530

⇒ **MICRO INNOVATIONS**, operated by Mark Gordon, has announced new configurations on the PowerMATE IDE Hard Disk Drives that were released this past July. Previously there were two types available (L/C and H/P) at vastly different prices, now for the immediate future only the 20Mb (\$299.95) or 40Mb (\$399.95) L/C version hard disk will be available and will include the Slot #1 interface card. However, the Slot #2 interface (which includes a Parallel Interface, Memory Addressor and BOOT PROM) is still available for an additional \$24.95. Other news from M.I. has it that the 5 1/4" 1.2Mb ADAMnet™ Floppy Disk Drive is currently working in high density mode and low density mode should be working soon, but a release date has not been set and will not be unless a favorable response is received. The last bit of news concerns the ADAMnet™ Hard Disk Drive. The actual design and hardware is completed but the software design end has yet to be begun and will never be completed unless a favorable response is received. If you have been considering the purchase of a Hard Drive for your ADAM, N.I.A.D. recommends the purchase of the PowerMATE IDE Hard Disk Drive. We feel that the ADAMnet™ Hard Disk Drive will not be released for some time if at all. Once again the fate of two products depends on you, the users, so make yourself heard or else this may be the last we ever hear of these two hardware products.

MICRO INNOVATIONS
c/o Mark Gordon
12503 King's Lake Dr.
Reston, VA 22091
(703) 620-1372

⇒ **R&R SOFTWARE**, operated by Rich Salvati, has recently released a new catalog listing the entire line of ADAM and COLECOVISION products that they have available through mail-order. If you are interested in receiving this new catalog from R&R write to or call:

R&R SOFTWARE
c/o Rich Salvati
17 Acorn Circle - P.O. Box 2081
Hanover, MA 02339
(617) 878-4365

⇒ **S.M. VIDEO**, operated by Shon McCallum, has closed it's doors after nearly four years of providing an ADAM mail-order service. S.M. Video was vital in the acquisition of numerous public domain programs and games that would have never become available if not for their efforts. Quoting from a letter we received from Shon, "S.M. Video has decided to discontinue selling ADAM computer products. This was a hard decision to make because I enjoyed helping people with their ADAM computers. I am now looking into selling IBM compatibles and Christian music on compact disc." N.I.A.D. bids farewell to S.M. Video and wishes them good fortune in all their future endeavors.

⇒ **M.W. RUTH CO.**, operated by Ruth and Jay Forman, has closed it's doors also as reported by Terry Fowler of ADAM's House. We have not yet been able to confirm this information since over the last several months they have been hard to contact over the phone. M.W. Ruth Co. was one of the first large ADAM products suppliers to come forward after Coleco orphaned the ADAM in 1985 and we have worked with them numerous times over the course of the years to the benefit of the ADAM community. If M.W. Ruth Co. has closed, N.I.A.D. wishes them good luck in all their other and future business ventures. We will confirm this one way or the other in next month's issue.

Merry Christmas

EFFECTIVE 11/16/92 - 12/31/92

It's the Holiday Season once again and N.I.A.D. is once again offering a wide range of Holiday Specials which is our way of saying "Thank You" for all the support which you have given us over the last year! We hope that these specials provide some relief for your pocket books during this time of year when it always seems that money is one commodity, unlike love, that we do not have a lot of to share.

If placing an order via phone-in, you will be notified if you are eligible for a free gift choice or not. A selection will have to be made at this time, so please read over your options which have been outlined below. If placing an order via mail-in, you will have to make your selection on the order form or else you will forfeit your free selection. Also, when mailing in an order, make THREE selections from the specific category and number them 1 to 3 respectively (1 being the most wanted and 3 the least) in the case that some items are no longer available. Also, please inform us whether you wish to receive software on DISK or DATA PACK. If the choice is not made, the software will be sent according to other software ordered or by what is available.

Regarding ordering in time to guarantee delivery of products before Christmas - THE SOONER YOU ORDER, THE MORE LIKELY YOU WILL RECEIVE YOUR ORDER BEFORE CHRISTMAS SO CONSIDER PHONING IN YOUR ORDER USING A CREDIT CARD OR C.O.D. We will be working as hard as possible to process and ship your orders, but we can't perform miracles.

MEMBERSHIP SPECIAL

All Membership Renewals and New Memberships with product orders over \$20.00 are eligible to receive one free Public Domain software title from the N.I.A.D. Public Domain Library. The membership renewal or new membership does not count towards the \$20.00 product order, this must be made up of other ADAM software, hardware, supplies or books. Please specify the type of media that you wish to receive, either DISK or DATA PACK.

ORDER SIZE SPECIAL

Any product orders, MINUS MEMBERSHIP COSTS, received before 12/31/92 will be eligible to receive a free product dependent on the size of the order. Please only base the order size on the products ordered, do not include the cost for membership, shipping & handling, balance due payments, etc.

ORDER SIZE: \$50.00 - \$74.99

Your choice of one of the following free:

- 1. One Public Domain Volume (DISK or DDP)
- 2. One Coleco Tan Hand Controller (Joystick)
- 3. One Coleco 7 ft. ADAMnet Cable
- 4. Two Coleco Right Directory ADAM Digital Data Packs
- 5. Super Zaxxon by Coleco Electronics

ORDER SIZE: \$75.00 - \$99.99

- 1. Two Public Domain Volumes (DISK or DDP)
- 2. Two Coleco Tan Hand Controllers (Joysticks)
- 3. Four Coleco Right Directory ADAM Digital Data Packs
- 4. Backup 3.0 by M.M.S.G.
- 5. SmartTERM V1.02 by Kehoe Software

ORDER SIZE: \$100.00 - \$124.99

- 1. Three Public Domain Volumes (DISK or DDP)
- 2. Six Coleco Right Directory ADAM Digital Data Packs
- 3. Recipe Filer by Coleco Electronics
- 4. Norman's Railroad by Norman Castro
- 5. Uncommented Disassembly of ADAM EOS7 by Mel Ostler

ORDER SIZE: \$125.00 - \$149.99

- 1. Four Public Domain Volumes (DISK or DDP)
- 2. Eight Coleco Right Directory ADAM Digital Data Packs
- 3. Stratozap by Allied Creative Engineers
- 4. MisSpeller for SpellingAID by Walters Software Co.
- 5. Uncommented Disassembly of SmartBASIC V1.0 by Mel Ostler

ORDER SIZE: \$150.00 - \$174.99

- 1. Five Public Domain Volumes (DISK or DDP)
- 2. Ten Coleco Right Directory ADAM Digital Data Packs
- 3. RamBoot by Walters Software Co.
- 4. Stage Fright by Reedy Software
- 5. ShowOff II: Writermate by Digital Express Inc.

ORDER SIZE: \$175.00 - \$199.99

- 1. Five Public Domain Volumes (DISK or DDP)
- 2. Ten Coleco Right Directory ADAM Digital Data Packs
- 3. SmartDSK III by Walters Software Co.
- 4. Reedy Entertainment Pack by Reedy Software
- 5. E.O.S. Programming Kit by Walters Software Co.

ORDER SIZE: \$200.00 - \$299.99

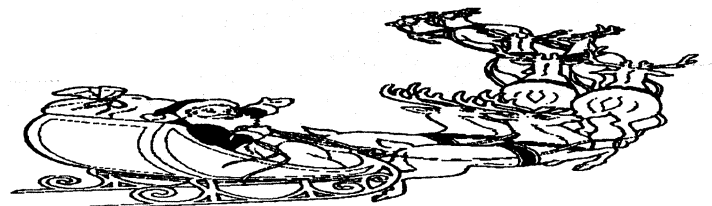
- 1. Appointment Book by The Maine ADAM Library
- 2. Addictus by Reedy Software
- 3. CopyCart+ D2.0 by M.M.S.G.
- 4. Hacker's Guide to ADAM Vol. I & II with Software
- 5. ADAM Keyboard with 7 ft. ADAMnet Cable

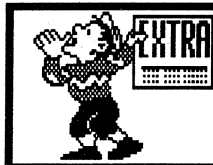
ORDER SIZE: \$300.00 - \$399.99

- 1. Phrase Craze with Phrase Pak I & II by Reedy Software
- 2. Coleco Graphics Processor Cart with Converter & Documentation
- 3. Expansion Module #2 - Driving Controller with Turbo Cart
- 4. Learning to Read with ADAM by Mel Ostler
- 5. From Basics To Basic with ADAM by Mel Ostler

ORDER SIZE: \$400.00 - AND UP

Take 7% OFF all orders over \$400.00.
Membership, Tax, Shipping & Handling, Balance Due Payments DO NOT APPLY to total of order.





PowerMATE / IDE Hard Disk Drive

Product Description - October 1, 1992

by Mark Gordon

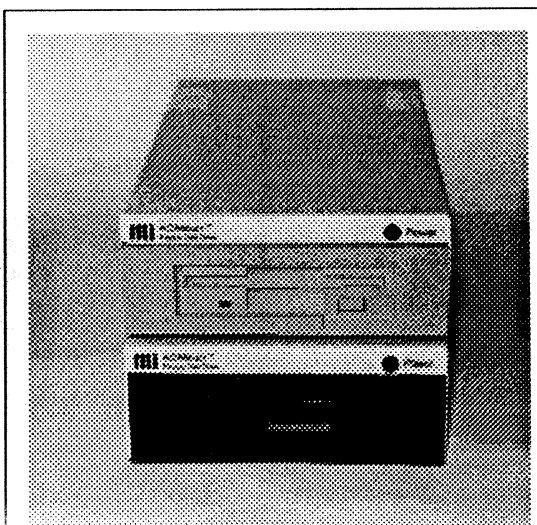
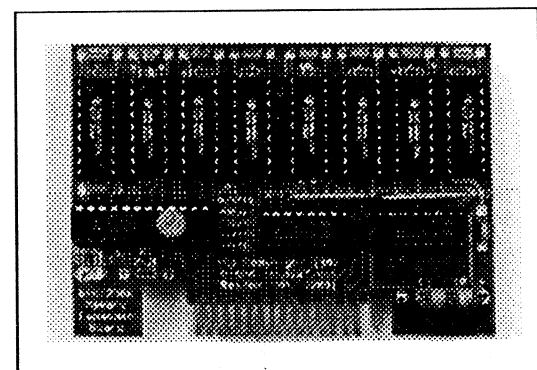
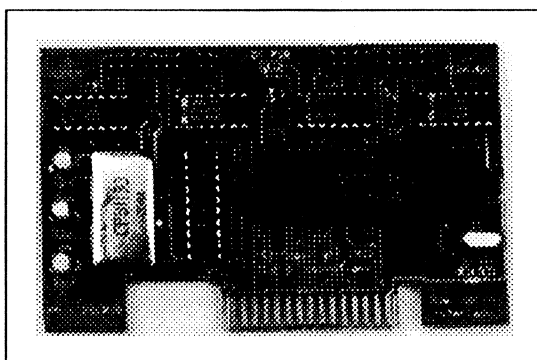
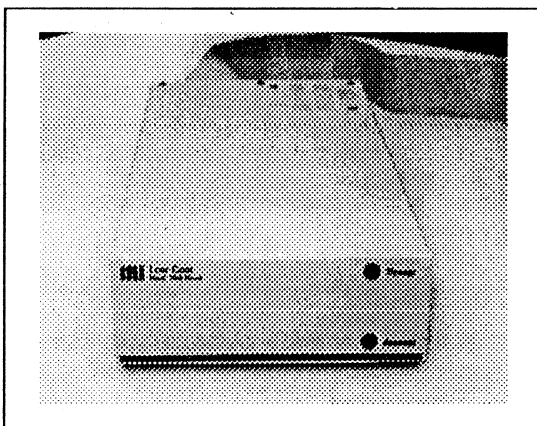
This Product Description document provides detailed information on our new IDE version of the PowerMATE Hard Disk Drives. The PowerMATE IDE Hard Disk Drives are available in 20 or 40Mb versions, with either a left or center slot interface board.

The PowerMATE drives are packaged in an attractive external enclosure and are stackable with the Micro Innovations ADAMnet™ Floppy Disk Drives. The hard disk drives connect with the ADAM computer through a hard disk interface board, attached via a 40 conductor ribbon cable. The hard disk interface board can be one of two types. A left expansion slot interface board is normally included with all drives. This board contains only the hard disk interface circuitry. However, a center expansion slot version is also available. The center slot board contains the hard disk interface, as well as a parallel printer port, a memory board expansion port, and a hard disk BOOT PROM. Installation of the PowerMATE Hard Disk Drive does not require modification of your Coleco ADAM computer.

Micro Innovations supplies two operating systems with each PowerMATE unit - TDOS and EOSHD from AJM Software of Ottawa, Ontario, Canada. TDOS is a significantly improved replacement for the Digital Research CP/M operating system and EOSHD is the standard Coleco E.O.S. operating system with PowerMATE Hard Disk capability added.

Utility programs are provided to perform disk and tape formatting, change the floppy disk formats, serial port defaults, and the IOBYTE assignments, backup and restore hard disk data, and to park the hard disk heads. In addition, many public domain programs are included (assembler, debugger, text editor, archiving, de-archiving, communications and utility packages). Micro Innovations also includes patches to allow the more common E.O.S. applications programs to execute from the PowerMATE Hard Disk(s) and a custom version of AJM Software's popular File Manager to perform the patching, etc.

To install PowerMATE, just plug the interface board into the appropriate expansion slot, connect the external disk drive enclosure to the interface board via the cable, insert the boot disk or tape, and pull the reset switch (unless you have the center slot interface which contains a BOOT PROM). Both TDOS and E.O.S. are pre-installed on the hard disk. As delivered, TDOS is the default operating system. To go to E.O.S., type "EOS" and hit the return key. To go back to



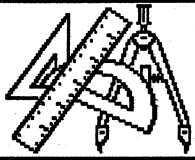
TDOS, hit the "WildCard" key. Instructions are included for the user to make an E.O.S. boot tape or disk, if desired. Software is also provided for the user to change the size and number of E.O.S. and TDOS hard disk partitions.

PowerMATE prices are \$299.00 for the 20Mb unit and \$399.00 for the 40Mb unit. The disk interface cable is included. Add \$25.00 for the center slot interface card. Printer cables are available for \$14.95 each or can be made out of standard Insulation Displacement Connection (IDC) components. All units come with a 90 day warranty and are completely assembled, tested, and ready to run. The component parts of the PowerMATE products are not available separately.

Micro Innovations also sells ADAMnet™ Floppy Disk Drives in 320Kb, 720Kb, and 1.44Mb versions; memory expansion boards in 64K, 256K, 1Mb and 2Mb sizes; Multi-Purpose Interface Boards (M.I.B. 3); dual serial interface boards; and printer interface boards.

To place an order for Micro Innovations products, or to request additional information, contact Micro Innovations, 12503 King's Lake Drive, Reston, VA 22091, (703) 620-1372. Micro Innovations products are also available through the following ADAM computer dealers: **Adam's House**, Route 2 Box 2756, Pearland, TX 77581, (713) 482-5040; **N.I.A.D.**, 8125 W. Catherine Ave., Chicago, IL 60656, (312) 775-0409; **ADAM-Link of Utah**, 2337 South 600 East, Salt Lake City, UT 84106, (801) 484-5114; and **ADAM Services**, 21 Rondale Blvd., Toronto, Ontario, Canada M6A 1H6, (416) 783-0316. Other ADAM dealers can sell Micro Innovations products but do not keep them in stock. Contact Micro Innovations or your favorite dealer to purchase our products.

Normal Micro Innovations business hours are 6:30 to 9:30 PM, Monday through Friday. A telephone answering machine will record requests for assistance or information outside the normal business hours. Orders can also be placed (and information requested and downloaded) through the Micro Innovations Bulletin Board at (703) 264-3908. BBS hours are 6:30 PM through 6:30 AM, Monday through Friday and around the clock on weekends and holidays. The BBS telephone line is used for other purposes during normal 8:00 AM to 5:00 PM business hours during the week. Please do not call the BBS during those hours. Micro Innovations also can be reached by fax - call the BBS line to leave your fax. Hope to hear from you soon.



FUNDAMENTALS OF COMPUTER PROGRAMMING

Chapter I: Baby Steps to Programming

by John Y. Terry, Sr.

EDITOR'S NOTE: The following is the first chapter of a manual by M.O.A.U.G. president John Terry. It originally appeared in the M.O.A.U.G. Newsletter. John was a mainframe programmer in the mid to late sixties. The bulk of his experience was with binary coded languages and mnemonic languages such as COBOL.

A computer program consists of the logical steps required to perform a specific function on a computer in a form understood by the computer. A computer programmer is the individual who writes the program that was defined above.

A programming language consists of the Instruction Set, Syntax, and Rules required for a programmer to communicate an idea or group of ideas to the computer.

There are both "high level" and "low level" programming languages. Assembler languages are "low level" languages and generally generate one line of object code for each instruction generated by the Assembler language. BASIC and COBOL are two examples of "high level" programming languages. One instruction line in a "high level" language normally generates multiple object code instruction lines of program.

With the above definitions in mind, this manual will attempt to show "Programmers" some hows and whys of programming.

Generally, the techniques used in this manual can be used by any programmer, using any programming language, for any computer. These techniques have been presented in very simple form for understanding by unskilled people and it is hoped that experienced programmers can also benefit by reading and using this manual.

Almost everyone that has a personal computer and access to a programming language, such as BASIC, has attempted some programming.

The novice learns quickly that a program can get out of hand and unmanageable. When this occurs, the individual must either give up or "tough-it-out" until the program has been written, tested, and used.

"Toughing-it-out" is the hard way and it is hoped that this manual will take some of the hard work and lack of understanding out of programming.

All programs are made up of the following elements:



Housekeeping
Input
Data Manipulation
Subroutines
Output

The above program elements were listed in a sequential order that the computer, programmer, and the end user can understand.

There first must be input before there can be output or data manipulation. There must be output or the input and the data manipulation have been wasted. There must be data manipulation of some sort or there can be no output.

When writing a program, the programmer does not generally follow the sequence as listed above. Except for very simple programs, the above sequence would be impossible for the programmer to follow. Although

the same steps are gone through, the sequence or order must be changed as follows:

Output
Input
Data manipulation
Subroutines
Housekeeping



There are good and specific reasons for following the above order when writing a program. If the output is unknown, input is impossible to determine. Without input, no data manipulation can occur, etc.

The following chapters will be presented in the order listed above with the how's and why's.

Prior to any programming, the first step is to define the problem. Without problem definition, no meaningful programming can be accomplished.

Once the decision has been made as to what needs to be done, it is then possible to program a solution to that need. Again DEFINE THE PROBLEM!

COURSE OUTLINE

Chapter 2 - Housekeeping

As the term "housekeeping" implies that the house is to be put into order, the computer needs to be put into order by the program.

Chapter 3 - Output

The program's output must be determined before the input can be established.

Chapter 4 - Input

Once the computer output has been established, the question arises as to where this output is going to come from.

Chapter 5 - Data Manipulation

The data manipulation section is the part of the program where the arithmetic and most logical operations occur.

Chapter 6 - Subroutines

These are probably the programmer's most useful tools especially when a program constantly needs to access the same routine over and over again.

Chapter 7 - Flowcharting

This can be very useful in both problem definition and laying out the steps necessary to solve the problem using a computer program.

Chapter 8 - Debugging

This is one of the hardest things a programmer has to do - to correct his or her own work that is.

Chapter 9 - Numbering Systems, Branching and Addressing

A bit of history on each and how they are used.

Chapter 10 - Points to Ponder

This is a general purpose chapter that deals with testing your program, media handling, the computer environment, system trouble-shooting and miscellaneous matters to take into consideration.



BEYOND SmartWRITER

Part III: A Review of SpeedyWrite V2.0, Cont.

by David Sands

If you know how to use SmartWRITER, you have very little left to discover about it, and it has given you all it can. As an entry-level word processor, SW was judged better than most. But, it lacks so much that better programs, like SpeedyWrite, offer, that you owe it to yourself to investigate alternatives. For one thing, using a different program can make a real difference in your attitude to the work you are doing.

For another, it can make that work much easier. SpeedyWrite 2 (SW2) has within it several features that can simplify even basic word processing tasks. These are the Macro functions, the Pocket Database, the split-screens, the two separate workspaces and SpeedyWrite Spell.

To deal with the latter -- Spell is not part of the SpeedyWrite program, it's an additional (\$24.95 US) program and is installed after you load SpeedyWrite. Spell has a 10,000 word dictionary and a 5,000 word Thesaurus. This isn't large -- almost any paperback dictionary offers more, and supplies definitions. But Spell is there in the ADAM, and a misspelling will create a flash on your screen and a beep sound. If perfect in your writing is as important to you as it is to me, you may want to avail yourself of the convenient 'off' feature (CONTROL + DELETE), and use the Spell-Checking part of the program after you've written your piece. And no, there ain't no grammar checker. The Spell program lets you add your own words and create your own dictionaries, and the Thesaurus can be a help when the right word won't come.

SpeedyWrite Spell requires a 64K memory expander and, when loaded into memory, eliminates the Help and Pocket DataBase features from the basic program. These can be restored, eliminating the Spell program, from the SW2 Filer menu.

SpeedyWrite's Filer menu contains, as a "header window" superimposed on any screen, and with one keypress, (STORE / GET), -- Save, Load, Delete, Init, Rename, Catalog, Status, Copy, System and PkDBASE. Here are all the "utilities" you are likely to need when working within a program. The one exception is Format, which SW2 offers, but only in combination with the SmartBASIC program.

I'll assume reasonable familiarity on your part with the ones SmartWRITER offers. Init is occasionally useful when you've got an old, full disk or datapack but no space to store your current opus. Use Init, which clears the directory, and start loading files over top of the old ones. If you've got a media holder stuffed with every disk or tape you've ever filled, and no new ones this side of tomorrow, Init will help. Why this example occurs to me, I'll never know. Rename is also an occasionally useful function, especially in connection with the Copy function. I use Rename rarely, but it's there when I need it.

Status is one of my favorite Filer utilities in SW2. With it, I can check on exactly how much space I have left on my disk / tape, how big my files are, and change the read and write protection settings. Of them all, the security of knowing how much room you have left on a media needs to be experienced to be believed.

One of the drawbacks of a review such as this, based on personal use of a broadly featured program, is that everyone - you, me, Saddam, -- will use a program differently. I'll deal with my favorite features, but my priorities just aren't the same as yours. SW2 would be a joy to use with a dot matrix printer, I'm sure, because it has great built-in features to exploit those printers -- but I don't use one. (But, he said, the beautiful job Dave Copley does in formatting and printing out the ADVISA is all done with SpeedyWrite 2, and that's just a small example of its capabilities.) Similarly, I don't find the Preview feature particularly useful. Preview is part of the Print menu and lets you see how your finished work will look, as you've formatted it. It takes a little getting

used to, and I don't find it valuable. It does help SpeedyWrite do one marvellous thing with the ADAM printer, and that is selective reprints. As we all know, printing a single page from a multiple page SmartWRITER file is often a good trick, occasionally a damn bore, and always fussy. With SpeedyWrite you select the page number you want to reprint, or find it in the Preview screens, and Print it. Hallelujah!

SW2 offers both split screens and two workspaces. Split screens show two or three parts of the same file. The advantage in rewriting and fine tuning is clear, or in following your train of thought clearly from your introduction through to conclusion. SpeedyWrite 2 can't do it all for you, though. Ask me how I know. The two separate workspaces in SpeedyWrite 2 let you jump back and forth between two different files, or make two files out of one. It's a superb feature when you must shorten but don't want simply to delete everything that won't fit. The two workspaces are accessed with a CONTROL + T keypress combination, and I find new uses all the time for them. One that works well is to outline, load that file, and then expand on the other screen, saving the expanded file as you work. Being two keypresses away from a reference, like a transcript, historical document, old file, download, readme, whatever, is again one of those experiences that SmartWRITER users owe to themselves. (Some of us are getting on, and we need some more discoveries like those that enlightened our younger years and showed us what the rest of the world knew about that we didn't; like marshmallow chocolate ice cream.)

If you use your ADAM for correspondence, the SW2 Pocket Database feature will add convenience to your life. For example, one of the ten 'screens' can contain addresses for regular letters of complaint: Hydro, Telephone, Revenue Canada, etc. You can access PkDBase files through the SW2 Filer menu, but even faster is to store it in the expansion memory Ramdisk. It's available then without using the disk drive. As with other functions, you access it with the keyboard, not SmartKEYs. When set up on a RamDisk, the WILDCARD key brings up the PkDBase, and a TAB + NUMBER combination selects your screen. Since databases can contain anything you need as information, you can use them as specific help screens; put in all your most-needed Control codes, your printer codes, your CSIS codes...

Integrity demands every reviewer have some reservations about whatever it is he's undertaken to discuss. SpeedyWrite 2 makes that duty difficult. I have some problems with the file access setup, and I have had problems with disks and file access. But I can't entirely blame the program for them. I think they more likely have been what the service and repair trades call 'finger problems.' The cursor control in SpeedyWrite, where you use HOME + ARROW keys to jump from sentence to sentence, is fast, but not always precise. It seems to get hung up in letter-number combinations, or among initials separated by periods.

But that's about it. Not much to complain about, and a lot to praise. I appreciate little things about SW2, like the CONTROL + X combination keypress which lets me 'untangle' character transpositions, something I'm prone to when transcribing. Type 'hte' for example, put the cursor on the 'e' and type CONTROL + X -- you get 'the.' It's convenient. CONTROL + Z jumps the cursor from space to space. It may never be a useful item for you, but I find it handy when reviewing. Disk directories are easy to print from within SpeedyWrite; just Catalog, press SHIFT and SmartKEY IV, (a SpeedyWrite Macro) and then ESCAPE. Then print the catalog. Fast and convenient. I may someday have all my disk catalogs printed out and kept with the disks. I may someday win the Lotto-649 too, the chances are about equal.

SpeedyWrite's Pocket Database is a good example of how a complete
(CONTINUED ON PAGE 14, COLUMN 1)



PUT IT IN WRITING!

Part II: Capabilities Abound Throughout VDE

by Thomas J. Keene

Another User option which is something that you will probably want to personalize, is the tab settings. The default setting is five spaces for the first tab, then ten more for the second tab and twenty additional (total 35) for the third tab. The last default tab setting is at 55. These may be OK (or not) but you can set the tabs to your preference when you start VDE and that is also one of the User Options.

There are quite a few User Options, not all of which are of interest to everyone. One which I should call to your attention is the alternate video in header. In the header (that top line on the screen of the text you are working on) contains some useful information. You may have the data presented as white letters on a black background or inverse with black characters on a white background. Either way may be OK but I have a great suggestion for those using a color monitor. I really recommend this setup.

A COGENT SUGGESTION

I recommend that you use the CONFIG command and change the color of the background and the characters. Set the background to Dark Blue (4). Set the Character Clear Bit Color to Transparent (0) and the Character Set Bit Color to White (F). The inverse characters are changed also. Set the Character Clear Bit Color to Dark Yellow and the Character Set Bit Color to Black (1). This arrangement of colors will not only be very pleasant but it will make the header vastly easier to read. Now when you opt for inverse video in the header, the line across the top will be a yellow band against a blue background and the characters in that yellow band are a high contrast black. In the main body of the text you have high contrast white characters against a dark blue background. Another place where this yellow background is of enormous value is in the use of control characters. Modern printers make extensive use of the control characters. Take for example the escape character; it is a control character that is displayed as the character [inside a black box. But with this arrangement it will be displayed as a black] inside a bright yellow box against a dark blue screen. This really stands out! And since you will have zillions of these control characters interspersed through your text as printer control commands, you will really appreciate this suggestion. If you would prefer not to have the header, it can be removed altogether with a toggle command or it can be suppressed in the default mode by a User Option selection.

One user option you should be aware of is the Enable Help Menus option. This is normally set to "yes". In this case, if you need help there are a lot of instructions that are at your fingertips while you are writing. If you are experienced enough and feel that you no longer require these help menus, you may disable them and this will gain you about 1K of additional editing space (room for text). If you rarely use the help screens, then it would be to your advantage to set this to "No". As I said there are a large number of the user options and I refer you to the VINSTALL documentation. It is named VINST266.DOC.

VDE will accept "wildcards" in its search mode for selected strings of text. For example, if you want to search for the word "weird" but you know that sometimes you are prone to spell it "wierd". So in your search you can enter the word as "w__rd" where the character "_" is the wildcard that VDE uses. If you don't care for the uppercase 6 to be your wildcard, you may select another wildcard of your choice in the User Option section.

These user options can save a lot of time once you are set up. However, most of them are also activated by one of the standard commands in VDE. Quite often these are commands that toggle an option "on" or "off".

GETTING STARTED

A word or two on 'MACROS'

Having set your User Options, you may wish to continue with VINSTALL and create a group of "MACROS" for special applications. For those who are not familiar with the meaning of the term "macros", it means that you have changed a particular key to perform a different operation. You may change the uppercase "1" (one) to enter a string of words like "Now is the time for having fun."

Of course, that is a frivolous example, but you may want to make a macro for letter writing where one key enters your address, another your City, State and Zip Code. You can make macros that do certain things, such as activate a string of control codes for your printer. Look at the heading of this article. There are printer control codes that select the font style, double wide and double high, double strike, emphasized mode, centering, as well as setting the page length and skip over perforations and a host of operations that you may wish to use time and again. These can be a real pain in the neck to remember if you have to set them up each time you start a new article. It is very easy to forget one or more of the control codes, which only becomes apparent when you type out the document. A macro can be made that will do many such chores at the stroke of a single key. VDE has a provision for creating macros that become a part of VDE until you change them. This is another of the uses of the VINSTALL program.

Personally I haven't used the macro provision since I began using QUIKKEYS. It can supply virtually unlimited (not quite) macros and it is very easy to create and store new macros. I just can't stress enough the value of macros in the use of a word processor. For instance, the VDE command to go to the bottom of a file is CONTROL + Q + C (^QC). That in itself isn't too hard to remember, but when you add it to a list of over 70 control commands, it is not too difficult to forget it. Of greater significance is the fact that it is a lot easier to press just one key instead of three. Each person might have a unique preference for the most wanted macro keys but there are a lot of seldom used keys in CP/M which are naturals for using as macros. That group of six keys in the upper right hand corner of your keyboard aren't used at all in CP/M. And each of them has an uppercase and three of them have a control key application. This gives you 15 keys for macro operation right there and you would never use them in word processing otherwise. Another extremely useful thing about QUIKKEYS is that you can have more than one set of macros just waiting on your disk to be implemented. You could have a set that is dedicated to a given kind of writing. You might create a set that has all of the macros that you would use in normal text preparation. But you would want an entirely different set of macros for screen play writing.

If you are doing a lot of technical writing which requires formatting that is unique to special reports that may even call for a lot non-standard characters, you could use a separate set of macros. If your printer supports International Character sets (for example the EPSON LQ510 has special character sets for USA, France, Germany, England, Denmark (2), Sweden, Italy, Spain (2), Japan, Norway, Latin America, Korea, Legal) they could be implemented with a set of macros, one for each nation. This unique set of macros would only be activated when you were going to be doing that kind of writing. But there is indeed no limit, other than disk space, for as many sets of macros as you need. I have several sets of QUIKKEY macros for my word processing but I have other sets for use in telecommunications and other applications.

VDE now uses the same command and control settings that WordStar 4.0 uses. It doesn't have quite as many (for example the dot commands
(CONTINUED ON PAGE 14, COLUMN 1)



GENERATING RANDOM NUMBERS

by Bob Currie
(c) 1990 R.A. Currie

SECTION 1

Anyone wanting to write, say, a guess-the number game, will need some way of generating a number that is not predictable. Fortunately, SmartBASIC has a command called "RND(x)" which returns a random number or a series of random numbers and these numbers are not predictable - the first time around. If one "runs" the program a second time, one gets exactly the same set of numbers.

For example, type in and run the following short program:

```
10 FOR i=1 TO 5
20 a=RND(1)
30 PRINT a
40 NEXT i
50 END
```

The set of numbers generated are:

```
.732004777
.425420012
.0831831896
.705190617
.69693043
```

Every time that we "run" this program, we will get exactly the same set of numbers shown above, even if we change the 1 in line 20 to a 12 or any other positive integer value. This is because RND(x) does not generate true random numbers. RND(x) uses a mathematical formula which is built into basic and this formula uses the same seed (or starting number) every time a basic program using it is "run".

SmartBASIC does provide a way to get a different set of numbers when we run this program. Add this line to our program:

```
5 x = -1 : a = RND(x)
```

"RUN" the program now and you will get:

```
.0966934073
.805508261
.897540095
.327457077
.120182341
```

Ah! A different set of numbers. But wait. If we "RUN" the program again, we get:

```
.0966934073
.805508261
.897540095
.327457077
.120182341
```

Yup, the same set of numbers as the last time we ran the program. If we change line 5 to read:

```
5 x = -2 : a = RND(x)
```

and "run" the program again, we will get a different set of numbers than when we had a -1 in line 5. But every time that we run the program with -2 in the RND(x) statement, we will always get the same set of numbers generated. The negative number is called a seed number and SmartBASIC allows a range from -1 to about $-1.7E+38$. Each of the

numbers in this range will produce a different random number. Therefore, if a way can be found to produce a seed number in an unpredictable manner, the RND(x) function can produce a number or set of numbers which are always different than the last time the program was run.

One way of doing this is to have the program ask the user to input a number, any number. This can work, but if he/she inputs a number that was used before then the same set of random numbers will be generated as for the last time that seed number was used.

Another way to generate a bit more unpredictable seed number is to set up a FOR-NEXT or a GOTO loop that looks for a keyboard or a fire-button activation. For example, the LOTO 649 program on the E.A.U.G. Basic Utilities tape tests for when the right fire button has been pressed and uses the counter number at that point in time as the seed for the random number generator.

If you would like to try this out, add the following lines to our little program:

```
5 GOSUB 1000 : a=RND(x)
1000 HOME: PRINT: PRINT
1100 PRINT "Press right fire button to": PRINT "begin"
1200 FOR i = 1 TO 500000
1300 IF PDL(9)=1 THEN x=-i : REM make a note of the loop
      counter at which the button was pressed and convert it to a
      negative number for the RND(x) function.
1400 IF x=-i THEN i=500001 :REM to ensure that we close the
      for-next loop before returning from the gosub.
1500 NEXT i : PRINT: RETURN
```

The above routine checks for when the right fire button on joystick #1 has been pressed. If you would rather monitor the keyboard for a keypress, then add lines 5 and 1000 as above and the following lines which illustrate the use of a GOTO loop:

```
1100 PRINT "Press any key to begin"
1200 q = 16150 : r = peek(q) : POKE q,255 : REM disable
      SmartBASIC poke limitation
1300 POKE 64885,0 : REM clear the keyboard status indicator
1400 POKE q,r : REM restore the poke limitation
1500 IF PEEK(64885) =0 then x=x-1 : GOTO 1500 : REM keep
      looking at the keyboard status indicator until a result other
      than zero tells us that a key was pressed
1600 RETURN : REM we've got our seed number, now let's go
      back
```

Both of last two techniques go a long way towards giving a truly unpredictable or random number. However, they are not foolproof. With a little practice, it is possible to type in "run" and hit "return" and "any key" (or "fire button") and get the same set of numbers two or three times in a row. Next issue, I will describe a technique that should improve on the "randomness" of the number even more. At the same time, I will clean up a few loose ends about the RND(x) function.

SECTION 2

In the first section of this article on generating random numbers, I introduced two ways of making the numbers more random than if one just used the RND(x) function as is. However, if one gets the timing just right, it is possible to generate the same set of numbers several times in a row.

(CONTINUED ON PAGE 11, COLUMN 2)



EXPLORING SmartBASIC

Part XII: Error Trapping

by Guy Cousineau

If you want a professional looking program which does not crash upon improper input or behavior, you can use error trapping. You can use complicated error traps to make it virtually impossible to break into your programs.

WARNING! This is an advanced subject and can lead you into serious difficulties and the loss of valuable programs if used incorrectly. Save all your error trapping until a program is completely debugged. Even so, work on a duplicate copy of your program just in case something goes wrong.

ONERR activates the error trapping sequences. It will send the program to an error handling routine via a GOTO statement. It is the programmer's responsibility to write an appropriate error routine. ONERR will trap ALL errors (including CONTROL-C), except the "Extra Ignored" which is not an error but a warning.

```
10 ONERR GOTO 60
20 INPUT x,y
30 PRINT x/y
40 IF x=0 THEN END: REM allow the program to terminate
50 GOTO 20
60 PRINT "division by zero error"
70 GOTO 20
```

Try running this program with normal values; everything behaves as expected. Now enter 1,0 and your error handling routine takes over, prints the message, and prompts for input again. Try entering strings (words) instead of numbers, same reaction. Guess our error handler is not too smart. Try entering 0,0 to exit and find that the error handler takes over since it tries to do division before checking for the EXIT cue. So type 0,1 to end. Now, delete line 40 and run the program again.... CONGRATULATIONS, your first unbreakable program!

RESUME can be used in an error handling routine to return to the line number that caused the error. Note that it will try to re-execute the statement. To prove this point, re-write the program above and substitute line 70 with: 70 RESUME. Now when you generate an error with input like 1, 0 the program locks itself in a loop and keeps reprinting the divide by 0 error and then insisting on re-executing line 30.... CONGRATULATIONS, another program that gets out of control and can't be broken! But is it really? Try typing CONTROL-C several times. If you are fast enough, you might be able to catch the operating system off guard and break with a strange message like "Break in 17042". But there is no such line number. At this point, you should reboot SmartBASIC. Although any other action may result in a FATAL SYSTEM ERROR, strange things have been known to happen.

CLRERR is used to turn off the error trapping and is an essential companion to ONERR. If the routine illustrated above is part of a bigger program, you don't want ALL errors to branch to a DIVIDE BY 0 message. Consider the following:

```
10 ONERR GOTO 60
20 INPUT x,y
30 PRINT x/y
50 GOTO 80
60 PRINT "division by zero error"
70 GOTO 20
80 CLRERR
90 INPUT x,y
100 PRINT x/y
110 END
```

Run this program and enter 0,0 the first time; the error handler takes

over. Now enter a valid value like 4,2 and get 2 for an answer. As we are now at line 90, try entering 0,0 and get the usual BASIC message since the error trapping has been turned off at line 80.

ERRNUM gives error handlers the ability to be a bit more intelligent by interpreting the error. Information on error codes is sketchy but you can augment the table below by running a program WITHOUT an ONERR statement. Whenever an error occurs, type PRINT ERRNUM(0) to find the corresponding error code. If it does not appear in the table, add it in for future reference.

ERROR MEANING

- 2 range error; parameters too large to handle by parser
- 5 end of data in a file read (see 42)
- 7 file not found
- 8 bad read or write to Disk/DDP (ambiguous error)
- 9 directory or Disk/DDP full
- 10 file is locked in write or delete operation
- 11 bad filename or other syntax in CONTROL-D operations
- 12 too many characters following a CONTROL-D or too many files open
- 13 file type mismatch; trying to run a binary file
- 16 illegal function in a READ or INPUT statement
- 22 RETURN encountered with no GOSUB pending
- 42 out of data in a READ statement (see 5)
- 53 illegal quantity in STRING operations or PEEK, POKE, SPC, TAB, etc.
- 69 floating point or integer number too big to handle
- 77 out of memory (too many nested loops, program too big, etc.)
- 90 undefined statement for GOTO or GOSUB
- 107 bad subscript; using values outside the limits of DIM
- 120 same array specified twice in DIM statement
- 133 division by zero
- 163 type mismatch
- 176 string longer than 255 characters
- 191 formula too complex
- 224 using FN (function) with no DEF FN (function definition)
- 254 bad response to INPUT like STRING when a NUMBER was expected
- 255 a STOP statement was encountered or ^C was pressed

Now back to our first program to make the error handling smarter.

```
10 ONERR GOTO 60
20 INPUT x,y
30 PRINT x/y
50 GOTO 20
60 err=ERRNUM(0)
70 IF err=133 THEN PRINT "divide by zero error": GOTO 20
80 IF err=255 THEN PRINT "Program Aborted": END
90 PRINT "Unknown error #";err
100 END
```

Now we have an error handler that can make decisions. If the error is divide by zero, tell the user and try again. If CONTROL-C was pressed, end the program. If any other error occurs, show the error code and end the program.

Although there are several ways of handling errors, my recommended approach is to make one routine for each critical part of your programs. That way you always know where you are. Although DATA FILE ACCESS will be discussed at a later date, consider this sample program which handles errors in stages:

```

10 INPUT "Filename ";f$
20 ONERR GOTO 50
30 PRINT CHR$(4);"Open ";f$
40 CLRERR: GOTO 100
49 REM handle bad filename and disk I/O error here
50 .....
100 ONERR GOTO 150
110 FOR x=1 TO 10
120 INPUT x: REM from file
130 NEXT x
140 CLRERR: GOTO 200
149 REM handle end of data, syntax, and disk I/O error here
150 .....

```

Each section of the program has its own error trap and can handle them more efficiently via ERRNUM(0). Note the CLRERR statement at the end of each critical routine.

NOBREAK has been the subject of a few discussions and it seems very few people understand it. Here's my best interpretations. SmartBASIC continually scans the keyboard for a CONTROL-C and aborts your programs at your request. Using the NOBREAK command defeats your programs at your request. Using the NOBREAK command defeats this feature, but not entirely. When a program writes to the screen, a CONTROL-C will always work. Try the following program:

```

10 PRINT "Press CONTROL-C"
20 NOBREAK
30 FOR x=1 TO 5000: NEXT
40 PRINT "It did not work, did it?"
50 PRINT "Press CONTROL-C"
60 GOTO 50

```

During the first loop, CONTROL-C is disabled since there is no screen output. When line 50 is executed in a loop, CONTROL-C will abort.

So what's the advantage? Since the keyboard is not scanned, you can increase a program's speed (only marginally) by using NOBREAK in your CPU intensive tasks. The best advantages come into play when you use HGR2 mode. Since there is never any screen output, NOBREAK will make a program harder to abort. The best advantage, however, will be TYPE AHEAD! Consider this program:

```

10 HGR2
20 NOBREAK
30 GET c$
40 HCOLOR=VAL(c$)
50 FOR x=0 TO 255
60 HPLOT x,100
70 NEXT
80 do=do+1
90 IF do=10 THEN TEXT: END
100 GOTO 30

```

Run this program and press 1 2 3 4 5 6 7 8 in rapid succession and WAIT. You will see the line changing colors as each color value is interpreted. After 10 iterations, the program ends. Note that without line 90, the program would lock up... another UNBREAKABLE program.

BREAK is the opposite of NOBREAK; it reactivates the CONTROL-C checking in your program.

ROUTINE ADDRESSES

● **ONERR** executes at 8114 (1FB2). It verifies that a program is running since it is not a valid COMMAND in direct mode. It then extracts the line number from the command line and saves it at address 16126 (3EFE) after setting the ONERR flag.

● **CLRERR** executes at 8313 (2079). It checks for run mode and that ONERR is active. It resets the ONERR flag and re-loads the program

counter with the line number where the error occurred.

Execution routines for other commands use the area starting at 16128 (3F00). If ONERR is detected, a jump is made to 8082 (1F92).

● **ERRNUM** executes at 10184 (2A3E). It gets the error code from address 16128 and extracts the corresponding translation from a table at 1463 (05B7). Oddly enough, the first several error numbers are the offset from the ASCII messages table associated with these errors. This table starts at 1152 (0480).

● **BREAK** executes at 6346 (18CA), and NOBREAK at 6351 (18CF). They merely toggle the flag which is used by the keyboard check routine in the command parser. This routine is found at 6190 (182E). Setting addresses 6193, 6194, 6196, 6197, 6198 (decimal) to 0 will totally disable BREAK while increasing program throughput just a bit more than issuing a NOBREAK command.

Next time, Playing with RAM.

A.N.N. Specials Projects Coordinator
 c/o Guy Cousineau
 1059 Hindley St.
 Ottawa, Ontario, Canada K2B 5L9

GENERATING RANDOM NUMBERS, CONT. FROM PAGE 9

What we need is a way of getting a number that does not depend on human input. For example, if we could get the computer itself to find a number that does not depend only on human timing, then our generated numbers would be much more random.

If we scan all of the accessible memory locations in the ADAM, we find that there are three addresses at which one does not always get the same number. At 17003(dec) we get a zero seven times out of ten and a one three times out of ten. At 65220(dec) we get a 4 seven times out of ten and a 140 three times out of ten. At 17011(dec) we get the numbers from 1 to 12 with a pretty much even chance of getting any one of them.

If you recall, our program for generating a random number by reading the right fire button was:

```

5 GOSUB 1000 : a=RND(x)
10 FOR i=1 TO 5
20 a=RND(1)
30 PRINT a
40 NEXT i
50 END
1000 HOME: PRINT: PRINT
1100 PRINT "Press right fire button to": PRINT "begin"
1200 FOR i = 1 TO 500000
1300 IF PDL(9)=1 THEN x=-i : REM make a note of the loop
      counter at which the button was pressed and convert it to a
      negative number for the RND(x) function.
1400 IF x=-i THEN i=500001 :REM to ensure that we close the
      for-next loop before returning from the gosub.
1500 NEXT i : PRINT: RETURN:rem Now that we have a seed
      number, let's go back

```

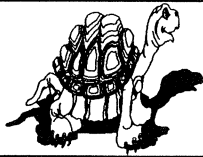
Add these lines to the above program:

```

1150 GOSUB 2000
1200 FOR i = x TO 500000 : REM This line replaces the original
      line 1200 and provides an offset to the counter
2000 x = PEEK(17003) + PEEK(17011) + PEEK(65220) : REM
      pick a number from each location and add them together
2200 RETURN : REM Now go back to line 1150

```

(CONTINUED ON PAGE 14, COLUMN 2)



THE LOGO NOTEBOOK

Part IX: SmartLOGO Can Do It Also

by Ron H. Mitchell

Last article (issue 6.1), I gave you an assignment. If you recall, we were saying that LOGO has no means of picking out characters within a string. There is a LOGO primitive to determine the first element of a LOGO list (FIRST), and there is another primitive that will give you the last element of the list (LAST). We even have primitives that will pick out everything but the first element (BUTFIRST) or the last element (BUTLAST).

It would seem that if we want to pick out elements of a LOGO list in between the first and the last, we're on our own. Your assignment was to write a LOGO procedure that would perform the task. How did you make out?

Here's mine. It may not be the only answer, but it does work.

Procedure to simulate SmartBASIC's MID\$ command in LOGO

```
TO MID :X :Y :Z
  MAKE "J 0
  MAKE "TEMP []
  MAKE "OUT []
  DO.IT
END
```

```
TO DO.IT
  IF :J < :Z [MAKE "A :Y + :J
  MAKE "TEMP ITEM :A :X
  MAKE "OUT SENTENCE :OUT :TEMP
  MAKE "J :J+1 DO.IT] [PR :OUT]
END
```

All of which is sufficient to generate several paragraphs of explanation.

Note that there is not just one procedure here but two. The procedure MID initializes 3 variables and then transfers control to the procedure DO.IT. But we're getting ahead of ourselves.

The SmartBASIC enthusiasts will know that the command MID\$(X\$,y,z) requires three inputs to do its job. The first is the string to be considered (here referred to as X\$) followed by the position in the string at which to begin counting (y) and the number of characters in the string to count (z). If you told SmartBASIC to:

```
PRINT MID$("MITCHELL",2,4)
```

the interpreter would reply:

```
ITCH
```

My procedure in LOGO will do the same thing.

The syntax is:

```
MID "MITCHELL" 2 4
```

Obviously, if you try this without entering the procedures MID and DO.IT as you see them above, you'll get a protest from LOGO:

```
I DON'T KNOW HOW TO MID
```

With the procedures entered, the reply will be the same as SmartBASIC gave you.

DO.IT consists of two parts. Recall the syntax for the conditional IF:

```
IF [INSTRUCTIONLIST] [INSTRUCTIONLIST]
```

or

```
IF condition [true then do something] [false
do something else]
```

In this case the condition is :J < :Z

:Z is obtained from the user as an input when the procedure MID is invoked, and :J, a counter, increments by 1 each time DO.IT is called. So all J is doing is counting the number of characters in the string processed so far.

As long as :J is smaller than the maximum number of characters to be counted, the procedure DO.IT will call itself. This is known as recursion.

As long as :J is smaller than the maximum number of characters to be counted, the variable "A is given a value equal to the value of :Y - an input given by the user - plus the value of :J - the number of characters that have already been counted. A temporary variable "TEMP is then assigned the value of the character in the string pointed to by :A . We then set up another variable "OUT to hold the accumulated value of the string obtained so far. Each time DO.IT is called, it adds to "OUT the value of "TEMP thereby combining the desired elements of the string. This process of concatenation is accomplished using the LOGO primitive SENTENCE.

```
MAKE "OUT SENTENCE :OUT :TEMP
```

adds each new character to the previous ones

Finally, after :Y repetitions of DO.IT :J is equal to :Z, the procedure terminates and the condition is false. DO.IT branches to the 'not true' instruction list which is simply to print the variable "OUT.

```
MID "MITCHELL" 5 4
```

Clear as mud? If not, don't worry, re-read this material a few times and eventually it will click and you'll be on your way.

FLAG

```
TO FLAG
  WRAP HOME
  SETBG 15 HT
  STRIPES
  BLUE
  PU SETH 0 SETPC 15
  STARS 87
  WAIT 120 SETBG 14
END
```

```
TO STAR
  REPEAT 5 [FD 4 BK 4 RT 72]
END
```

```
TO ROW2
  REPEAT 5 [STAR PU RT 90 FD 20 LT 90 PD]
END
```

```
TO ROW1
  REPEAT 6 [STAR PU RT 90 FD 20 LT 90 PD]
END
```

```
TO STARS :Y
  SETPOS SE -110 :Y
  PD ROW1 PU
  IF :Y < 9 [STOP]
  SETPOS SE -100 :Y - 12
  PD ROW2 PU
  STARS :Y - 24
END
```

```
TO BLUE
  PU SETPOS [0 -17]
  SETH 270 SETPC 4
  BLOCK 122 112
END
```

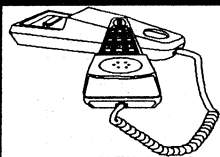
```
TO BLOCK :L :W
  REPEAT :W / 2 [FD :L RT 90 FD 1 RT 90 FD
:L PU LT 90 FD 1 LT 90 PD]
END
```

```
TO STRIPES
  FD 96 RT 90 SETPC 8
  REPEAT 4 [BLOCK 132 15 PU RT 90 FD 12
LT 90 PD]
  REPEAT 3 [BLOCK 280 15 PU RT 90 FD 12
LT 90 PD]
END
```

```
MAKE "STARTUP [FLAG]
```

Type in this SmartLOGO program and then save it as FLAG. Once this is completed, run the program by typing FLAG.

NOTE: The 2nd and 3rd lines in the BLOCK procedure are actually one line. The 3rd and 4th lines in the STRIPES procedure and the 5th and 6th lines in the STRIPES procedure are actually one line.



OVER THE PHONE LINES

Part I: An Introduction to Telecommunications

by Bart "Zonker" Lynch

This series of my esoteric babblings is an attempt to introduce you, the ADAM owner, to the wonderful world of telecommunications.

I start off with a few warnings:

- 1. This is by no means a definitive guide to the world of BBS', etc. I presume I'm going to make a mistake or two! I hope that if some of you who are more familiar with some of this will feel free to write and correct me. While this is aimed at the novice modem user, there should be something in here for everyone.
- 2. It's not my intent to discuss 300 baud vs. 1200 or 2400 or such like. I will be touching on it briefly, but I feel that the hardware used is up to the individual's pocket-book.
- 3. With those points in mind, my goal here is to discuss HOW to get on a bulletin board, WHAT's expected of you there, and the proper BBS ethics. Somewhere along the line, then, you should end up knowing more than when we started.
- 4. Lastly, please excuse the typos and most of all, the rambling. I've never been REAL good at sticking to the topic at hand!

So, the assumption is that you already have at least the Coleco 300 baud internal modem. Starting from this basic, it would also be good if you had a copy of ADAMLink II. ADAMLink I, which originally came with the modem, is just about the most worthless program ever written! It will allow you to connect to a BBS and read whatever is there to be read and THAT IS ALL! No downloading or uploading capability. And no way to capture whatever text you'd might want to save off of the BBS. So it would be much better for you all the way around if you get a copy of ADAMLink II, ADAMLink III+ or even the newly released ADAMLink V. Each of these fine programs have added features that will help you get more out of your online time. They are readily available from almost any of the buying services or user groups.

Armed with these goodies, it's time to start out for a BBS. The problem with owning our little orphaned computer (perhaps we should say "classic computer"??) is that there are darn few of us around. This means that all the good, ADAM-only BBS' are scattered around North America and you have to plunk down some long-distance dollars to get in touch with them.

What I suggest is that you start out with a local BBS in your own home town. Try checking the classified's in your newspaper. Or truck on down to the local computer store and see if they have a local computer newspaper. These are chock full of BBS listings in your area. Pick one or two out and use these for your "practice" sessions. If you make a mistake here, at least your not paying Ma Bell those mega-bucks! Pay careful attention to the information listed within the BBS listings as you will experience difficulties if you do not.

Many BBS' operate on certain days and at certain hours. For example, one could "open" from 6:00 PM to 6:00 AM, Thursday through Saturday. It's a good idea to call a BBS number voice first to ensure that it's on-line and producing a carrier. You'll know right away because of the high pitched squeal produced!

Also, make sure the listing tells you what baud rate they may be connected at. Many a BBS isn't supporting 300 baud anymore. I don't understand this at all. What a sysop (SYStem OPERator) thinks an hour at 1200 baud is faster than an hour at 300 baud, I'll never know. At any rate, be sure to check to see if they can be reached at 300 baud.

Again assuming ADAMLink II or above is being used, merely press

SmartKEY I, enter the BBS phone number and press SmartKEY VI. Sometimes, you'll be unlucky enough to hit the BBS when it's busy. In this case, ADAMLink will redial automatically. Or you may cancel this function and type in another number. When cancelling, I've found it's faster if you hit cancel when ADAMLink displays the outgoing phone number... i.e. when it's being dialed. Either way, sometimes it takes a few moments to get the call through.

You'll know when you've connected as the ADAMLink SmartKEY screen will blank out to all light blue. That is, the SmartKEY "strip" at the bottom will disappear. Not to worry, as you can get them back at a keystroke. You won't really need them for a while anyway. Depending on the BBS software, you'll either immediately see welcoming text on your screen or you'll see nothing! If you continue to see nothing after several seconds, try hitting return a few times. This is sometimes needed to "wake up" the host BBS and let it know that you're really there! Keep an eye on your time via the digital connect time readout on the lower righthand side of your screen.

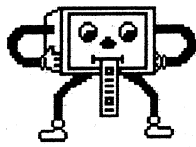
As I said, what you will be seeing now is the welcome screen of the BBS you're contacting. This will usually tell you what software it's running, hours of service and maybe even the sysops name. At some point, it will stop and ask for input from you. HAI! At last, you're on your way to the great world of telecommunication! Sometimes this will be yet another prompt to "wake up" the host BBS. It might say press ENTER to continue or some such. If that is the case, just press <RETURN> again. Get ready for another prompt.

This one might say "enter initials:". It may say "enter handle:". Or, if it's really on the ball, it'll say "if this is your first visit, please enter new:". If it does NOT say the latter, then enter ANYTHING. This will cause the BBS to search through it's records and find out that it doesn't include YOU. The BBS will then prompt you for information to place you in it's "userlog". This part of the procedure is VERY important. This information, (your real name, handle, address, phone number, etc.) is seen ONLY by the sysop and will be treated with the utmost confidentiality! As a former sysop, I can assure you that nothing gets you off on the wrong foot faster than putting down false information on your log-in! Also, on this first session, you'll be required to enter a password. This password will be unique to YOU and will be required the next time you log on. More importantly, write down the password you use and keep it in a safe place.

From this point on, it's time to look around. Remember, a local BBS probably won't have much in the way of ADAM specific information. But this is just to help you get used to a BBS in general. As a new user, you don't get the "full privileges" of the more seasoned users. That is, you won't see all the messages, the download areas or maybe not even participate in the message base, other than to read the messages. It's a good idea when first on a BBS to use help functions as much as possible. These can usually be found by typing either "?" or "HELP". This will display a menu of commands and perhaps even some shortcuts or tips on how to best get through the BBS. Take special note on how to log-off, (that is, get OUT of the BBS!), how to freeze text on screen, how to stop the message scroll on your screen and how to start up the flow again. Keep a pad and pencil nearby to jot the commands down. They are similar from BBS to BBS but not ALWAYS exactly the same.

I see that I've been typing for an hour and we've just barely got you on a BBS! We'll leave this for now and pick up the next time. We'll get further into the BBS, let you know some of the "common courtesies" and further down the line, get you onto some of the ADAM-only boards.

Until then, happy computing!



ADVENTURES IN CP/M & TDOS

Public Domain Reviews, Updates and More

by Doug Rosenvinge

IN THIS ARTICLE:

- ☆ An 80 column ADAM the cheap way
- ☆ TDOS, improved again!

An 80 column ADAM the cheap way

Like many other ADAM users I have been frustrated by the normal 32 column display. I tried MultiWrite but its display was just too hard to read on the television screen. I am a serious user of WordStar 4.0 so the 40 column TDOS screen was an improvement. However, I was a slave to the keyboard, always using <control> <left arrow> or <control> <right arrow> key presses to enable me to see the other side of my document. For a time I wrote these articles on an IBM clone using WordStar just because I could see both sides of the page. Then I was given an Epson QX-10, another CP/M machine, that featured an 80 column screen and 380k disk drives. As a result, my ADAM began to gather dust.

That has now begun to change. A couple of years ago I had bought from N.I.A.D. a Micro Innovations Serial/Parallel board. This board gives the ADAM two serial ports and one parallel printer port. I had heard of others using such a board to connect a terminal to their ADAM so they could have an 80 column screen. I purchased the board primarily so I could use a dot-matrix printer with my ADAM, the fact that it came with two serial ports convinced me to get the Micro Innovations board, so I could hook up a terminal sometime "down the road," so to speak.

I found used terminals offered for sale in a number of computer magazines, but they were more than I was willing to pay. So my dream of 80 columns stayed a dream, I had hoped a regular 80 column board would be developed that would enable all of ADAM's software to be used on a color monitor, but I have never heard of a reasonably priced product that did that. Well, in October I heard of a salvage place that had several terminals and printers that had originally been used in a bank. So I went there at my earliest opportunity. On the shelf there were three complete terminals! (a terminal is a monitor and an attached keyboard) Two of them were Lear-Siegler and the third was a Data General. One of the Lear-Siegler terminals looked a bit overused, if not abused. I then talked to the salesman about the two usable looking units. The outcome was he refused to sell me just one terminal, they had been on his shelf for over a year and he wanted them out the door. The price, \$10 for the pair!

I was surprised when I plugged them in when I got home, both terminals worked fine. Now I was faced with a choice, which one should I use with my ADAM, after all, I can only use one terminal at a time. The Lear-Siegler terminal has these features: a keyboard that is somewhat like the ADAM keyboard, tilt base for the monitor, the monitor itself has an amber display, up front controls for brightness and power, and it uses ADM-3E terminal commands. The Data General has a keyboard with many more keys than the ADAM keyboard, has status lights for power and caps lock, and has one very annoying feature, the return or "enter" key only signals the end of a line, it does not automatically send a carriage return code, there is a separate key for that. (This could probably be changed, but I don't know how as yet.) The monitor also has a tilt base, the power switch is in the back, along with configuration switches for baud, terminal emulation, and printer port baud rates, has a blue-green display, and an up front control for brightness. The terminal features two sets of control codes: ANSI and Data General.

The choice I made was based on one major factor. In order to use a

terminal you must be able to install it to your software and to do that you must either have the terminal control commands so you can make whatever changes need to be made in the software, or you must get the patches (the changes already coded for installation) for your terminal from someone else that has done the work for you. There really is a third option -- make sure the terminal you buy uses the Zenith-19 terminal commands, that is the set of commands that is coded into TDOS when it is distributed. Now, I had no information about these terminals but I noticed that TDOS is distributed with several files important to our choice. It comes with the patches for an ANSI terminal as well as a file for making up a patch for any terminal, provided you are willing to do a little code assembly. You have to edit the TERMINAL.Z80 file with your editor to enter the control codes for your terminal. Then you assemble the file with an assembler which will give you a HEX file. The HEX file is loaded with MLOAD.COM onto your TDOS installation program, which you run in turn to create a version of TDOS that will work with your terminal. Sounds complicated? It is. The reader will understand why I chose to use the Data General terminal. I chose it simply because I would not have to do the coding for the terminal since it came with TDOS already. All I had to do was use MLOAD.COM (which is also on the distribution disks) to overlay the patch on the regular 40 column version of TDOS and I was ready to go.

The first time I thought of doing this was when I read an article called "Zenith Z-29 Terminal Installation '80 Columns the Easy Way'" by Earl Kiesler in N.I.A.D. (February 1991). I was struck by how simple the process was and how great the benefits would be. My own experience taught me that the process can be more complicated than expected. Even using the patch provided with TDOS I ran into other problems. Once you have installed TDOS correctly for your terminal you must deal with the issue of installing your software. I used WSCHANGE to change the terminal installation of WordStar to ANSI to match the terminal installation in TDOS. I ran WordStar expecting it to run correctly, but the screen controls were wrong. New lines were displayed over previous lines, text didn't scroll properly, things were a mess. A little detective work showed me what needed to be changed. Now the system works fine. My point is this, while this installation may be cheap in terms of money it is not cheap in terms of time, effort and knowledge. If you want 80 columns you must choose the option that fits your ability, funds, and time. My cost for adding an 80 column terminal, counting the board and terminal itself came to almost \$90. Certainly worth the cost considering I mostly use my ADAM for word processing.

The other annoying problem, the return key not sending a carriage return, I solved this by not using the keyboard for the Data General terminal. I only use the console part of the terminal and continue to use the ADAM keyboard. The advantage to this is I already use three computers whose keyboards are different from each other, do I really need to add one more? Because the terminal can only be used under TDOS or CP/M I would still need my regular ADAM keyboard and screen to use any E.O.S. based programs. My computer desk does have its limits, as does my memory for the placement of control and shift keys!

For those of you who may be thinking about a similar addition to your ADAM the following is an outline of how to proceed.

I. Before all else

1. Determine if you need 80 columns.
2. Decide how much you are willing to spend - and stick with it.
3. If you decide to go ahead with the project, then:

II. Purchase a terminal.

The easiest to install is a terminal using the Zenith-19 command set. Only if you are willing to do some software installation that involves

patches and some assembly language programming should you accept another type of terminal.

1. Determine how much room you have for a terminal. If you don't have much room for one you want be sure it will fit on your desk or shelf before you buy. Monitors do vary in size. Both of the terminals I bought came with permanently attached stands. I had to rearrange everything to get one set up properly because it would not fit under a permanent shelf. It was too tall - by 1/2".
2. Locate a supplier. This is easier said than done. For the adventuresome look for those places that ancient computer components go when they are obsolete. Find some electronics buff and ask where they get used and surplus parts. Check recyclers and junk resellers, you may get lucky like I did. For the less adventuresome, check larger computer or electronics magazines for ads from those who sell used parts. Don't be afraid to bargain, after all, who else is likely to buy a monochrome terminal in this world of Windows and 486 IBM clones?
3. Test the terminal. Most terminals will display some message on the screen when they are turned on. Often this will be a message that tells you if its self test was OK or not. If nothing happens in a few seconds check the brightness knob, it may be off. If the terminal is used, look for a tag on the cord or taped on the side that was placed there when it was taken out of service. I have seen a couple of terminals on the shelf of a recycler that carried tags indicating problems that would not be obvious.
4. Be sure the ports on the terminal are compatible with an RS-232 connector. Some terminals used special connectors that attached them to only one type of computer. The correct port and connector are often labeled as "RS-232", "serial port" or even "modem." Make sure the terminal you buy gets its power from a regular household electric socket. Some terminals have some odd power cords and arrangements.

iii. Purchase a serial card for your Adam.

1. Consider you needs. If you think you may want to add a high speed modem later then get a serial card with two serial ports. If you are thinking of adding a dot-matrix printer to your ADAM then you may wish to consider getting a card that has a parallel port in addition to the serial ports. Simple two port serial cards start at around \$50, less cables. The Micro Innovations Multi-purpose Interface Board 3 includes both serial ports and a parallel port for about \$75, less cables.
2. Before you purchase a particular interface card be sure that it will fit into an open slot on your ADAM. (Not every make of board fits in the same slot. Some fit in slot #1 others in #2.)
3. Remember to get the proper cables as well. For whatever reason cables are often sold separately.

IV. Assemble the components.

1. Turn off the power to your ADAM. It is a good idea to unplug it.
2. Especially during the winter months, discharge any static electricity by touching a metal ground before touching any electronic components or boards.
3. Follow the manufacturer's instructions for installing the board in your ADAM. (It may be helpful to attach the serial and parallel cables to your interface card before putting it in the ADAM.)
4. Attach the serial cable to your terminal.
5. Only after all cables have been connected, turn on your terminal and your ADAM.
6. Install TDOS for your terminal

If you are not using a Z-19 terminal then you must overlay the terminal code on the TDOS program using MLOAD.COM. See the documentation that comes with TDOS about the TERMINAL.Z80 file and the other .HEX files included with TDOS.

Make sure that your terminal is set at its highest baud rate (speed) and that during the installation of TDOS that the serial port that the terminal is connected to is set at the same speed. This is probably Serial Port #2 at 19.2 Kilobaud, 8 data bits, no parity and 1 stop bit.

Be sure to tell TDOS that you want the CON set to SER2 if the terminal is connected to serial port 2. Leave the keyboard setting alone unless you are sure the terminal is working properly. If it is, and you want to use the keyboard attached to your terminal instead of the ADAM keyboard, change its setting to SER2 as well. These settings are changed during the normal TDOS installation procedure.

After TDOS has installed itself on your disk or tape you are ready to test out your new installation. Take a deep breath and pull the reset switch. If everything was done correctly the TDOS opening screen will appear on your newly installed terminal. Your regular ADAM monitor/TV may remain totally blank. Test your installation with a few simple commands like DIR or TYPE.

V. What if it doesn't work?

If things don't work do not panic. Insert your old 40 column TDOS disk and pull the reset switch. Work from your 40 column monitor and recheck your installation. Pay attention to the serial port settings, double check that you are using the correct serial port and check the base address of the serial port against the base address of the serial port on the card. Both addresses must be the same. Above all have patience and don't proceed too quickly. It took me about 10 attempts to tie up all the loose ends.

If you are not using a Z-19 terminal you will probably have to reinstall your CP/M and / or TDOS software for your new terminal.

TDOS -- A great system!

Back in June of 1990 when I last did a major review of TDOS I was somewhat critical in my comments on it. I called it an "impressive operating system with plenty of promise." I also said that I would probably not switch to it because the features it offered still did not exceed what other modified CP/M systems offered. It might interest the reader to know that I now rarely reach for a CP/M boot disk, I almost always use TDOS. Now, at revision 4.59, it is the best operating system for the ADAM. TDOS now comes on 4 standard ADAM disks with plenty of utilities, documentation and features. N.I.A.D.'s Jim Notini has done a great job in organizing N.I.A.D.'s disks (ED. NOTE: with a little guidance from the way Guy Cousineau supplied the TDOS disks to me. Also note that TDOS V4.59 is available on 2 - 5 1/4" 160K Flippies, 2 - 5 1/4" 320K disks or 1 - 3 1/2" 720K disk. Call for specifics on ordering data pack version). None of the files are archived, squeezed or crunched, they are all ready to be used. The disk or tape versions come with the TDOS system already installed in a basic configuration that will run on any ADAM. Don't wait, get into really powerful software through TDOS. You will be able to run almost any program in our CP/M public domain library.

REPLY TO MAIL

If you have a specific question or suggestion for my column, you can write to me at:

N.I.A.D. CP/M LIBRARIAN
c/o Doug Rosenvinge
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Please enclose a Self-Addressed and Stamped Envelope if you would like an individual reply.

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TWEAKING T-DOS

Part I: A few notes on getting the most power from T-DOS by Ronald Collins

EDITOR'S NOTE: The following by Ron Collins is the first in a two part series of articles entitled TWEAKING T-DOS. The entire article was downloaded from the ADAM-X-CHANGE BBS.

I have been working in the T-DOS environment since it's early development days. I have watched this fabulous operating system by Tony Morehen of AJM Software grow from "NEWCCP" in 1987, to a fledgling replacement for CP/M in late 1988. As new hardware was developed by Big John at Orphanware, Don Pearlman at IHS and many others, T-DOS was modified to provide support for it. When large disk drives were placed on the market, T-DOS was already to go to make it work on an ADAM. When the clock card was released, that to was provided for in T-DOS. When those hard drives we've all been reading about became available, T-DOS again was enhanced. Mark Gordon's new PowerMate system, with it's new two serial port set-up, called for yet more changes. T-DOS again met the need!

Whether the changes involved larger disk drive sizes, bigger memory expanders, printer interfaces, new hard drives, or even 80 column video units, T-DOS was written to support it all! AJM has two of the finest Z80 programmers I've ever known on it's staff. In fact, these two programmers comprise the entire staff! Tony Morehen and Guy Cousineau, though now separated by several provinces in CANADA, continue to provide support and enhancements for this most powerful of ADAM operating systems!

You would think that by now I'd have figured out every trick in the T-DOS book wouldn't you? Well, I've figured out a lot of things, but nobody can learn everything on his own. When I went to ADAMCON 03, Guy Cousineau passed along some special "speed-up" hints. Tony Morehen gave me a few more. Rob Friedman, the CP/M SYSOP on CompuServe's Computer Club Forum even came up with a new twist that I want to pass along. So, if you've ever wanted me to show you how T-DOS can "do something", just stick around. I'm so sure you'll be able to use some of these things to enhance your use of the ADAM that I can't wait to get some feedback from you!

For a lot of the tricks I'm going to pass along, you will be using a TEXT EDITOR. I use VDE or ZDE, both similar versions of a very popular PUBLIC DOMAIN word processor. A good deal of the tricks involve SUBMIT files which you will have to write. That's why we'll need the editor.

SAVING DISK SPACE

This one is easy. When you install T-DOS, you are asked, as one of the options, what you want to set up as your DEFAULT PATH. For those who don't know what a PATH is, let's take a minute and look at one. T-DOS always looks at anything you type. When you press the RETURN, T-DOS looks for a command that matches what you have typed. If you typed IMP and pressed the return, T-DOS would look at where you now are for a file named IMP.COM. If you typed this command on drive B:, user area 3: (B3:) for instance, the OS would look for IMP.COM to be on B3: and ready to run. If it does not find it there, it's default path is to go to user area "0" to find the file. Since we are on drive B:, T-DOS would look for it to be on B0: if IMP.COM is not found on B3: if it's not there, search is then made to the main file search area; A0: If it's in some other user area or drive, then T-DOS will give you an "IMP?" error message telling you that it couldn't find the file.

Now that you know what a path is, let's figure a way to make it work for us. When you start to load files onto your disk or a hard drive, try to figure out WHERE you want certain files to be. I have a hard disk with 5 partitions, A:,B:,C:,D: and E:. Each of these has 32 different user areas

into which I can place files to keep like programs together. If you only have one disk drive, or even one data drive, you still have 32 user areas available.

The idea is, you can get out a piece of paper and use it to "map out" your system. I, like most hard drive users, don't have an overabundance of space on my A: drive. For this reason, you can separate files into specific areas. I have placed all of my UTILITY files onto E15: My WordSTAR files are on C0: and my MODEM programs are on A1: To make all of this work, I took advantage of the PATH option when I installed T-DOS. The system told me it was set-up for a single path option A0:. It then asks CHANGE Y/N to which I answered Y(es). The new path I typed in was:

A0: A1: C0: E15:

I pressed the return and was asked again if I wanted to change it. I pressed the N(o) and the new path was set when I finished the installation and booted the new system.

Now, if that IMP program isn't on B3:, T-DOS will look for it in the same places as before, but it will also search A1:, C0: and E15 for it. Since IMP will be with my other modem programs I have stored on A1:, T-DOS will find it and boot the program. Now I can boot selected software from just about anywhere on my ADAM! The result of all this work is to free up space on my most used drive area, A0:. There are many programs that require all support files to be located on A0:. It just makes good sense to leave as much space for this type of program on your A: drive as possible. Space that used to be taken up by utility programs can now reside on some other, less used drive / user area. The extensive T-DOS path capability has freed up more than 5 megabytes on my drive A, so it's easy to see how truly useful it can be.

PROGRAM NAMES REALLY DO MATTER!

Now, let's take a look at how T-DOS processes a command that you have typed. T-DOS has the ability to use multiple commands in order, one after the other. All you do is place a semi-colon ";" between commands. For instance, I could have gotten a directory, cleared the display screen and then booted that IMP program all with one command line. That line, separated by semi-colons would be: DIR;CLS;IMP followed by a RETURN. Now, suppose that EVERY time I want to use IMP, I do exactly that i/e: get a directory, clear the screen and then, finally, boot IMP. Wouldn't it be so much faster to only type IMP than to type DIR;CLS;IMP? Sure!

We have done things like this before using SUBMIT.COM or EX15.COM. These programs read a series of commands from a text file and go to work processing each command in line. When one task is done, the next one in line is activated. This goes on until everything in the text file has been processed! Nice and neat!

To make that sort of thing possible, Tony built the submit utility right into T-DOS! This built-in submit processor is one of the most feature-packed, powerful versions I've ever seen. A feature of T-DOS is that when you type a command (any command), a search will first be made to find a submit file by that name. The submit files all have the extension of .SUB, by the way. In the case of that IMP command, T-DOS looked for IMP.SUB first. Since it didn't find it, it then looked for IMP.COM. This it DID find and subsequently booted. This double search, through the entire path takes only milliseconds... but it still

takes more time than you may want to wait. There are a few ways you can speed things along. Let's take a look at some of them.

CALL IT WHAT YOU WANT T-DOS TO LOOK FOR

Rather than just type IMP and pressing the RETURN key, T-DOS would be able to load my modem program ever so much faster if it new EXACTLY what I wanted it to load... and from WHERE! Since it is located in my MODEM files area on A1:, I could have gotten IMP to load in the blink of an eye by simply typing A1:IMP.COM and then pressing the return. T-DOS would instantly jump to A1, boot IMP for me and come up... all with me still on B3: and ready to go! Nice and simple.

BUILD UP A USEFUL SUBMIT FILE INSTEAD

To get a directory read and then clear the screen before IMP loads is still quite possible. The key is to using that built-in submit processor to our advantage. Let's built up a simple one I like to use with our favorite text editor. Be sure to do this in a NON-Document mode so that now extra control commands get saved with the file! I'll be using ZDE for this, you can use whatever program you prefer. To start it, I type ZDE IMP.SUB /N. This way ZDE will boot and create a non-document text file called IMP.SUB and wait for me to fill in the text. Our text will be simply:

```
DIR;CLS;A1:IMP.COM
```

I have to press the return after this line to move the cursor down to the next line. To save the file, I just hold in the ESCAPE key and press the "X" key on my keyboard. I now have a file called IMP.SUB on my disk. If I put this file on the user "0" area of each disk, no matter WHERE I'm at, I'll be able to use it!

SOME HELPFUL SUBMIT FILES YOU CAN BUILD

There are many complex or just simple tasks that can be done easier with the aid of a submit file. For instance, no matter where you are on your system, you can get back to the A0: area in a really FAST way if you put a file called A.SUB on each "0" area of your disk or hard drive partition. The text of A.SUB is just: A0: followed by a return (which doesn't show up).

I have a T.SUB in that same "0" area to always give me the time. T.SUB reads: E15:TIME.COM followed by a return.

I also wrote a help file that lists the names of my favorite utilities and tells me what they are called. It also describes each file briefly. This way, if I forget what I've named one of my utilities, I have a simple way to find it. I first typed up my help file and saved it as HLP.TXT. Next, I wrote a submit file I will use when I need to read that text file. This file is called HELP.SUB and is also put into the "0" area of each disk. The SUB file is simply: TYPE HLP.TXT followed by a return. When I type HELP and press the return, T-DOS looks for a file called HELP.SUB which it finds. HELP.SUB tells it to type out HLP.TXT on the TV display.

I wanted to have a MOVE program written for T-DOS recently, but Rob Friedman came up with a slick way to use this SUBMIT to do the same job. MOVE is a way to take a file on one drive / user area and move it completely to some other drive / user. The original file should be gone when you are done. What I wanted this for is to help with my file maintenance. When I download a new file to my ADAM, I always try to

store that file on my D0:DOWNLOAD> area. This is a good central location that is used for nothing but the download and testing of new software. When a new program checks out as a good, workable file, I determine where that program will best be moved to. Modem programs, for instance, would always be copied to A1: where it will be with other "like" programs. When the program has been copied to it's new home directory, I have to go back and delete the copy of that file on D0:. I wanted a MOVE program that would copy that file where ever I told it, then auto delete the original copy. Doesn't it make sense to type:

```
MOVE IMP245.LBR A1:
```

instead of:

```
COPY IMP245.LBR A1:
```

and then:

```
DEL IMP245.LBR
```

I should make a note here about the multiple command option that Tony's built-in submit function provides. By placing several commands on one line, each separated by a semi-colon ";". Take a look back at that submit file I wrote to load IMP. You remember, it was: DIR;CLS;A1:IMP.COM That use of the semi-colon could have been used in this situation as well. I could have typed:

```
COPY IMP245.LBR A1;;DEL IMP245.LBR
```

That's not to bad, but I still need to type the same sort of thing for each successive file I want to move. A MOVE.COM would save me (an you) a great deal of time. When I mentioned this to Rob Friedman on CompuServe recently, he decided to try the same thing with some of those lesser documented features of T-DOS. If you have a string of commands that you would likely repeat from once session to another, but with differing files, then what you need is a sort of "task processing." By the use of the "%" key, you can substitute a number from 1 to 9 followed by a %. What is typed first will represent 1%, what is typed next will equal 2%, and so on. Using this ability of T-DOS, Rob wrote MOVE.SUB....

```
COPY %1:%2 %3;DEL %1:%2
```

In this submit file, Rob has issued the COPY command with 3 parameters following it. Remember, a file has a filename and a file type (as in IMP.LBR). The period between the two words keeps the filename and the file type together. In his submit file, Rob has used a colon ":" to tie the two parts. Notice the %1:%2 in the file? Now, where we want the file to go is the third part of the command. This is represented by %3. Next, a semi-colon told T-DOS to look for another command to perform, which is DEL (for delete). It isn't necessary to tell the system those names again because we've already done that. All we have to do is remind the system which file names we mean by repeating the %1:%2. If we type MOVE IMP245.LBR A1:, T-DOS looks at it and replaces % place holders with what we've issued as data. In this case, it's represented like this:

```
MOVE IMP245.LBR A1: which is seen as COPY 1:%2 %3;DEL 1:%2
This is stored in command memory as: COPY IMP.LBR A1;;DEL IMP.LBR
```

In nothing flat, T-DOS smoothly moves my file over to A1: and deletes the copy of it from D0: This will work no matter how the program is named. I've placed a copy of this MOVE.SUB file on the "0" user area of each valid drive where it can be used on each drive as needed.

Next month's conclusion to Tweaking T-DOS will cover automating T-DOS with the XSUB program. This very powerful program will make difficult or repetitive tasks a breeze.



TYPE
HARDWARE
RELEASED
JULY 1992

M.I. PowerMATE H.D.D.

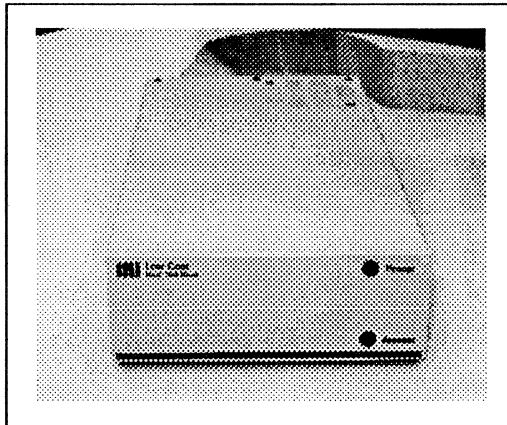
By Micro Innovations

Reviewed by Steve Pitman

PRICE
\$299.95-\$399.95
MEDIA
HARD DISK DRIVE

EDITOR'S NOTE: After this review was written by Steve Pitman, Micro Innovations changed the configuration of the PowerMATE Hard Disk Drives slightly. There are no longer the Low Cost (L/C) or High Performance (H/P) designations. Currently the hard disk drives are available in either 20 or 40Mb sizes and come with a hard disk interface that plugs into Slot #1 in the memory console. For an additional fee, a Slot #2 hard disk interface is also available which also includes a Parallel Interface, Memory Addressor function, and hard disk software BOOT PROM.

The Powermate IDE hard disk drives are here! Two versions are available. The High Performance (H/P) drive transfers data at 28ms, has a built-in 8K cache, and a interface card that plugs into slot #2 inside your Adam, the card also supplies a 9 or 24-pin parallel printer interface and addressor function (for the larger memory expanders) and a boot Prom socket. The Low Cost version (L/C) transfers data at 70ms and has a interface card that plugs into slot #1, it doesn't include a parallel printer interface or boot Prom socket. If you purchase the L/C version you may later add a boot Prom socket by purchasing either the M.I. Parallel interface card or the M.I. Multi-Purpose Interface 3. The boot Prom eliminates the need for a boot disk to access the hard drives. Both versions, the H/P and L/C are available in 20 or 40 Megabyte sizes! For example, the 40 Megabyte will hold as much information as 250 disks! (the original Coleco 160k). They also have a cooling fan installed, this will prevent over-heating and will extend the life of your hard drive.



After receiving my H/P drive, I was suprised to find that they are about the same size as the Coleco drives and they are very easy to connect to your ADAM. No soldering or taking your ADAM apart, just plug in the interface and power supply and you're ready to begin. I was also amazed at all the software they have included already on the drive, from word processing programs to filing programs. I must have spent days just trying out the software. I have to admit I never cared for CP/M in the past, but when I saw the quality of some of the programs I quickly changed my mind. PC-Filer is one of the programs included, it has to be the best filing program I have ever seen for ADAM. In my opinion SmartFILER is now obsolete when compared with this program, it's easier to use and more versatile than SmartFILER ever will be. Let's not forget TDOS which is also included, TDOS is the replacement for CP/M.

Believe me, after working with TDOS you'll never touch Coleco's CP/M again.

An M.I. Hard Disk program by AJM Software is also included. This will allow you to boot E.O.S. software from the hard drive, such as ADAMCalc, SmartBASIC, ADAMLink, ect... Patches for several programs are included on the hard disk, you just need to copy the files for the respective program to the hard disk and follow the instructions given. Any programs can be patched to run from the hard disk. There are patches for PowerPAINT and many other programs circulating amongst hard drive users. Not all software requires a special patch to work, and if you have the GAMESAVE.COM program (Public Domain program in N.I.A.D.'s CP/M library), you can copy all of your cartridge games to a TDOS volume. There is a TDOS program called SETBOOT.COM that will allow you to select which operating system you want loaded when you first turn on your computer. It comes with TDOS already selected, but you may change it to boot the M.I. Hard Disk program.

The M.I. Hard Disk Program will allow you to KRUNCH or INIT any E.O.S. directory, or re-Partition the hard disk. The version of File Manager that is included will let you copy between any E.O.S. hard drive volume, you can also edit or copy any block. The hard drives come already formatted with ten volumes dedicated to E.O.S. software and four volumes for TDOS, you may change this if you wish, you can dedicate the entire disk to E.O.S. or TDOS. Your hard drive will be recognized as drive B when using any E.O.S. software such as SmartWRITER. It's

amazing to be able to switch between SmartBASIC, TDOS, File Manager, and any other program installed in seconds! SmartBASIC takes less than two seconds to load! (H/P version, I haven't tried the L/C version, but 70ms is still extremely fast), and from SmartBASIC or any other E.O.S. program you can press the SHIFT + UNDO key and instantly be back to the E.O.S. menu where you can select another program to load.

Owning a hard drive has many advantages, no disk swapping, everything is tied together on one disk, switch from E.O.S. software to TDOS with the press of a key. This appears to be a very reliable HIGH-QUALITY product, I am extremely happy with my purchase and think other ADAMites will feel the same, after owning one you'll wonder how you ever survived without it.

SYSTEM REQUIREMENTS

- MEMORY: BASE ADAM SYSTEM WITH R80 REVISION
- PRINTER: ADAM PRINTER AND OR DOT MATRIX PRINTER
- DRIVES: 1 OR MORE DISK DRIVES AND OR DIGITAL DATA DRIVES
- OTHERS: NO OTHER REQUIREMENTS
- OPTIONS: HARD DRIVE BOOT PROM, SLOT #2 H.D. INTERFACE

SOFTWARE RATINGS

- HARDWARE DESIGN A+
- HARDWARE INSTALLATION A+
- INSTRUCTIONS B+
- EASE OF USE A
- VALUE FOR THE DOLLAR A

OVERALL

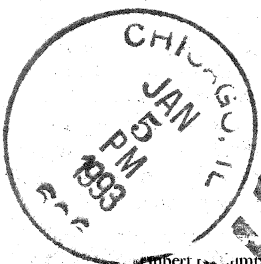
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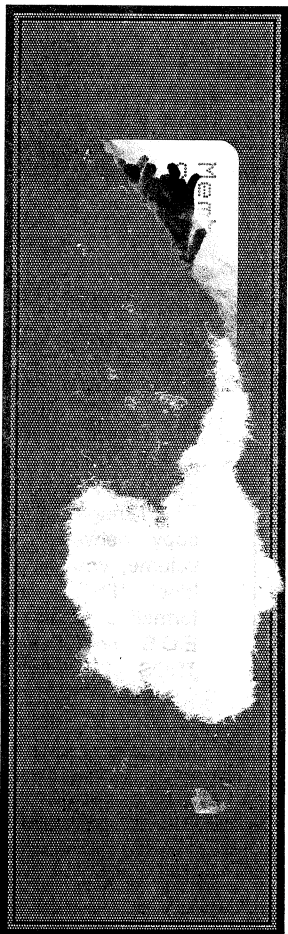
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