

# THE NATIONAL NINETY-NINER

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THE 99ER'S ASSOCIATION  
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CREATED FOR TI 99/4A HOME COMPUTER OWNERS

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## ANNOUNCEMENTS

### TWO ADDITIONAL STAFF WRITERS

Leonard Lanigan and Don Thomson have joined our staff of writers. Don Thomson is the owner of M and T Utilityware. He is an Assembly Language Programmer and will be doing articles on file handling. Mr. Lanigan will be doing regular articles on CP/M. Leonard is proficient in Z-80 Assembly Language. He is presently working with the Morning Star CP/M Card. Please contact Mr. Lanigan at our address if you are aware of any Public Domain Programs for CP/M or have any questions about using the Morning Star system.

### NATIONAL SOFTWARE LIBRARIAN'S DEPARTURE

We regret to announce that Curt Purdy is leaving his position as our National Software Librarian. Curt has requested a replacement for his position due to extensive personal commitments. We wish him the best in his new endeavors and hope he will join our organization once more in the future.

Keith Felix of San Jose, California, has agreed to replace Curt as our National Software Librarian. Keith was previously our West Coast Users Group Coordinator. The release of a SS/SD disk of software will proceed as outlined in the next article.

Don Veith, Editor

### ODDS 'N ENDS

#### A SHORT AND POWERFUL NOTE ON SOFTWARE PIRACY AND THE DEATH OF A COMPUTER

By Don Thoason, M&T Utility Ware

I would like to address a problem that is continually plaguing our fantastic computer. This problem, as just about everyone knows, is PIRACY.

I currently market three (3) programs for the TI-99/4A that are considered, by many, to be pretty good programs and not the ripoffs that people have mentioned to me which keep coming down the pike. Contrary to popular PIRACY beliefs, my software is not in the public domain. It is not supposed to be distributed by unauthorized people. I am aware that my software has entered the "PIRACY PIPELINE", and is now in the hands of many people who have obtained it illegally. I would like to say something to the people who are doing it: "I HOPE THAT A BURGLAR BREAKS IN TO YOUR HOUSE AND STEALS SOMETHING THAT IS VERY VALUABLE TO YOU. IT WOULD BE THE SAME THING YOU ARE DOING TO ME!!"

M & T Utilityware was started because I had some programs that I thought were pretty good and might be of some value to other people. I have ideas for quite a few more programs written in Assembly and PASCAL. I bought the P-System in hopes that some day software would be available for it. So far nothing has happened, so I will be writing some myself. So you folks who have purchased the P-System, don't give up on it yet.

I decided to market my utility programs with the idea it is very nice to have all of your utility type software on one disk. That way you don't have to keep swapping disks in and out of your disk drives. Armed with that idea, I did not spend the time dreaming up some elaborate protection system that would have been broken anyway. I felt it more worthwhile to TI owners to spend my time writing programs they could use. I figured that it would take quite a long time to write protection trying to outsmart the pirates. So much for good will. The pirates have decided to take it upon themselves to distribute my software illegally. I even included the source code with my programs so people might be able to learn assembly language a little easier.

I would like to repeat a comment made to me by a PIRATE who approached me at the TI FAIRE in Chicago, November 1984. He stated his pirating of software, software that someone had spent many hours of there life creating, STIMULATES the market. How can software piracy stimulate a market? All it does is contribute to the premature DEATH of a computer. He told me if people get software, they will buy hardware. HOGWASH!!! The only thing software piracy accomplishes is to make programmers like myself say, "HE!# WITH IT". At that time a major void has been created in an area that makes computers tick, SOFTWARE. If programmers say "HE!# WITH IT", there will be no new and better software. With that in mind people will DUMP their machines. Then there you have it, THE PREMATURE DEATH OF A COMPUTER DUE TO THE SELFISHNESS OF PEOPLE WHO THINK THEY ARE STIMULATING THE MARKET!!!

The only reason this fantastic computer has held on so long after being abandoned by Texas Instruments is because of the good will, hard work and grace of HONEST people. Thank GOD there are more HONEST people than there are COMPUTER KILLERS.

Software for the TI computer is already relatively low priced. Better quality software is coming out regularly and the price stays low. Why do PIRATES find it necessary to try and ruin a good thing? Why are you folks trying to KILL our computer? I don't understand it. The mad TI bailout panic is over. Good quality software is available for our machine. Instead of trying to KILL it, why don't you folks try and do something constructive, like contribute to the long life of the machine instead of the premature DEATH?

People who purchase my software legally will receive full technical and update support plus a money back guarantee. I don't know of any software company for any other computer that offers this. A note to all of the HONEST TI OWNERS: Think about that when you are offered a pirated copy of software. If you buy my programs from a pirate, you will get no support and no money back guarantee. I don't know of any PIRATES who guarantee stuff they STEAL!!

In conclusion, we don't want to prove the industry right by letting PIRATES kill our computer. Ignore the PIRATES and support those people who are working to make one of the most powerful home computers around SURVIVE!!!

## WANTED - DEAD OR ALIVE !!!

A 100 Micro-Farads reward has been offered for the capture of Hopalong Capacity and his sidekick Eddy Current (possibly armed with electron guns), who escaped from their Weston Primary cell, where they had been clapped in ions. These men have not been seen faraday or so. They were charged with stealing Joules from a Volt and also with the induction of an 18 year old coil called Milli Henry who was found half-choked. They were last seen riding Megacycles over the Wheatstone Bridge. These motorcycles were of low frequency, so they robbed a man of an A.C. motor and returned ohm by a short-circuit. The man offered no resistance.

STOP PRESS... They eventually fell foul of the cunning Constable Mill-Amp of the Electromotive Force who brought them down to earth.

Article taken from Nine T Nine Users Group of Toronto, Ontario, Canada newsletter of November/December, 1984

## ARTICLES

### NEWS FROM CALIFORNIA By Edgar Dohmann

I had to take a business trip to Anaheim, California during the latter part of March. While there I was fortunate to find time to meet with Don Veith (Editor of THE NATIONAL NINETY-NINER), visit CorComp, and visit DataBioTics.

#### CorComp

The folks at CorComp were very accomodating and friendly. They spoke very frankly of their previous financial problems and the steps they have taken (and are continuing to take) to get the company back on sound footing. I was given a tour of their facility and had the opportunity to watch their quality control and testing operation. I think they are very concerned about producing reliable, high quality products Their technical staff seems very competent.

They indicated the firm had several new products that are nearly ready for release. They are a bit gunshy over the fact that some earlier product plans haven't panned out As a result, CorComp's spokesperson would not even hint at what the new products will be. Their attitude is that they will no longer announce products until the product(s) are actually ready for production. I certainly can't fault them for taking that position. They have been bombarded with calls and letters regarding some of their earlier product announcements then when development ran longer than expected, they felt pressured into releasing a product before it was thoroughly tested. They seem determined not to repeat that mistake.

I hope they are able to continue to solve their financial obligations and stay in business because they have several excellent products and apparently more on the way. Their technical staff seems very competent and interested in providing quality products.

#### DataBioTics

Although this company is a fairly new entry into the TI-99/4A market, they are quite familiar with the computer and the market. The first DataBioTics product is MINIWRIter I which is a remake of the MiniEditor marketed briefly by TI. (MINIWRIter I is written by the author of MiniEditor). I was given a preview of their next product, BITMAC. This program is an adaptation of the Apple Macintosh MACDRAW program for the TI-99/4A. It should be available by the time this article is published. It looks like an outstanding program.

DataBioTics has several other products on the drawing boards and under development. The DataBioTics spokesman described a MINIWRIter II, MINIWRIter III, 4/A TALK (a terminal emulator program that supports X-Modem protocol), and SUPERDISK (a RAM memory disk emulator with lots of goodies). Their plans are to have all of these products available this year but they recognize that development being the beast that it is, product availability times can't really be predicted until you are actually ready to ship.

#### NATIONAL NINETY-NINER (Newsletter of THE 99'ERS ASSOCIATION)

I had the opportunity to spend several hours with Don Veith, President of THE 99'ERS ASSOCIATION and Editor of THE NATIONAL NINETY-NINER and Darrell Ingold, President of TEX-BUG and a Staff Analyst for the NATIONAL NINETY-NINER. The NATIONAL NINETY-NINER is a strictly volunteer operation that is trying to coordinate and provide information to all TI-99/4A Users Groups.

I have been fortunate to have been a Staff Writer for the NATIONAL 99'er for the last 6 months or so. Up until now I have only communicated with Don Veith by telephone or mail. It is always nice to meet an acquaintance in person and after talking to Don and Darrell for several hours. I am more convinced than ever of the viability, purpose, and need for his operation.

Don has managed to obtain the association of a number of knowledgeable TI-99/4A programmers to serve as Staff Writers and Analysts. As a result he has gained the attention and respect of many authors, publishers, and producers of TI-99/4A products. These manufacturers look to his staff for Beta testing, product reviews, and expect nothing but a competent, objective analysis and review of their products.

By maintaining an independent and voluntary organization, the NATIONAL NINETY-NINER offers TI-99/4A users the assurance that product reviews are honest and unbiased. I think this newsletter should head the subscription list for every TI-99/4A user. At \$12.00 per year, the value is hard to beat.

## REGENA

At Christmas of 1980 our family experienced a vast change in our life due to the addition (invasion) into our home of our first home computer, a TI-99/4. Little did I know how much joy that computer could bring--and how business opportunities would arise. I jumped into the microcomputer world with my programming and soon expanded to writing for other computers as well. Life became hectic but enjoyable and, yes, profitable.

Now we are anticipating a different type of addition to our home--a baby due in October. Again, we view another type of "invasion", but with it much joy and different opportunities.

With a bit of regret and sadness (yet bright outlook for our new horizons), I am announcing a temporary retirement from the computer world. My illness has brought everything to a screeching halt. I will continue to write my TI column in COMPUTE! but have stopped all other writing and am no longer able to visit Users Groups. My books are still available from COMPUTE! (or directly from me), but I am not starting any new books for now. I may still do my MSX programming newsletter, but it depends on the United States MSX market.

With the ups and downs of the microcomputer world, I'm the last one to decide what the future will bring. I'll probably always write for the TI. After writing over 200 programs for it, I still find it enjoyable to program. Many new programs are available that enhance and utilize the power of microcomputers. I realize many homes simply want the under \$300.00 models. I would like to continue writing home and educational programs for these people--next year.

Thanks and best wishes to all my TI friends.

C. Regena

### CP/M-Part III

By Leonard Lanigan

In the last month, at least two other publications have done reviews of the Morning Star Software (MSS) CP/M card. It is interesting to note the difference in tone of these reviews--Micropendium seeming rather negative, and HCM more positively inclined. There are valid points in both of these reviews, but in the final analysis both reviews agree that the card works flawlessly. I can assure you that it is true. One major concern I had was the potential conflict between the CP/M card and the p-Code card. Both are designed to take initial control of the computer on power-up. I am pleased to report that there is no conflict. The MSS card takes charge, providing a menu of two choices: (1) for the TI disk system and (2) for the CP/M processor. Selecting (2) will cause the 8085 to look for the CP/M system disk in Drive A (TI drive!). If the p-Code card is in place and turned on, choice (1) will cause it to go through its normal power-up routine and leave you with the initial p-System command line. To return to BASIC or TI-WRITER, simply select H)alt. The initial TI title screen, with the CP/M menu will reappear. Selecting (1) again will cause the p-Code card to be bypassed, and show the usual TI menu.

There are three distinct limitations to the MSS implementation of CP/M, at least two of which stem from the fact that the CP/M card is fully integrated with the TI computer. First, there is the 40 column display limitation, a real annoyance with such programs as Personal Pearl, which is designed to use 80 columns. This results in a great deal of screen scrolling, which brings up another (minor) limitation. The MSS card uses the high resolution graphics mode of the TI display, which requires that 12K of memory be rewritten every time the screen is scrolled. This gives an effect similar to using a modem, with the text appearing at about 600 baud. This system allows the use of color graphics and mixing text and graphics on the screen at the same time (for assembly programmers). Too, it should be noted that only the display speed is affected--the 8085 keeps computing full tilt while the 9900 writes the screen. It is possible to type two or three screens ahead of the display without losing data. All in all, this is a very minor drawback. The third limitation is more serious. The MSS card allows only SS/SD Osborne formatted disks to be used. This format allows about the same disk capacity as the TI SS/SD system, which can limit some program's file length (any program which can use files to disk capacity will be limited to about 90K--not much for a word processor or database).

There is a way around the 40 column limitation, though it may be costly. There seems no reason why the MSS card can't be used with an external 80 column terminal (the straight TI can be used this way via an RS232 link) or with the Foundation 80 column card. Either of these choices will add about \$300 to the cost of your system. It is possible that we may see some solution to these limitations from MSS.

The important point is that the system works without a hitch. We have been presented with a elegantly designed way to take advantage of the vast CP/M software base, much of which is free!

I have been looking over the Personal Pearl software package, a powerful and flexible information management system (of the type called a "relational database manager"). This system allows the collection, manipulation and output of nearly any sort of data, and can provide a small to medium business with everything needed to keep track of its income, output, inventory and customer base. It provides limited arithmetic functions, and can be used for some of the simpler functions of a spreadsheet. Further, it is designed to be used in conjunction with a spreadsheet program. In combination with a Multiplan-like program, some intensive analysis can be done. Files can then be manipulated with a word processing package (e.g. WordStar), allowing a useful degree of integration.

As with everything worthwhile, there is a price to be paid for this power. First, the program is not inexpensive, at about \$265 (through your users group). More important is the time required to master the features of the program. I spent several hours setting up an input form and three output reports to file, sort and list my many years collection of books, articles and recordings. Data input is also time consuming with any computer program, especially with a backlog of several thousand items.

I hope to be able to report on some of the free CP/M software next time. I have written to several sources of public domain programs, but have not yet received any responses. There are several programs that I am particularly interested to try: BIZMASTER, a complete business software package, DIMS (Dan's Information Management System), a database manager, MODEM7, a communications program and ED, a word processing program.

For those of you who would like to investigate the availability of software to suit your needs, here are some of the addresses I have tried (Please include a SASE when you write to any users group, or other non-commercial outfit):

Elliam Associates 24000 Bessemer St. Woodland Hills, CA 91367 (This firm offers a free catalog, I'll tell you more when it arrives)

San Francisco 1st Osborne Group 436 Market St. San Francisco, CA 94112

CP/M and Kaypro Users Group 22554 Tiara St. Woodland Hills, CA 91367

CP/M Users Group of Washington D.C. 7315 Wisconsin Ave. Washington, DC 20814

I have gathered these addresses from several sources, and it is possible that one or more of them are no longer valid. If you know of any other sources, please let me know. You might also look over the reviews of the card mentioned above.

In closing, let me mention that I did input a short 8085 assembly program, to check out the ED and ASM functions of the CP/M program. Although the program was a trivial one, it allowed use of the editor and assembler, both of which functioned in proper CP/M form. I think most potential users of CP/M will be more likely to run applications software than to write 8085 assembly code, but it is nice to know that it can be done. Next time, a bit more about the card itself, and hopefully, a lot more about software.

### PASCAL NOTES

By Edgar Dohmann - JSC Users Group (JUG)

This month we will continue our discussion of the P-System Editor. The Editor uses a "workfile" concept. When you first enter the Editor from the P-System command line by typing E, the system will search your disks for a file called SYSTEM.WRK.TEXT. If it can find such a file, it will open the file and display a page of text from the file that you can edit. If there is no current workfile on your disks, the system will display the cryptic prompt:

No workfile, File (<ret> for none)?

This prompt means the system was unable to find a workfile on your disks. If you want to edit some other existing file, merely type the file name. If you want to enter a new file, merely press Enter and the system will let you type into an empty file which you can save as SYSTEM.WRK.TEXT when you exit the Editor.

As we will see later, you can save the file you are editing as a workfile, give it a new name, or replace the old file with a new version when you exit. The workfile is a handy concept if you want to keep a "working" version around from session to session or if you want to treat it as a "temporary" file while you are editing and testing.

I only use the P-System Editor to type Pascal or assembler source code for use in a P-System program. Therefore the workfile comes in handy for saving my current activities as a temporary file. Once I have completed compiling and testing of the program, I rename the files to some permanent filename and delete the workfile so it does not confuse me at some later session. I try not to retain any completed programs in the workfile so I don't accidentally erase or overwrite them in the future.

If you use the P-System Editor as a general word processor, you may want to adopt a slightly different technique for creating and updating your text files depending on your needs. At the end of this article we will look at the various exit options which give you several choices for saving the file you are editing.

Now that we have gotten past the initial startup of the Editor, we are ready to start using it. The best way to learn this editor (like most others) is to just sit down and start using it. The most useful command is the Insrt so let's start with it.

The Insrt command lets you add characters or text to the file. To access the insertion mode, move the cursor to the position where you want to insert characters then press I. The insertion prompt line will then be displayed and as you type characters, they will be inserted into the file. If you are creating a new file, your "insertion" starts at the top of the file.

You can correct text by pressing the left arrow key which works as a backspace in this mode. This causes the cursor to move to the left, erasing a character each time the key is pressed. You can erase whole line by pressing FDN 9 (line delete). In this case the entire line the cursor is positioned on is erased and the cursor is moved to the end of the preceding line.

The Insrt mode has a couple of unusual features. If "auto indent" is true, each line of text will automatically be indented the same otherwise the cursor will return to the first position of the next line when Enter is pressed. If "filling" is true, the Editor will use word-wrapping so only whole words appear on a line otherwise you will have to press Enter at the end of each line. The auto indent and filling parameters can be set with the Set command. I like to use both of these features.

The amount of indentation can be adjusted from the Set command or while in the Insrt mode. In this mode, use the spacebar or left arrow keys to move the cursor right or left once you are on a new line before entering any text on the line. The position of the cursor when you start typing defines the new indentation amount.

To exit the Insrt mode, press CTRL C for <etx> or CTRL . for <esc>. The <etx> exit will accept the changes you have made while the <esc> exit will cause them to be ignored, leaving the file as it was before you entered the Insrt mode.

Once you exit the Insrt mode, you will be back in the top level command entry mode of the Editor. You may then enter another Editor mode or exit the Editor.

Since the Xch mode is similar to Insrt, we will also look at it this month.

You enter the Xch mode by typing X from the main Editor prompt line. This mode lets you replace existing characters in the file. This mode lets you move the cursor around with the arrow keys, the Enter key, and the <tab> key (CTRL I). Once you have the cursor positioned over the character to replace, typing a new character will replace it. Pressing <del> (FCTN 1) will delete the character under the cursor, and pressing <ins> (FCTN 2) will insert a space before the character under the cursor. Note that this insert feature only inserts one space, it does not initiate continuous insertion like the TI Basic Editor. If you have to insert several characters, press <ins> as many times as you need or exit this mode and enter the Insrt mode for the insertions.

The Xch mode is exiting just like the Insrt mode. When you are ready to exit the Editor, type Q while in the main Editor command mode. The Quit mode gives you 4 choices. Type U to update the workfile and leave the Editor. Type E to exit the Editor without saving any of the changes you made. Type R to return to the Editor without saving the file. Type W to write the text you have been editing to some file other than the workfile. The E and R exits are primarily provided as escapes in case you pressed the wrong key accidentally. The E key gets you out of the Editor in case you got into it by mistake. The R key gets you out of the Quit mode in case you got into it by mistake. Once in the Quit mode however, be careful not to hit the E key by mistake! The W command lets you update the file you started with or save your text in a different file. After typing W you will be prompted for an output file. Type \$ to update the old file, or type a new filename if you want to create a new version. Next month we will complete our discussion of the Editor by looking at some of the other command modes it has to offer.

## WINCHESTER INSIGHTS

By Edgar Dohmann

This is the start of a series of articles on Winchester disk drives. Winchester drive prices are beginning to drop significantly making them a reasonable consideration for system upgrades. The major purpose of this first article is to alert you to some things to watch for if you are considering a Winchester purchase. In future articles we will look at specific considerations of actually using a Winchester on the TI-99/4A.

Myarc, Inc. is the only company I am aware of who is building a Winchester interface for the TI-99/4A. The interface card (they call it a Personality Card) plugs into a slot of the Peripheral Expansion Box. System requirements are the P-E Box (naturally), Memory Expansion, and a Floppy Disk System (Controller and at least one drive). The price of a fully packaged system ready to plug into the /4A costs around \$1,500.00 (for a 5 Megabyte system, a 10 Megabyte system is a few hundred dollars more).

It is possible to improve on this price if you have a little technical expertise or know of someone who does. I have seen Winchester drives advertised for anywhere from \$150 to \$600 but this of course is not ready to use on the /4A. First you need to make sure the drive is suitable for the /4A. Shugart model SA1000, Seagate Technology model ST506, and Quantum model Q2000 are three that will work fine. A number of manufacturers make equivalents to these three so be sure to check first. The next thing to check is what is included for the price. As a minimum you will need the sealed Winchester mechanical unit, the drive electronics, and a case with fan and power supply. Many of the "bargain" prices may be nothing more than the sealed mechanical unit and may not even have the drive electronics.

There are 3 levels of electronics involved in a Winchester system. At one end there is the drive electronics which should be a printed circuit board mounted to the sealed mechanical unit. Make sure the drive you buy has one and be sure to check what (if any) warranty is included. At the other end is the Myarc Personality Card which plugs into the P-E Box. Between these two circuit boards must be a Western Digital WD1001 Winchester Controller Card.

The drive electronics provides the basic control electronics for moving the heads and transferring data to and from the drive. This board also provides a consistent interface to the drive for manufacturers who wish to build compatible drives. The WD1001 is a printed circuit board which is designed to be mounted inside the case containing the Winchester drive and power supply. Its purpose is to provide the disk controller features required by a computer. It has a sector buffer (512 bytes) so data transfers between the drive and computer do not have to be synchronized to each other, it includes error detection and correction logic, and it provides a convenient interface for computers. The Myarc Personality Card contains the DSR to support the Winchester in a manner compatible with TI's File Manager and the electronics to interface the WD1001 to the P-E Box data bus.

All of the above items will probably cost you between \$800 and \$1000 for a 5 Megabyte system (a 10 Megabyte system is still a few hundred dollars more). The good news is that both the Myarc card and the WD1001 will support up to 4 drives so additional drives can be added fairly economically. When packaging your system, don't forget cables. A 40 conductor cable is required for connecting the Myarc card to the WD1001. Two cables are required to connect the WD1001 to the drive electronics card. One is a 20 conductor cable for the data transfer between the drive electronics and the WD1001. Four connectors are provided on the WD1001, one for each of up to 4 drives. The other cable plugs into either a 34-pin or a 50-pin connector on the WD1001.

The same signals are provided on both connectors with some pins unused on the 50-pin connector. These connectors handle the control and status signals between the WD1001 and the drive electronics. Two connectors are provided because even though several manufacturers make compatible drives, they didn't all decide to use the same connector. The WD1001 makes it convenient to use either style. In addition to these three cables, both the drive electronics and the WD1001 have power connectors which must be connected to the power supply.

As mentioned above, each drive in a multiple-drive system must have its own data cable connected to the WD1001 board. The control and status cable on the other hand gets daisy-chained from drive to drive. If the drive electronics card has two connectors for this purpose, then one can be used to cable to the WD1001 and one to cable to the next drive. If the drive electronics only has one connector, then it will be necessary to use a cable long enough to reach all drives and crimp connectors for each drive electronics board in the middle of the cable. Each drive will probably require its own case and power supply unless you plan ahead for this and get a case and power supply with enough capacity to support more than one drive. The Myarc Personality Card comes with a Winchester Manager software package on floppy disks. Next time we will take a look at this package.

## FIXING BLOWN DISKS THE EASIER WAY

By Donald M. Thomsen III  
M \* T UTILITYWARE

This is my first article, since receiving the dubious honor from DON VEITH, of being asked to become a staff writer for 99ERS ASSOCIATION. I would like to thank Don and his staff sincerely for allowing me to try and get across some of the things I have learned about the TI-99/4A Home Computer.

First, let me give you a little background on myself to let you all know where I'm coming from. I bought my computer in June, 1983, at a large department store in the hopes that I might learn something about computers. I have been working in the electronics field for 10 years in the United States Coast Guard. Up until June, 1983, I had never touched a computer keyboard. I saw the movie WAR GAMES on the big silver screen, and I WAS HOOKED. From that time on, I can't seem to be able to get enough of this little \$50 computer. Since I couldn't justify to my wife, bless her heart, that this little machine might someday do something productive, I started my own business writing and marketing software for this little BOX. Well, I think I have convinced her that my computer equipment spending spree just might be paying off. In the past six months since I started the company, M \* T UTILITYWARE, I have paid for the computer plus quit an expansion system. I have a PE box with only 3 slots left, 4 disk drives, all DSDD, with a lot more ideas to expand further into the software end of things. I have also decided to branch into PC computers. I have just purchased a SANYO MBC-550 computer and hope to take delivery in the near future. Enough rambling about me, permit me to begin the article.

I recently received a copy of a review about DISK FIXER from NAVARONE INDUSTRIES and repairing blown disks. The article appeared in the December 1984 issue of THE 99ERS ASSOCIATIONS newsletter and was written by NIRAJ N. SHAH and MIKE BALLMAN.

I would like to say first, the article was well written and the authors seem very knowledgeable about a TI formatted disk. This article covers an easier method working with a user friendly program to recover data lost on a floppy diskette.

One of the programs marketed by my firm is called DISK + AID. This is more than just "another" single sectoring program. I wrote this program mainly with the novice computer user in mind. I tried to make it as user friendly as possible with the majority of the documentation displayed on the screen. The program and manual are dedicated to just one thing, making the recovery of lost data easier and faster. This is not a program that is a jack of all trades and a master of none. The DISK + AID program was created because I did not think there was a truly user friendly, yet powerful enough program on the market to recover lost data. The manual has a 4 page section dedicated to nothing but recovering lost data.

Let's go over the procedure to recover lost data from a diskette. First, if you discover a disk that gives you that famous message "DISK NOT INITIALIZED", don't be alarmed, YET! I have found that 95% of a disk with that problem can be repaired in about 3 minutes using DISK+AID. I have discovered, thru a lot of experimenting, there is a code in sector one the DISK MANAGER cartridge that checks to see if a disk is initialized. This code is "DSK". This is all DMII checks. To find out if this is the problem on your disk, load in DISK+AID. When you get to the command screen that displays all of the menu choices, simply press the number 1 thru 4 to select which drive your disk is in. Now press "R" and sector zero will be read in and all 256 bytes will be displayed in HEX on the screen for you. Down the left side of the screen you will find sector addresses. For ease of use in finding the initialization code, press "I" to give you an ASCII display. Now look for the code "DSK" starting at address >0D. If the code is not there, press "A" to go into the sector "ALTER" mode. Position the cursor at >0D and simply type in "D" "S" "K" and press "ENTER". To put the sector back out on the disk, press "FCIN W". This two stroke command was used to reduce the chance of accidental write operations to disk.

After you have written the revised sector zero out to the disk, press "FCIN P" to view what DMII will show you when a disk catalog is requested. This simple process turns all of the bits and bytes of sector zero into a human readable form. You do not have to translate them yourself. An exact listing of which sectors are being used and which ones are not is presented. This function is called reading the BIT MAP. I will be covering disk layout in another article. If everything turns up in the right place when you do the MAP function, you are ready to go on to sector one to see if it is intact.

Press "F" to advance the sector count by one and press "R" again to read in sector one. At this point, you should be getting some idea as to the user friendliness of DISK+AID. You will want to view this sector in HEX, so press "I" again to go back to HEX. Sector one contains the DIRECTORY sector of every file on the disk. If you have a recent catalog of the disk, compare the number of directory sectors with the number of files on your catalog. They should match. If not, don't panic. With DISK+AID you will be able to find the files without too many problems. If you have a printer and would like a hard copy of sector one, press "D" to do a screen dump. If sector one matches your catalog, you are done and should not have any further problems. If they don't match, continue reading additional sectors.

To find the directory sector of a file, you will want to use the SEARCH STRING function of DISK+AID. DISK+AID has a very sophisticated search string routine. You have the option of displaying each sector as it is searched or you may turn the display update off and search the disk at a much faster rate with the TI disk controller. (It seems that the CORCOMP disk controller searches slower because of the sector interlace pattern. More on interlacing in the future). For the moment, turn the display update off by pressing "U". You will see the little CARAT after the sector number on the status line disappear. Now press "E" to enter the SEARCH ROUTINE. You will be prompted to enter the starting and ending sectors to be searched. If you have less than 25 files on the disk, select a search range starting at 0002 and ending at 0021. This is where the first set of file directories are placed on the disk. Now press "ENTER" and you will be prompted for entering either an ASCII or a HEX string. Select "A" since you are searching for file names. You will be entering the actual file name to be searched for by the program. Use the arrow keys to position the cursor for corrections. Once the file name has been input press "ENTER" and the program will start the search for you. If the string is found, it will be displayed regardless of the status of the screen update flag. Since you are searching for an ASCII string, the sector will be displayed in ASCII regardless of what the screen toggle flag "T" is set to.

When a file has been located, make a note of what sector number the program stopped at (status line). This sector number will have to be added to sector one to make it complete. If you are interested in finding out all of the characteristics of the file, press "FCTN F" to ma, the directory. Displayed before you will be all of the information that comes up on DMII plus a lot more. One of the most important and powerful features of DISK+AID is the ability to show exactly where your file physically resides on the disk. This is known as the sector fragment table. Once all of the file names have been located, you are ready to go in and update sector one. Reset the sector number to 0001 using either the "F" and "B" keys or "N" to directly enter the sector number. Use "R" to read the sector in and get it displayed in HEX so you can go in and make the necessary changes. Remember, each directory sector takes two bytes of memory in this table.

Remember, any time you are using DISK+AID and wish to get a hard copy of a screen, simply press "D" for the screen dump.

All of the files on your disk are entered into sector one. You are ready to plug in DMII and do a non-selective backup. DMII has the unique feature of putting all of your files in alphabetical order for you while eliminating any file fragmenting. After your non-selective backup is complete, YOU ARE DONE! The disk that was giving you problems should be completely intact. CONGRATULATIONS you have just recovered your blown disk.

I hope that this article has provided a little more insight into the mysteries of the "DISK". With the blessings of Don Veith, I will be writing additional articles that deal with the more advanced file recovery techniques and how the disk controller does all the MAGIC it performs so well for us each time it is used.

So until next time, HAPPY HACKING!!!!

## REVIEWS

### TC-MAIL - A FORTH MAIL/TELEPHONE LIST

By Don Veith, Editor

Programmer - Thi Chau - Distributed By Ransoft Enterprises

The speed of the TI Forth Programming Language is demonstrated when one uses this piece of software. I am sorry to say that the care and feeding of this publication does not allow much time to explore other things such as Forth. The apparent speed is quite obvious in the sorts which take mere seconds compared to minutes plus in many of the Extended Basic databases and mail packages we have investigated.

You do not have to be an Editor/Assembler expert to use this software. You must be the owner of this TI cartridge to run the program. It is quite simple to load the program. You select Editor/Assembler from the TI Menu, choose Option 3 from the module's main menu, and then type DSK1.TC-MAIL. The programmer takes it from there with the Main Menu appearing in 30 seconds. The Main Menu is very simple. You are instructed to use the Function Key plus the number keys to select an option from the Menu. These keys are used repeatedly throughout the program in all subsequent menus.

The Main Menu choices are listed below. F is used to represent the Function (FCTN) Key.

F1 - ENTER RECORDS	F7 - PRINT
F2 - SORT/DISPLAY	F8 - INITIALIZE NEW DISK
F3 - SEARCH/DELETE/CHANGE	F= - QUIT

A bit of praise is due Thi Chau for including the F8 option. How many times have you been ready to use a piece of software and forgot to initialize a data disk, this excellent feature made it quite convenient to create my data disk.

The TC-MAIL disk comes with two programs, the original version and an updated version that represents comments provided to the programmer by purchasers of TC-MAIL. The primary difference between the programs is in the record length for the first name and last name entries in each record. Version A uses 12 characters in each record entry. Version B provides 24 characters for the first name and 18 characters for the last name. This difference between Versions A and B does reduce the total file records which may be stored from 710 (A) to 622 (B) records per disk. The record storing capacity of this disk is accomplished on a single-sided, single-density disk. What would be the programs capacity if both sides of the disk were utilized? An additional difference is Version A prints a two (2) column telephone list while B only prints a one (1) column telephone list. The sorts for Version B are slower than for Version A. If this is the case, it appears to be only a short time duration that was not discernable to me during my evaluation of the software.

Additional features include having the complete program in memory at the same time. You are able to select either a color monitor or a monochrome monitor at the initial screen. The instruction book is only three (3) pages long yet adequately describes all the program functions in plain English. The author even included a short note on TC-MAIL Terminology.

The Sort Menu is quite compact. The two (2) choices are to (1.) DISPLAY or (2.) SORT. Choosing the Sort Option presents a copy of the input field selections with a number next to each one. You select the number associated with the data input field identified as the primary sort criteria. A second selection list appears requesting whether the records should be sorted in (1.) Ascending or (2.) Descending order. Here is the fascinating part of this program, the record counter rolls like a slot machine wheel as the sort is performed. The speed associated with this program's sort operation is unbelievable. The program tells you how many sorts it will take MAXIMUM to complete the sort and rapidly proceeds to complete the assigned task.

The search feature is easy to use. Select the field you wish to locate a piece of data in, let us use a last name as our example. The program diligently searches its data files for that name and either retrieves the information on file or informs you no such record exists. Once more the waiting time is minimal.

The print option allows the use of PIO or RS-232 compatible printers. The choice of print types is Compressed or Emphasized format. You may select to print a telephone list (includes name of associated party), record information, or labels. The labels may be printed up to three wide on the page with options to select their character position on each line. My criticism of the program relates to the printer options. You are not given any choice in the output format for the labels. Each line of information on the label is printed with a space between it and the next line of information. I prefer to have each line of my mailing labels printed one after the other with no spaces between the information on each line. Another nice feature would be to print a test label pattern to assist the computer operator in lining up the labels prior to printing.

The program is oriented strictly towards the United States mail market. No provision is made for the four or five line mailing labels required by our friends in Canada, Europe, or Australia. The programmer failed to note the U.S. Postal System and its project to implement the nine (9) digit Zip Code. Room is provided for only a five digit Zip Code while foreign countries use six or more letters and numbers. These factors will prevent commercial establishments with overseas contacts from utilizing this excellent piece of software. The programmer does provide a 29 character comment line for each record. I do not believe this comments space is sufficient for commercial houses who must maintain more information on each customer.

The program's overall rating is excellent. To use The John Phillips System, it would receive five out of five stars for a home use mailing list. The speed of operations is phenomenal due to all of the program residing in memory and its programming language Forth. An outstanding effort by the author. His willingness to alter the program after receiving suggestions from purchaser's of IC-MAIL indicates a strong interest in serving the customer. The program is an excellent addition to your software library at a price of \$9.95. It will handle your personal mail/telephone lists with phenomenal speed, ease of use, and minor drain on your financial resources. Perhaps a commercial version of this excellent product will be available in the future. The business community using the TI-99/4A does not possess a program of this quality.

You may obtain your copy of TC-MAIL from the firm listed below. The firm, in brochures mailed earlier, indicated other TI Forth applications programs would be available. Let us hope that the new items of software maintain this same level of quality present in TC-MAIL.

RAMSOFT ENTERPRISES  
1501 E. CHAPMAN AVE, SUITE 338  
FULLERTON, CA 92631  
(714) 738-3665

I wish to thank Jay Hiers and Ed York of the CIN-DAY Users Group for the loan of their personal copy of TC-MAIL. This review would not have been possible without their kind assistance.

**ADVANCED DIAGNOSTICS**  
By Edgar Dohmann

During February and March of this year I had the opportunity to participate in the Beta testing of a new product for the TI-99/4A. Advanced Diagnostics is an outstanding new program written by Steve Milton and published by Millers Graphics. These are the same folks who wrote the software for CorComp's Disk Controller and Disk Manager.

Advanced Diagnostics is much more than its name implies. In addition to a variety of memory and disk diagnostic features, it also provides almost every feature you could want in a disk analysis/fixer program. It's quality is typical of previous products from the author and publisher.

The program is easy to use and is very well documented. A class touch is the on-screen help window which you call by FCTN/7 (AID). This overlays a portion of the current screen with a window of Advanced Diagnostics commands. You can page through the available commands with CTRL/E and CTRL/X then return to your previous screen with FCTN/9 (BACK). I find this feature to be extremely useful because I hardly ever have to refer to the manual (which is usually misplaced anyway).

The memory diagnostic performs a bit-shift and refresh test on every location in VDP RAM, console CPU RAM, and Expansion Memory RAM. If you loaded the program with Mini Memory, it will even test the RAM in that cartridge. The disk diagnostics let you check Motor Speed (with a nice bar graph display), try various head step rates, and check track seek capability.

The disk analysis/fixer features will check a diskette for bad sectors, display a catalog of files on the disk, and find the physical location on the disk of any particular file. Other features include the ability to read sectors and tracks, edit sectors, and write sectors. You can also copy a block of up to 36 sectors at a time to the same or a different area of a target diskette.

The program has many other features and one of the most interesting and powerful is the Command File feature. All Advanced Diagnostic commands are 2-character commands which are normally entered on the command line of the display. However, you can create a text file (DIS/VAR 80) with a series of as many commands as you like. Then you type a command like "CF DSKx.filename" on the command line and Advanced Diagnostics will execute every command in your file. The program disk includes several such Command Files to give you a start in understanding how to set them up. One of the Command Files is an excellent demo for the program.

As I mentioned earlier, the manual is excellent and even includes detailed technical information on disk recording formats and the way TI's File Manager uses diskettes. The only drawback to the manual is that it printed in light blue ink on gray paper which provides a low contrast and makes the manual difficult to read. I have recommended to the publisher that they change to a higher contrast printing style.

The program requires Expansion Memory and a Disk System with at least 1 drive. It can be loaded with Extended Basic, Editor/Assembler, or Mini-Memory. The disk is copy protected and to foil the plethora of sector copiers now available, it uses a special formatting technique. The positive side of this special formatting technique is that it enables the program to be loaded much faster than if conventional formatting techniques had been used.

The list price of the program is \$19.95 which makes it very affordable. I personally think it is one of the top 3 programs ever written for the TI-99/4A (the other two being Extended Basic and TI-Writer). I highly recommend this program for everyone that has a disk system on their computer. I applaud the author and publisher for making such a high quality program available at such a reasonable price.

## HINTS 'N TIPS

### SOFTWARE HELPLINE I

By Edgar Dohmann

#### SOFTWARE HELPLINE HINT # 1

Last February I had to make a week long business trip to Bellingham, Washington. This is a small city about 100 miles North of Seattle. There isn't much to do in Bellingham in the evening so I took along my /4A, tape recorder, and several books and magazines with programs I wanted to key into my computer.

I set up my machine in my motel room on my first night there and started entering a program. After half an hour of typing I saved my partial program to tape and continued typing. After another 15 minutes or so of typing I wanted to LIST part of my program. I only got garbage on my TV screen.

It was obvious that something bad had happened to my program. I suspected some kind of memory problem but decided to cycle the power switch to see if the problem would go away. No such luck. I thought perhaps I had a thermal problem so I turned the machine off for 5 minutes.

When I turned it back on, it worked fine for 5 minutes then cratered. After a couple more iterations, the good interval dropped to a minute or so. I noticed that BASIC worked fine in command mode so I suspected the problem was in VDP (video) memory rather than in CPU memory.

Fortunately I had my Mini-Memory cartridge along. I used the POKEV and PEEKV commands of MM to write and read various data patterns to known locations of VDP memory. From this process, I determined that the high order bit of VDP memory was bad.

I knew that the VDP memory was made up of 8 TMS4116 chips. These are 16K x 1 bit chips so I guessed that one of them was bad, but which one? Unfortunately I had left my schematics at home and did not remember which chip was the MSB (most significant bit). I decided to wait until I finished work the next day to see what I could find at the local Radio Shack store.

Luckily the Radio Shack store had 4116 chips in stock so I bought 2 of them (ever install a new chip only to find out it too was bad?). I bought a can of Dust Off (canned air which uses Freon as a propellant), a soldering iron, a solder sucker, and some dykes. I had brought along some screwdrivers but that was about the only tools I had with me before I went to Radio Shack.

When I got back to the motel, I disassembled my /4A. With parts and wire dangling everywhere I plugged it in and turned it on. When the problem showed up in a couple of minutes, I inverted my can of Dust Off and sprayed Freon on the 8 4116 chips one at a time. Inverting a can of Dust Off causes Freon to spray out rather than air which occurs when the can is held upright.

Immediately after the cold blast of Freon hit the defective chip, the system started working properly. Once I identified the defective chip, I turned power off, used my dykes to cut off its legs, cleaned the residue out with my solder sucker, inserted the new chip, and soldered it in place. When I turned power back on, the computer worked perfectly (lucky me). I then reassembled the computer and went back to typing.

Fortunately this story had a happy ending. There are also several lessons to be learned. For one thing I found that Mini-Memory can be a valuable troubleshooting tool although that was not its primary design purpose. The /4A is not a difficult machine to fix, it's just another piece of electronics and an excellent technical manual is available from TI (or you can borrow mine). Dust Off can be used to help isolate some kinds of problems. And most of all, when typing long programs be sure to save them periodically in case of a weird problem like this. I only lost about 15 minutes of typing rather than 45 because I usually save what I'm doing at least every 30 minutes.

#### SOFTWARE HELPLINE HINT # 2

This hint will offer some additional suggestions on ways to save memory space and speed up Basic programs. In past articles I suggested using boolean operators and running timing tests to improve program execution speed. These are things that can be done with either console Basic or Extended Basic.

Those of you who have Extended Basic can take advantage of a number of other techniques which are available only in X-Basic.

- 1) Use the PRE-SCAN control commands (!@P- and !@P+). These commands allow you to control which instructions will be pre-scanned to establish memory space for variables, arrays, and data. I received an addendum document with my X-Basic manual which describes use of these PRE-SCAN commands. They really help get a program started faster, particularly large programs. Also they are not hard to use, yet I see very few X-Basic programs which take advantage of this feature.
- 2) Use the DISPLAY AT command instead of CALL HCHAR or PRINT for screen output. The DISPLAY AT is significantly faster than HCHAR and is at least perceptibly faster than PRINT because it doesn't perform scrolling.
- 3) Take advantage of the ability to put multiple statements on a line with the :: command. This saves space (eliminates a line number and its associated linking) and improves execution speed (doesn't have to return to line scan routine to fetch the next instruction).

4) The expanded IF THEN ELSE capability of X-Basic offers similar advantages to the :: command. Rather than line numbers after the THEN or ELSE you can out another statement. This may save space and definitely improves execution speed.

5) Put REMarks on lines with statements by using the ! delimiter. This saves space over an ordinary REM statement (eliminates the line number) and also improves execution speed (removes a wasted statement from the line number scanning routine).

6) The ability to assign a value to more than one variable in a single statement saves space and slightly improves execution speed.

Naturally all of the Sprite-related commands in X-Basic provide the ability to place and move characters on the screen more efficiently than in console Basic. I won't elaborate on those routines here because that's another article in itself. There are a couple of more suggestions I want to pass along though and these apply to both versions of Basic:

1) Put frequently used line numbers (particularly those called by a GOSUB) as low in your program as possible. When Basic executes a GOTO or GOSUB, it has to find the line number by starting at the bottom and scanning through the line numbers in sequence until it finds what it is looking for. Naturally the sooner it can find it the sooner it can start executing it. The same is true of any other line number reference statement (RESTORE, IF THEN, etc.). It doesn't matter what the line number is, the key is where it is in the program. That is, if the tenth line number is 10 or 110 or 10010 doesn't matter, it's still the tenth line number and to GOTO it requires Basic to scan through 9 other line numbers before it finds the one you want.

2) Minimize program logic between user moves or commands to improve response to keystrokes and joystick movements. In a previous article on my KEND program I described how I added several arrays of booleans to keep track of things and avoid tedious searching logic.

#### NEWSLETTER HINTS

By Don Veith, Editor

All of the Hint's 'N Tips included from the many newsletters we receive will be published in this section of The NATIONAL NINETY-NINER. Credit will be granted to the Users Group and article author in each article we publish.

#### DATA BASE FILES

While working with TI-Writer, I discovered that the disk controller automatically alphabetized all the files. I needed a data base that was larger than the programs available allowed. Here I thought could be the answer to my problem. I set up a form that I wanted to use, and proceeded to fill in several records. After saving them to disk, all I had to do upon loading TI-Writer was to request the Show Directory Command and I could see my alphabetized file regardless of the order I had typed in. No longer was I restricted to a 254 byte record; it could be as large as I wished (22kb maximum due to the file limitations imposed by TI-Writer).

Data base files were really mine. I was bursting at the seams. I had to tell someone and Gary would appreciate my discovery. That's great he replied but if you filed all the names in alphabetized groups, like all the A's, B's, and C's together, the "Find String" Command could be used to locate a first name. Or you could use it to find a street name, Zip code, or any other item you desired to locate in the file. You would not have to sort the file each time you wished to change the base of an item you were looking for in your database. No fair I quietly replied as you have been working with TI-Writer also.

#### PREVIEWING TI-WRITER PRINTOUTS

Preview your printout without wasting expensive paper and time by running it on the printer. This neat tip beats the frustrating, annoying, and costly form feed of the TI-WRITER Formatter Option. When you wanted to preview your finished product, you had to run the printer twice if not several times to get the document to print properly. The suggestion contained in the next paragraph eliminates this costly and time consuming process.

Print your documents in the Formatter mode to Disk by typing: "DSK1.FILENAME" at the prompt "Print Device Name". This directs output to the disk rather than the printer. Next load the file into the Editor to view how the file will look as printed, or to correct information before printing the file. You are even able to erase a Form Feed! Now, print the file when all your revisions are completed. Print control characters in the text are recognized but will not be printed.

Editor's Note: I tested the suggestion on this issue of the newsletter and found it to perform exactly as stated in the article above. I named the file selected for output to disk PRINT. If your system has two disk drives, you can output the file to "DSK2.PRINT". In my test case, I had the stored files on Disk Drive #2 and "Printed" the file back to the same disk drive from the Text Formatter. An excellent tip that is quite useful. Credit for the tip goes to the Delaware Valley Users Group of Wilmington, Delaware. However, their newsletter credits the article to the Milwaukee, Wisconsin 99/4 Users Group newsletter.

#### USE A 40 COLUMN DISPLAY WITH TI-WRITER

By George Brandt

Many times I have wondered about what TI-Writer would be like if there was only a single window to look at. If you have too, then this article is for YOU!

Lets begin by asking ourselves about how we use TI-Writer. If composing our documents on the screen is typical, then it is a distinct advantage to not have to either scroll between three screens or to have to print the document to see what we just said in the last sentence or paragraph.

Scrolling makes a 40 column seem one third the size of an 80 column which we all know is not true, but it does make reading

difficult. Printing is easier, but adds extra steps and sure does chop down a few trees in the process.

Well, there is another alternative. The secret is to set the left margin at 0 and the right margin at 40. The next requirement is that the line numbers are turned off (FCTN Zero). This gives you a full 40 column screen and with the wordwrap capabilities that we appreciate so much.

To test the space requirements on the diskette, the following test was run:

Three files were created with the same data (all "X's"). The first had the margin set at 21 and 60, with 10 paragraphs of 6 lines (240 characters) of data. The second file had the margins at 1 and 80 with 10 paragraphs of 3 lines (240 characters) of data. Comparing the sectors used, the first file required 19 sectors, while the second only used 12.

This represents a 58% loss of capacity on each floppy and would raise a question about the end justifying the means. Then the light bulb came on. The only reason the margins were set to 21 and 60 was to get a full 40 column screen of data. In truth the only purpose was to eliminate the line numbers on the left of the screen.

Without considering the data storage requirements it would appear an optional choice. Hence the third file was created using margins at 1 and 40, and with the line numbers turned off (FCTN 0). With 10 paragraphs of 6 (240 character) lines of data, I was ready to use SD (Show Directory) to tell me the answer. Surprise! The sectors were not 19 or even 13. It required 12 sectors! The same as with a full line length of 80 columns. If this fact surprises you as much as it did me, you may wish to set up a different test and verify my results. In the mean time, I plan to do all of my composing on a 40 column screen, and then use the FORMATTER to adjust the printed page back to 80 columns.

Who said you can't get anything for free! You now have a choice of 40 or 80 column mode without feeling guilty about requiring more disk space.

This article was copied from the November/December, 1984, newsletter of the Southwest ninty-Niners. The Users Group is located in Tucson, Arizona.

### FAST FILE TRANSFER WITHOUT TERMINAL EMULATOR II

By Larry Prikockis / Cleveland Area 99/4A

When transferring files over the telephone, the easiest and most reliable method is to use the Terminal Emulator Module. The price for this ease of use and error checking is that the process is very slow. Fortunately, there is a method to transfer Basic and Extended basic programs at five times the speed of the TE II module.

First, both the sender and receiver must select TI Basic. Then load the program to be sent into memory and type "SAVE RS 232", BUT DO NOT PRESS ENTER YET. The receiver should "ULD RS232". When you are ready, switch over to the modems and press enter. The receiver should wait about five seconds and then press ENTER. Both users should see a number, corresponding to the number of blocks of the program at the top of the screen. This number will slowly count down to zero at the point the transfer is complete. Since the program is loaded directly into memory, the receiver must remember to save the program to disk or cassette.

Obviously, this method is limited to programs which can be run in basic or extended basic. The procedure for transferring Assembly programs or text files is a bit more complicated, but still faster than the TE II.

To use this method, both users must have an Editor Assembler module. First, select the Editor Assembler and press "1" for the Edit section. The receiver should do the same. Then select option 4 for print. When you are asked for a filename, enter "RS232.BA=300.CRLF". The receiver selects option 1 for LOAD (check to make sure Disk A is in the drive) and types "RS232.BA=300" as a filename. When both sides are ready, switch over to the modems and press enter. Again, the receiver should wait five seconds before pressing ENTER. With this method, there is no way of determining how much of the file remains to be transferred, so just sit back and wait until it is finished. The file can be save to disk by using Option 3.

The article was copied from the Cleveland Area (Ohio) 99/4A U.G. newsletter.

END OF VOLUME II # 5 - 5/85