VOL. 3 NO. 10
NOVEMBER 1984

MSP 99 USER GROUP

THE MSP 99 NEWSLETTER

MEMBERSHIP DOWN

The membership of the MSP99 user group is on a steady decline since last January. A high of 366 paid-up memberships has dropped to 280 in October. This includes both individual and family memberships but does not count additional persons in each family. The club has had 568 different memberships over the past three years indicating that about 50 percent of persons who ever were members still are. During the past ten months we gained 116 new members while losing 202 members for a net loss of 86 members.

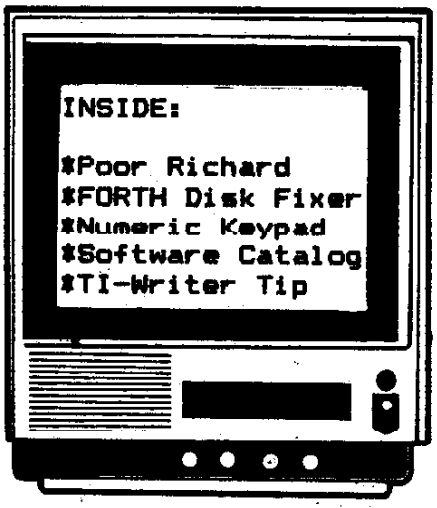
Undoubtedly, our membership composition is changing to include mainly the more serious TI99 owners. This makes it even more important that you return the questionaire included in the October newsletter so that we can guide the direction of the club. Remember also that at the December meeting, a lucky member will WIN $50 from the drawing of returned questionnaires. We feel that this is a small price to pay for this valuable information.

WANTED — EDITOR !!

Volunteer needed to take charge of this newsletter. This issue was produced by the President in addition to all normal duties. Future issues are doubtful or certainly will drop severely in quality.

AVALON HILL REJECTS

Avalon Hill Game Company of Baltimore has informed John DiIorio of the MSP99 User Group that they are not interested in producing any more game programs for the TI99/4A home computer. Two of their forty programs were converted to run on the TI99 before TI announced their departure from the home computer business. John owns 75 percent of the Avalon Hill board games and recently started a MSP99 sub-group for AH programs. John has published reviews of the two AH programs (B-1 Nuclear Bomber and Galaxy) in past issues of the MSP99 newsletter. It is uncertain whether the AH subgroup will continue functioning, possibly under a more general GAMES interest title. Anyone who is interested further , please contact John DiIorio at 463-8171. MSP99



The MSP 99 USERS GROUP meets each month for discussions and presentations that enable its members to be better informed about their computers. Users group members share and exchange information. Some members have a broad range of computer expertise; others are just beginning. We are not affiliated with or sponsored by any other group or company. Membership dues are $12 a year for a family, $10 for an individual, and $50 for a sponsor member. You're welcome to visit a meeting before you join. For more information, call or write us.

USERS GROUP MEETINGS are held the third Tuesday of each month at 7 p.m. at Dunwoody Industrial Institute, 818 Wayzata Blvd., Minneapolis, MN 55403.

MSP 99 USERS GROUP
P.O. BOX 12351
ST. PAUL, MINNESOTA 55112, U.S.A.

The MSP 99 NEWSLETTER is published eleven times per year, on a monthly basis except during July, by the MSP 99 Users Group. Members are encouraged to contribute articles for publication. Opinions expressed are those of the writer and not necessarily those of the MSP 99 Users Group, its officers, editor, or members. Materials accepted by the editor for publication in the MSP 99 Newsletter, including software listings, are believed to be in the public domain. Newsletter articles may be reproduced by other users groups if appropriate credit is given to the author (if one is listed) and to the Minneapolis-St. Paul 99 Users Group.

Newsletter Editor:
Bonnie Burton, 431-6064
Editor's Assistant: Jon Todd
Newsletter Committee Members:
Clarence Brockman
Marilyn McPartlin

DEADLINE FOR NEXT ISSUE: NOV. 20

COMMITTEE VOLUNTEERS

If you want to work on a committee (Education, Equipment, Program, Publicity, Software, Newsletter), or have an idea for a program, contact one of the officers.

COMMERCIAL ADVERTISEMENT RATES

Business firms that want to communicate with our members may do so by placing an ad in the newsletter. Rates are: Full Page (7-1/2 X 10-1/2) $40; Half Page (3-1/2 X 10-1/2) $30; Quarter Page (3-1/2 X 5) $22. Each ad must be camera-ready in sizes indicated and paid in advance. Inserts (printed by advertiser on 8-1/2 x 11) may be inserted in the newsletter at $20 per sheet. Contact the editor for information or to reserve space.

CHANGE OF ADDRESS

Before you move, please mail a change of address to the group at the above address.

COMPUTER TALK

The MSP99 User Group has been a guest of the COMPUTER TALK show on the fourth Saturday of each month since last Spring. We reciprocate the favor of publicity by publishing information about this show in this newsletter.

The following was down-loaded from the CBC BBS and is reprinted here for your information:

LISTEN, COMPUTER USERS!
We're now on WWTC AM 1280
Sundays 9-10am
Ray Douglas, Gary Finseth
and a cast of millions,
including YOU!

SILICON PRAIRIE EAGLE

by Ray Douglas

As you may have heard by now, the COMPUTER TALK program which has aired on KSTP AM Radio for the past year plus, has been cancelled. KSTP AM has future plans which made the future of COMPUTER TALK uncertain. WWTC AM 1280 has agreed to carry a similar program, produced and owned by Computer Broad-casting Company.

(cont. on p.9)

MSP 99 CALENDAR OF EVENTS

NOVEMBER 20 -- (TUESDAY) 7:00-9:00 P.M.	GRAPHICS! from BASIC, Extended BASIC Sprites, LOGO and the new SUPER SKETCH.
DECEMBER 18 -- (TUESDAY) 7:00-9:00 P.M.	CHRISTMAS GIFTS AND PARTY. Vendor presentations and sales. Nominations for officers. Drawing for $50 cash from returned questionnaires. Bring cookies, beverage provided.
JANUARY 15 -- (TUESDAY) 7:00-9:00 P.M.	ELECTION of new officers. Open forum for special interests. Sub-group reports and discussion.

SUBGROUP MEETINGS:

ASSEMBLY LANGUAGE--First Tuesday of month, 7:00 p.m., Bryant Community Center, Bryant Ave. and 31st St.

BUSINESS--Second Tuesday, 7-9 p.m., Norwest Bank, Hopkins. Call Bob DeMars (544-6219) or Dick Clemetson (926-8083).

EDUCATION--At monthly MSP meetings.

YOUTH GROUP--At monthly MSP meetings.

AVALON HILL--At monthly MSP meetings. Chair: John Dilorio.

COMMITTEE CHAIRS:

Education--Marilyn McPartlin, 636-5663
Equipment--We need someone.
Newsletter--Bonnie Burton, 431-6064
Program--Dick Dunbar, 498-0153
Publicity--Dave Wunderlin, 544-8266
Software--Ed Neu, 425-8744

NOMINATIONS NEEDED

All members are requested to consider candidates for officers of the MSP99 User Group and submit such to the nominating committee which will be determined at the November meeting. The committee will announce one candidate for each office at the December meeting. Additional candidates can be nominated from the floor at that time.

AUCTION REPORT

by Brad Olson, Treasurer

At our September meeting the MSP99 User Group held an auction of member supplied hardware and software. The event was a complete success. Nearly 50 people bought some type of software, equipment or literature which other members of the group wanted to sell. Total sales of the auction were $693.50 of which the user group retained approximately 10 percent for the general fund. Nearly all of the items brought to the meeting were sold. Considering the sucess of this auction and a similar one last January, we should possibly have such more often. Thanks to all members for their participation and cooperation.

POOR RICHARD'S PERIPHERAL ROUND-UP

By Dick Dunbar

ARE YOU READY FOR THIS: The column title this month should be "Poor Richard's Product Reviews", I think. This column is devoted to a review of a pair of terminal emulator programs that I have recently utilized. This software review appears in my peripherals column because I believe that software of this type is needed to get the most out of your peripherals, so if you are interested in the peripherals themselves, you have to be interested in software which helps you use them.

BACKGROUND MUSIC, PLEASE: One of the most heavily used peripherals (by those who have it) is the RS232 interface. Probably more people use the RS232 for control of a printer than for any other use, but a significant number of us make heavy use of it for telephone communications with our TI99s, for reasons varying from pure enjoyment to pure business. In my case as in many others, it's a little of both. I work on documents at home that are also processed by the mainframe computer where I work. To simplify this process, I transmit documents back and forth between my TI and the computer at work over the telephone. I also enjoy logging in to some of the local bulletin board systems, my favorite being the CBC Computer Talk Bulletin Board.

For transferring data to and from work, 300 BPS quickly became a real drag. I could get a transfer started and go away and have coffee, lunch, and if it was a big document, a little siesta, too. The annoyance was not so severe on the bulletin boards, but it was still less pleasant than it could have been. The result of this was that I acquired a 1200 BPS modem.

I then looked around to see just how I was going to use it, since TI's Terminal Emulator module won't work above 300 BPS. The following review covers the two programs that I uncovered that will handle (sort of) the 1200 BPS communications task for the TI99.

DEFINITION OF TERMS: The two terminal emulator packages being reviewed are:

1. AMA-LINK, produced by:
   AMA Software
   P.O.Box 3024 GS
   Springfield, MO 65808
2. TE-1200, produced by:
   Softmail, Inc.
   P.O.Box 745
   Rockwall, TX 75087

Each of these packages offers a somewhat different set of features for a price which is in the neighborhood of $50, a little less at some places, a little more at others. AMA-LINK comes with a fairly useful set of utilities which are not directly related to communications. For example, there is an Extended Basic assembly language disassembler, text mode (40 column) subroutines for use by Extended Basic programs, etc.

FEATURES: TE-1200 and AMA-LINK both start up with a menu which allows the user to set communications parameters for the session. Both provide a means of returning to the set-up screen during a session if you need to change one or more of the parameters.

Both TE-1200 and AMA-LINK offer a range of baud rates ranging from 110 at the low end to 4800 for AMA-LINK and 9600 for TE-1200. From my experience, I would bet on TE-1200 being able to handle 9600 before I would bet on AMA-LINK handling 4800, although I did not try any rate higher than 1200.

Both AMA-LINK and TE-1200 allow the user to select the structure of the transmitted data in terms of number of data bits (7 or 8), number of stop bits (1 or 2), and parity (even, odd, or none).

TE-1200 and AMA-LINK both allow the user to select full or half duplex operation, which determines whether the characters you type are echoed back to you by the host system or by the terminal. AMA-LINK also provides an ECHO selection, although it is not clear exactly what function this serves. It seems redundant, and the documentation provides no clarification. It can be safely ignored, however.

Both programs provide a large text buffer, 16K in the case of AMA-LINK, 12.5K for TE-1200. However, the way these buffers are used differs somewhat. TE-1200 allows the user to use the up and down arrow keys to move back and forth in the buffer to look at earlier data that has scrolled off the screen, while

AMA-LINK has no such feature.

Both provide for dumping the buffer to a printer or a file, but they differ in the way they do it.

TE-1200 lets you specify an RS232 or disk file to which the screen data is to be dumped; it will then dump data to the file whenever its buffer fills or when you direct the file to be closed. This is called auto-logging. If the buffer fills while auto-logging, TE-1200 sends a signal to the transmitting system to suspend output temporarily while it dumps the buffer, then sends a signal to resume when it is once again ready for input. (The codes to be used for this suspend/resume sequence are user selectable, with the defaults being X-OFF(Ctrl S) and X-ON(Ctrl Q). Most, but not all, systems recognize some set of codes for this "flow control" function.) If you direct auto-logging output to a disk file, and the disk runs out of room, TE-1200 will close the file and prompt for another file on which to continue logging. No data will be lost.

AMA-LINK makes you control when the data is dumped. You have options to reset the buffer and begin saving data in it, turn saving of data off and on without resetting the buffer, and dumping the buffer to an RS232 or disk file. AMA-LINK does not automatically dump the buffer if it fills - that's up to you.

AMA-LINK offers a number of features not offered by TE-1200. It lets you select which RS232 port to use (1-4), whereas TE-1200 is set up for RS232/1 only. AMA-LINK lets you select how many columns to display on your screen, in case you are a victim of the dreaded overscan. You can select 40, 38, or 36 columns with AMA-LINK. With TE-1200, there is no such option - you get 40 columns. AMA-LINK lets you toggle between full and half duplex with a single key-stroke, or by returning to the set-up screen, while you must return to the set-up screen to do this in TE-1200. AMA-LINK has a couple of other nice usability touches - one is an audible "key-click" sound when keys are typed, which can be toggled off and on, while the other is auto-repeat on the keys, which is a real convenience for correcting errors. Finally, AMA-LINK allows you to specify an "alternate output file" - which is just another way of saying that all data going to the screen is logged to a printer (or other RS232 file). This feature was disappointing, as I note later under Performance. TE-1200 provides a similar function in its auto-logging feature mentioned before, but it cannot capture the same data on disk and print it, too, which AMA-LINK can - sort of.

Not surprisingly, TE-1200 also has some features which are not shared by AMA-LINK. The flow control (X-OFF/X-ON) is one mentioned before, as is the ability to scroll back and forth through the buffer. In addition, at speeds up to 1200 BPS, TE-1200 supports the TI Terminal Emulator file transfer protocol, which means that you can exchange files using TE-II protocol with some other TI owner who has the TE-II module - or you can upload/download from TEXNET or a similar host using the TE-II protocol.

PERFORMANCE: We also find some significnt differences when we begin to put these programs to use. Both AMA-LINK and TE-1200 were used in both 300 and 1200 BPS service for the purposes of this review.

Using TE-1200, both 300 and 1200 BPS communications were accomplished with no loss of data and an excellent display. Lines longer than 40 characters are "intelligently" folded, with no mid-word breaks at the end of the line. The scrolling is fast and smooth in normal operation. However, when scrolling back and forth in the text buffer, the screen is rewritten for each line scrolled, producing a jumpy, "flipping" effect. The auto-logging data is captured competently and automatically once you have selected it, although it is a minor annoyance that the file specifications are DIS/VAR 128. This means that if you capture data on a disk file, you must use a conversion program to convert it to DIS/VAR 80 or DIS/FIX 90 to use the Editor/Assembler or TI-Writer on it. The single significant problem I found with TE-1200 involved the auto-logging feature. If an error is made in designating the file, such as assigning it to an empty disk drive, or to a write-protected diskette, there is no recovery from the error. You cannot get back to normal communications and you cannot correct the error. The only other problem I had with TE-1200 turned out to be caused by the fact that it apparently uses X-OFF/X-ON flow control at times in normal communication. I suppose it does so when it has something to do which might

(cont. on p.6)

POOR RICHARD (cont. from p.5)

cause loss of data and it wants to make sure none is lost. This idiosyncracy caused me a minor problem when I accessed a mainframe system which had flow control disabled by default. The system in question would cease output on the X-OFF, but would not recognize the X-ON, so nothing more would happen - unless I pressed the ENTER key. When I realized what was happening, I turned on the host systems flow control and everything was fine. TE-1200 does have one other idiosyncracy. There are occasional puzzling pauses in output followed by rapid (immediate) display of several lines of data at once. No data is lost, but it is somewhat disconcerting.

There were a couple of significant problems with the performance of AMA-LINK. To begin with, I should say that at 300 BPS, it performed well as a simple display terminal, with only one quibble. The scrolling of the screen was not smooth; it appeared to be completely rewritten each time a new line was added to the bottom of the screen, making for a disconcertingly jumpy, "flipping" effect. Turning on the "alternate output file" feature, to log the session on the printer, caused the first problem. The program seems to store the incoming data in the buffer until a break in the incoming stream occurs, then dumps it to the printer. However, if you have a long listing coming over the lines, it apparently tries to dump data when the buffer becomes full. On my system, with a 100 CPS Gemini 10 printer on the parallel port, it could not keep up at 300 BPS. When the buffer filled, both the screen and the printer lost data.

At 1200 BPS, no alternate output file was necessary for AMA-LINK to lose data. On every test session at 1200 BPS, data was lost, not in single characters here and there, but several characters at a time - sometimes half a dozen or more. To make sure this was not caused by a bad phone line, I swapped back and forth between AMA-LINK and TE-1200 several times during the same session, without logging out from the host system. The result was lost data every time with AMA-LINK, no lost data with TE-1200. Not only that, but when a sequence of output lines containing Ctrl-L (which should -and did- clear the screen and home the cursor) were listed, AMA-LINK would cease to function - kind of. You could no longer communicate, but if you reset back to the set-up menu, you could get it started up again.

IMPRESSIONS: You may have started to get an idea of my impressions of these two programs in the previous section.

TE-1200 is a competent, good performing program which has a couple of things which need to be addressed, but which is excellent nonetheless. Those things which need addressing are:

1. It needs a port number option.
2. The bug which makes it impossible to recover from an error in assigning the auto-logging file needs to be fixed.
3. The auto-logging file should be DIS/VAR 80 for maximum usability.
4. The "hesitation" during output should be corrected.
5. It is copy protected, which makes it a pain to make back-up copies.

AMA-LINK is a program with numerous interesting features which functions OK at 300 BPS, provided you don't fool with the printer logging option. At 1200 BPS, it is OK only if you aren't too concerned with lost characters, and/or if you don't expect to encounter sustained streams of output from your host system. It comes with a nice set of utilities, and it costs less than TE-1200 most places. AMA-LINK problems which should be addressed are:

1. The performance at 1200 BPS needs to be beefed up to avoid loss of data.
2. The "alternate output file" feature should be corrected - possibly using X-OFF/X-ON flow control like TE-1200.
3. The handling of screen scrolling should be changed to make it less "jumpy".

When it comes right down to a choice between the two, it must be made based on what is important to you. TE-1200 is head and shoulders above AMA-LINK for 1200 BPS communications and file transfers, but the additional features of AMA-LINK may suit you better if you can put up with its performance limitations.

THE PARTY'S OVER: That's all for Poor Richard for this month. Tune in next month and see what's in store. It's so secret, even I don't know what next month's subject will be. If you have a favorite topic, let me know. Otherwise, its my call, and you just have to make do with my current hot button. See you next month in the newsletter. MSP99

MSP 99 USERS GROUP

Software Catalogue Additions

November, 1984

NEW SOFTWARE FROM USER GROUPS AROUND THE WORLD

E04020 **Type-Ette Timer** B,XB,G
Times your typing speed with built-in sentences that really make your fingers do the walking! Subtracts score for mistakes. A good typing practice tool with nice graphics. From Central Iowa U.G.

E04031 **Building Blocks** B,G
"Draw" colorful pictures using various shapes and colors. Pictures drawn on numbered grid. A really nice program that's fun for young and old alike! From the Central Iowa U.G.

E04041 **German** B,G,TE,S
Program displays suburban scene - house, tree, grass, etc. - and tutors you on the German words for the various house parts and the landscape. Gives quiz at end of tutoring session. From Central Iowa.

E04052 **Flashcards** XB,G
A must-have program for those having to learn anything by rote memory. Helpful in drilling anything from languages to math to science. Allows you to create, edit, save, and merge sets of flashcards you have created. Very nicely done!

G03180 **Spacebelt** B,XB,G
As the sole defender between Mars and Earth, you defend against the aliens. You select the number of aliens. If you manage to eliminate 100 of them before you bump into one you get a free game. Pretty good Basic game.

G03191 **Traks** B,G
The war of the worms! Make tracks around the screen and force your opponent - the computer or a person partner - to run into a wall, an obstacle, his/her own or your tracks. A well-done game from Tex-Bug.

G03202 **Crossword** XB
Struggle with a computer related crossword puzzle on your terminal. From the Atlanta U.G.

G03211 **Ski-Trek** B,G
You are in the Alps on a ski slope. You must get to the bottom ...in one piece... without knocking over a flag or missing a slalom gate. Your trusty ski-poles are the arrow keys. Every run is different. This well done game will test your two-fingered coordination without running up bills for doctors and plaster casts!

G04130 **ISOLA** B,XB,(S)
A board game where you try to isolate your opponent's "king" or move to his starting location. Can play against man or machine! Interesting use of speech (in XB only). Lend-Leased from the United Kingdom Users Group.

G04141 **Catapult** B
Catapult "rocks" across a moat? lake? Gives choice of stationary or falling targets. Computer chooses vertical displacement, distance, and velocity. You give launch angle. Nice graphics. From the San Gabriel Valley U.G.

G04152 **Helicopter Attack** XB,G,(J)
Shoot down enemy helicopters and paratroopers before their bomber gets you! Different skill levels. Fast action and good graphics. From the San Gabriel Valley U.G.

G07092 **Solitaire** XB,G
Save your good deck of cards for company! Play solitaire with your computer! Program shuffles, deals, and keeps you from cheating in a game of solitaire. The excellent graphics in this program make it worthwhile even if you hate cards! From the 3M Users Group.

G07102 **Jackpine Savage** XB,MX
You are an Ex-Minneapolitan banished from civilized life because of incessant nose-picking in public. You move to the wilderness of northern Minnesota (commonly known as "Da Rainch"). Join Bruce Larson in his humorous native-son adventure game to find "The Right Stuff".

H02092 **Mini-Plan** XB,(P)
A condensed "spread-sheet" program. Allows you to input up to 10 rows and 15 columns of data, and perform various math functions (+,-,*,/,*%,+%,-%) on the rows and columns. Very useful program. Contains a screen dump to printer. From San Gabriel Valley U.G.

M02202 **Burglar Alarm** XB
Protect you computer system from theft. Turns the monitor screen black as if it wasn't on. But watch out! Touch the keyboard and an alarm sounds and the computer "automatically telephones the police." Try it!.

M02212 **Print List** XB,P
Designed for a PRO-Writer printer. Sets up the printer for program listings leaving enough margin to three-hole punch the listing, and skipping the page perforations.

M02220 **PRO-Command** XB,B,P
Enables you to easily choose type face (elite, pica, compressed, or proportional), and select left margin on a PRO-Writer printer.

M02230 **Digital Clock** B,XB
Want to get rid of unwanted company in a hurry? Try this digital clock that fills the screen with big, block hours, minutes, and seconds! 12 or 24 hour mode. Can be adjusted easily for accuracy. From the Central Iowa U.G.

M04112 **PRO-Gothic** XB,MX,P
If you need fancy Gothic-style printing for awards, certificates, advertising or spiffy letters that you send to friends to justify all the money you spent on computer equipment, this program will do the trick. Prints attractive capital letters, numbers, and punctuation marks that are 3 lines high. With simple modification will print elongated or condensed letters in same style. For PRO-Writer printer only.

M04122 **Gothic Print** XB,P
Nearly identical to "PRO-Gothic" (M04112) but for TI Impact Printer (Epson).

M04132 **PRO-Banner** XB,P
Here's your chance to tell the world something (maybe your wife's a good cook?). Prints banners with 10 size-range letters... from 11/16 inches high to 7 inches high. Letters are printed "sideways" on tractor or roll paper to make banners any length you want. Prints capital as well as lower case letters. For PRO-Writer printer only.

M04142 **Banner** XB,P
The same as "PRO-Banner" (M04132), but not as fancy. Works on any parallel or serial printer.

U02032 **Sprite Editor** XB,B,(P)
This excellent utility for programming graphics enables you to design or edit 16 X 16 sprites on the screen, and when satisfied, save the HEX code in the form of a merged file. You can also try out various colors and show a magnified version. Saves a lot of paper work!

U02042 **Shrink** XB,D
Similar to "REMover" except it also shortens variable names and changes all number ones to "2" (as well as deleting REM statements). Saves condensed program in a merged file. Save MUCHO bytes with this well-done utility! From Central Iowa U.G.

COMPUTER TALK (cont. from p.2)

Additionally, there were problems related to the time of the program and also the length. In it's Saturday slot from 5-6pm, it ran opposite public radio's very popular "Prairie Home Companion Show". It was also difficult to extend the time to two hours, as was requested by many listeners, because of the potential conflict with future KSTP programming.

Perhaps the biggest problem was ownership of the program. Since I created the program quite by accident while I was an account executive (advertising salesman) for KSTP AM, the subject of ownership was never an issue in the early going. But being a bit of a visionary, I began the Computer Broadcasting Company to deal with setting up this bbs and other projects. The need to own the program became vital to the growth of the company.

Unfortunately, KSTP AM did not feel comfortable with such an arrangment and they kindly allowed me (us) to exit smoothly so we could pursue our dreams. Thanks!

WWTC AM 1280 has extended us a warm welcome and we will be broadcasting the new show, entitled COMPUTER FOCUS, on Sunday mornings from 9 10am. The show will be extended as soon as we can show WWTC success with the first hour...so please remember to listen and tell your friends.

We will also be working on syndicating the show via satellite to other regional cities around the "Silicon Prairie".

Working out the details of this has been very difficult and time-consuming and the quality of this bbs has suffered. We apologize and pledge to work hard on making this the best bbs anywhere!

Thank you for your continued support and I hope you remember to set your Sunday morning clock radio alarm for 9am on WWTC AM 1280.

TI-BITS

*** The MSP99 User Group will participate in a **USER GROUP FAIR** on Saturday, November 24. This non-sales event will be held at the Science Museum of Minnesota, 10th and Wabasha, St. Paul. The schedule is from 9:30 a.m. to 6:00 p.m. Admission is $2.00 if you are a member but is FREE if you help with the exhibit! Contact Dave Wunderlin (544-8266) if you wish to help in manning the MSP99 booth.

*** Attention **TI LOGO** users: Pat Daly would like you to contact him at 755-7017 to share ideas and discuss the possibility of starting a LOGO special interest sub-group.

*** **HELP LOGO** users: Norm Johnson (771-6008) would like to print output to his printer using LOGO I. Commands seem to apply only to the TI Thermal printer.

*** **CHRISTMAS PROGRAMS** Several Christmas related programs have been donated to the software library. The first, The Christmas Story, tells the story in both graphic and spoken form. The second, Christmas Carols, plays 12 carols at user selected speeds and order. Contact Ed Neu directly as these did not make the enclosed software directory update.

*** **HARDWARE INVENTORY** Recent purchases have expanded the MSP99 hardware ensemble. The CORCOMP disk controller card, 32K memory expansion and a second disk drive were added to the clubs system. We now own two consoles and monitors, a PEB box, a projection TV, MULTIPLAN and TI-WRITER in addition to the new purchases. The new hardware is being used to distribute diskette software from the library DURING THE MONTHLY MEETINGS as well as assisting in software distribution by mail.

WANT ADS

Members may place want ads, at no charge, by calling the Newsletter Editor, by turning in written copy of the ad at any MSP99 meeting or by mailing such to the general MSP99 address. Businesses may purchase ad space at the cost of $1 per line.

DISKS/TAPES -- Top quality blank diskettes: Box of 10 for $20; single diskette for $3. Ten minute cassette tapes: 10 for $5; 75 cents each. Tape boxes: 10 for $1.50; 25 cents each. Mailing charge of $1 or pick up at meeting. Contact MSP99 treasurer, Brad Olson at 786-1235.

SOFTWARE - SOFTWARE - SOFTWARE All MSP99 User Group software is available either by mail or at the regular meetings for $1 per program. Contact Ed Neu at 425-8744 for a software catalog or further information.

HELP WANTED Newsletter Editor for the MSP99 User Group newsletter. Position available immediately for person to edit, lay-out, paste-up, and prepare monthly publication. Experience helpful but not required. Call Joel Gerdeen at 572-0148.

CASSETTE CABLES New TI99/4A cassette cables in original package. Controls one cassette recorder. Original price was $11.99, your price - ONLY $5.00. Call Joel Gerdeen at 572-0148.

P-CODE CARD Wanted for TI99/4A. Contact Jim Ruf at 828-3594 or 420-6662.

WANTED Extended Basic Manual. Call Bob at 894-1924.

EPSON MX-80 PRINTER Brand new condition. $200 or best offer. Call Bob at 894-1924.

FOR SALE Back issues of 99er Magazine, Enthusiast 99 and Twin City Computer User. Contact Jim MacTavish at 1-715-247-3799 after 4 p.m.

BIG SALE Peripheral Expansion Box ($160), Disk Controller Card ($120), RS232 Card ($80), 32k Memory Expansion Card ($120), PEB Internal Disk Drive ($160), Stand-alone 32k memory ($100), External Disk Drive ($225), Beginning Grammer ($5), Alpiner ($5), Super Demon Attack ($10), MicroSurgeon ($10), Moon Sweeper ($10), Burger Time ($15), Buck Rogers - Planet of Zoom ($20), Extended BASIC ($50), and LOGO ($50). All manuals and documentation included. Contact Gary at 635-5844 before 4 p.m. or 428-2728 after 6 p.m.

FORTH (cont. from p.12)

the FORTH TRIADS command will print any number of blocks directly from diskette but only for blocks that are ASCII displayable.

DISK FIXER also has a FIND STRING command. While FORTH does not, a FIND command procedure to do such is easily written. This procedure and others for producing a DISK MAP, displaying and editing hexadecimal data and copying the screen to the printer were presented at the ASSEMBLER meeting. Next month, I will present a review of these and an UNDELETE file procedure in this newsletter. Anyone who desires further information before then see me at one of the meetings or write to MSP99 for a copy.

In summary, I am an advocate of FORTH which has extended my interests further into the power of the TI99/4A. While the DISK FIXER module is all it is advertised to be, I put my money into FORTH and its more powerful features. JWG

FORTH DISK FIXER

by Joel Gerdeen

The October **ASSEMBLER SUBGROUP** meeting covered a review of the TI99 disk format and the use of the language FORTH as a disk fixer. This article continues that discussion and also reviews the operation of the **NAVARONE INDUSTRIES' DISK FIXER** command module.

The DISK FIXER module allows you to access floppy disks by sector rather than by file. You can display, print or change any byte (character) or series of bytes anywhere on the diskette. This allows you to UNDELETE files that have been inadvertantly deleted, CLOSE files that were improperly closed and recover data that is otherwise inaccessable. Note, details of these operations will not be covered in this article. Only a review of the capabilities of DISK FIXER and how FORTH can be used to accomplish the same is covered. In summary, anyone who is inclined to fix disks should learn FORTH and can come to the ASSEMBLER SUBGROUP for further assistance.

First, a definition of some terms. The TI99, single-sided, single-density disk is divided into 360 SECTORS, a minimum of two of which are always used for diskette directory information. DISK FIXER works with sectors while FORTH works with SCREENS or BLOCKS. Each block is made up of four sectors, so there are only 90 BLOCKS on a SSSD diskette.

FORTH contains two different full-screen editors that edit a complete screen or block all at once. Each screen is made up of 16 lines of 64 characters each for a total of 1024 characters or bytes. One of the editors displays only 40 characters wide while the other displays the full 64 characters. FORTH allows you to change any character on the screen as long as it is displayable. Remember from last months newsletter (inside back cover) that only 95 of the 256 ASCII codes are displayable. The non-displayable codes must be changed in a different manner that will be described later. Note that DISK FIXER does not allow any characters to be edited in this full-screen editor fashion.

To load disk data into memory, the DISK FIXER has a command called READ SECTOR with the syntax "R sss,d", where sss is the sector number and d is the disk drive device code. Both sss and d can be omited to allow sequential reading of the same diskette. Only one sector is in memory at any time.

FORTH loads a block from diskette in two ways. Typing "b BLOCK" will load block numbered b if it is not already in memory. Typing "b EDIT" will both load the block and place you in the editor mode for changes. As many as five blocks of data can be in memory at once.

To store a sector of data back to disk, DISK FIXER uses the WRITE SECTOR command with the syntax "W sss,d" where variables are the same as before. Care must be taken because the sector number sss is incremented by other commands and other disk sectors could be overwritten.

FORTH will store any block in memory to disk with the simple command "FLUSH". Note that all changed blocks in memory will be flushed. You can erase all blocks in memory with the "EMPTY-BUFFERS" command.

To display a sector, DISK FIXER uses the DISPLAY BUFFER command with the syntax "D". The current sector in memory will be displayed. The display will show both the hexadecimal and ASCII forms of the data along with a memory location required for further changes.

(cont. on p.12)

FORTH (cont. from p.11)

FORTH will display any block in memory or on disk with the command "b BLOCK n DUMP" where again b is the block number and n is the number of bytes to be dumped. The display is similar to that of DISK FIXER.

To change data in the sector buffer, DISK FIXER use the ALTER DATA command with the syntax "A oooo" where oooo is the address as displayed by the D command. New hexadecimal data is typed in. A command INSPECT/CHANGE with the syntax "M oooo" can be used to change any memory location including VDP memory. This command has the same syntax as the M command in the TI-DEBUGGER.

FORTH uses one of two store commands to alter memory. For complete 16-bit words of data the syntax "n addr !" will store the data word n at address addr. For bytes of data, the syntax "n addr C!" will store a byte n at address addr. In addition, the FORTH command EXPECT can be used to read characters directly from the keyboard to memory. Of course for text, it is easier to use one of the editors described above.

The last command that DISK FIXER has is the PRINT SECTOR command with the syntax "P sss,d,n" where n is the number of sectors to print. The format of the output is similar to that of the display command except that it is twice as wide as the screen output. Note that multiple sectors are read from the diskette and printed automatically to any TI99 supported device.

FORTH uses a variation of the DUMP command to accomplish the above, making use of the SWCH command to switch display output to the printer. The syntax is "SWCH b BLOCK n DUMP UNSWCH". Note that if n is 1024 the complete block or four sectors will be printed. If greater than 1024 you will start printing other memory locations outside your block. Note also that

(cont. on p.10)

TI-Writer Tip

(Adapted from an article by Norman Rokke in the Pittsburgh Users Group's P.U.G. Peripheral)

Have you ever wished that your printer had some special character or symbol, such as Greek letters like pi or alpha, or a division symbol, or Cyrillic characters, or something of that sort? Well, if your printer has dot graphics capability, and allows you to mix text and graphics on the same line, then you can use TI-Writer to create characters which you define and print them in documents you create. Before getting into details, you should note that the information in this article specifically relates to the TI99/4 printer; however, the control codes used are standard Epson codes, and the technique should work with most Epson compatible printers. An attempt was made to verify this technique on the Star Micronics Gemini 10, but the attempt failed because the Gemini 10 will apparently not allow graphics and text mixed on a line. If you have some other printer which has the above mentioned capabilities, you can still do what is described below; however, you should read your printer manual to determine how your printer does each of the things mentioned. If anything is done in a different manner, you will have to take that into account.

First of all, you must make sure that your printer is ready to receive graphics data. You may have to remove the cover from your printer and change the position of a DIP switch so that the printer can receive 8 data bits. Check your printer manual to make sure that the graphics mode works properly. Finally, if your printer is connected to the serial port of the RS232 interface, you will need to include .DA=8 in your file description EVERY time you use the printer.

Printer graphics consist of one or more columns of dots. There are a total of 480 such columns across a page. Each column is 8 positions high, and a dot can appear in any one of the 8 positions. Each position has a data value associated with it as shown in the figure below. The data representing a particular column is simply the sum of the data values for all positions where a dot is to be printed.

```
+---+
|128|
+---+
| 64|
+---+
| 32|
+---+
| 16|
+---+
| 8 |
+---+
| 4 |
+---+
| 2 |
+---+
| 1 |
+---+
```

For example, to print a column where only the top dot is printed would require a data value of 128. A column in which both the top and the bottom dots were printed would require a data value of 128+1, or 129. A column which had all 8 dots printed would require a data value of 128 + 64 + 32 + 16 + 8 + 4 + 2 + 1, or 255.

Now let's create our own graphics character and see how we can incorporate it in a document prepared with TI-Writer. Let's make an arrow pointing up as our special character. The normal characters built into the printer are as wide as 6 columns of graphics (480 columns / 80 characters), so let's make our character the same size. It's helpful to draw the character on graph paper, so lets do that.

```
+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   |
+---+---+---+---+---+---+---+
|   |   | * |   |   |   |   |
+---+---+---+---+---+---+---+
|   | * | * | * |   |   |   |
+---+---+---+---+---+---+---+
| * |   | * |   | * |   |   |
+---+---+---+---+---+---+---+
|   |   | * |   |   |   |   |
+---+---+---+---+---+---+---+
|   |   | * |   |   |   |   |
+---+---+---+---+---+---+---+
|   |   | * |   |   |   |   |
+---+---+---+---+---+---+---+
|   |   |   |   |   |   |   |
+---+---+---+---+---+---+---+
```

The data for the columns from left to right is 16, 32, 126 (64 + 32 + 16 + 8 + 4 + 2), 32, and 16. (You might find it useful to know that the normal text characters of the printer do not use the column on the right(to prevent characters from running into each other) or the bottom row(except in lowercase characters with descenders). To send the graphics data to the printer we first need to send a control code. For normal graphics mode this is in the form of ASCII codes 27,75,n1,n2. The codes n1 and n2 define the number of bytes of graphic data which will be transmitted. This represents the number of columns of dots which will be printed. If N is the number of columns of graphics to be printed, then n2 is the integer result of N/256, and n1 is N MOD 256, or the remainder of N/256. For our special character, n2 is 0 and n1 is 6. The graphics data follows immediately after n2. The complete string of ASCII values needed to print our special character is therefore 27, 75, 6, 0, 16, 32, 126, 32, 16, 0. We wil create the special character by using the TI-Writer "transliterate" command. We will use some character we won't be using, such as ~, and transliterate it to the string of data we defined above.

```
.TL 126:27,75,6,0,16,32,126,32,16,0
```

We can now use our special character in a document. If we were writing directions for using a program where pressing the E key moved something up on the screen, we could write the following:

```
To move up ~ Press E
```

If we now print this short file using TI-Writer's Text Formatter, we will get the following:

```
To move up ↑ Press E
```

Using special characters which are six graphics columns wide allows you to still be able to use the .AD and .CE commands even if special characters are present in the text. If you are not going to use either of these commands, you can make your characters of different widths than 6.

CAUTION! Using the method just described, you can design almost any character that you might desire. Unfortunately, the values 8, 12 and 13 cause problems which disallow their use for graphics data using this method. You may have to modify your character to avoid these values. MSP99

ADDING A NUMERIC KEYPAD TO THE TI99/4A

by Norman Riger

Proficiency with a numeric keypad is a valuable skill. Employment ads in the newspaper often mention requirements of ten thousand keystrokes per hour for keypad operators. Considerable time and practice is required to achieve such speed and the necessary accuracy. Your home computer can provide you with the opportunity to learn this valuable skill. This article shows how to connect a numeric keypad to the TI99/4A. This method will not work with the TI99/4, which is wired differently and has a different keyboard.

My procedure involves selecting a surplus keypad that has ten separate spring type switches, each with two terminals. Both terminals of each switch must be accessible and not permanently connected to the terminals of a different switch. There are four rows of switches on the standard keypad. The top row (left to right) has keys for seven, eight and nine. Below are keys for four, five and six. The third row has keys for one, two and three. The bottom row has a single key (at the left) for zero. There is no ground connection on the keyboard of the TI99/4A and there should be no ground on the keypad selected for this project. Only these ten keys are required and any others are not needed and may be ignored as long as they aren't connected to the required keys.

Turn the computer upside down and remove the seven recessed Phillips screws used to fasten the bottom. Carefully pull out the on/off switch until it comes off and then remove the bottom. A fifteen conductor ribbon cable connects the keyboard to the processor printed circuit board (covered by a metal shield). Only seven wires are needed to connect the keypad and there are several methods possible.

A clamp type connector can be attached to the ribbon cable (use an ohmmeter to make sure that adjacent conductors don't become shorted together). It is possible to disconnect the ribbon cable connector from the processor printed circuit board and place an additional connector between them which contains the seven wires required. These methods have the advantage of requiring no solder connections on either the keyboard or the processor printed circuit board. Another possible method is to scrape some of the insulation off of the required conductors in the ribbon cable and solder directly to them.

My method is to solder the seven wires directly to the printed circuit board in order to save the cost and trouble of finding additional connectors or run the risk of damaging the ribbon cable. The end of the ribbon cable closest to the joystick connector is pin one and the end closest to the I/O port connector is pin fifteen. My method involves soldering each wire and running it through one of the ventilation slots in the bottom of the computer. Bread ties may be used to provide strain relief for the wires.

Pin two of the keyboard connector should be connected to one terminal of the switches on the keypad for the 6, 7, 8, 9 and 0 keys. Pin seven should be connected to one terminal of the switches for the 1, 2, 3, 4 and 5 keys. At this point, each of the ten switches on the keypad should have a connection to one terminal with the second terminal still unconnected.

Pin eight on the keyboard connector should be connected to the one and zero keys on the keypad. Pin nine is connected to the five and six keys. Pin 13 is wired to the 2 and 9 keys. Pin 14 goes to the 3 and 8 keys. The last connection is from pin 15 to the 4 and 7 keys. Check the keypad to be sure that all twenty terminals are connected correctly.

Be careful to avoid cold solder joints and solder bridges between adjacent connectors. A grounded (three wire cord) soldering iron is recommended for the protection of the sensitive computer chips. Replace the bottom of the computer along with the screws and the on/off switch. If it's necessary to remind you that the computer should be turned off and unplugged during the modification procedure, it's recommended that you have the job done by a qualified electronic technician. This can be accomplished by calling the NUMERIC KEYPAD HOTLINE, 825-8941, between 2:00 PM and 6:00 PM, all seven days of the week.

The modification described in this article has been performed successfully and requires no additional hardware or software of any type; however a keypad training program called NUMBER ATTACK will be described and listed in this publication for your convenience. NUMBER ATTACK is also available on cassette tape.

NUMBER ATTACK

by Norman Riger

NUMBER ATTACK is a numeric keypad dexterity training program. The program is meant to be used with a numeric keypad such as the version previously desribed in this publication. The TI99/4A version of NUMBER ATTACK is a modification of the public domain program of the same name for the HEATHKIT H-89 computer. This program is supplied for personal use only and may not be sold or used for any commercial or educational purpose without written permission from the author.

The program generates a three digit random number which is displayed on the screen. The student develops proficiency by keying in the same number on the keypad by touch without looking at the keys. It isn't necessary to depress the ENTER key after each number. The number keyed by the student is compared to the displayed number and another random number is displayed on the screen. A continuous score is kept by the computer to be displayed at the end of the program. The requirements of this version are a TI99/4A computer with either a monitor or television set. A cassette recorder is recommended for saving the program. A numeric keypad is also recommended but NUMBER ATTACK will run without it. Here it is:

```
10 V=INT(RND(9)*1000)            'generate 3 digit ramdom number
20 PRINT V                       'display number on screen
30 CALL KEY(5,A,S)               'get 1st digit from student
40 IF S=0 THEN 30                'loop if no response yet
50 B=A-48                        'convert ASCII value to numeric value
60 A=0                           '
70 CALL KEY(5,A,S)               'get 2nd digit from student
80 IF S=0 THEN 70                '
90 C=A-48                        '
100 A=0                          '
110 CALL KEY(5,A,S)              'get 3rd digit from studnet
120 IF S=0 THEN 110              '
130 D=A-48                       '
140 A=0                          '
200 Q=(B*100)+(C*10)+D           'derive 3 digit number from 3 key strokes
300 IF V=Q THEN 400              'check for correct comparison
330 IF V<>Q THEN 500             'check for incorrect comparison
400 R=R+1                        'increment correct score
410 IF 100>(R+W) THEN 10         'check for total
500 W=W+1                        'increment incorrect score
510 IF 100>(R+W) THEN 10         'check for total
600 PRINT"RIGHT: ",R             'display correct responses
700 PRINT"WRONG: ",W             'display incorrect responses
```

(cont. on next page)

NUMBER ATTACK (cont. from p.15)

The code, written in TI BASIC, is at the left. It isn't necessary to type in the comments listed at the right.

Only the heart of NUMBER ATTACK is presented in this article in order to allow practice in programming for the student. The final version should clear the screen and print the random number in the center of the screen. As an option, the updated score after each three digit response could be displayed in the upper left hand corner of the screen. A correct response consists of keying in three digits which must be correct and also in the right order. When a one digit random number is generated, it must be preceeded by two zeros. A two digit random number must be preceeded by a single zero. It is possible to save all of the wrong responses in order to print them at the end of each trail along with the correct responses. Another alternative would be to present the same number again until it is keyed in correctly. The percentage of correct responses could be computed and printed at the end of each trial. NUMBER ATTACK can also be used with a clock and modified to compute the number of total and correct responses per minute.

NUMBER ATTACK can be converted to other uses. Random letters could be used instead of numbers in order to teach touch typing. True and false questions (contained in DATA statements) could be printed on the screen and scored just as easily. Words in another language could be displayed with the correct answer consisting of the English translation. Characters from languages using different alphabets could also be processed and scored (Arabic, Hebrew and Russian characters can be generated by using graphics). The number 100 in line 410 can be changed to allow longer or shorter trials. Line 510 can be changed so that the program ends as soon a ten incorrect responses are made. Five digit random numbers could be used so that as soon as the first digit was keyed in the remaining four digits would disappear from the screan and have to be remembered by the student. Numerous other variations are possible and may provide a challenge for the student programmer.

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