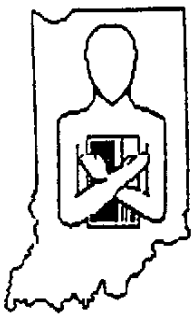

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AUGUST, 1986 THE HUGgers NEWSLETTER VOLUME 4, NUMBER 5

OFFICERS CORNER

Details are being worked out on a new meeting place. The first meeting at the new location will most likely be in October, since we already have the picnic at Eagle Creek Park scheduled for Sunday, September 14. A detailed map for Eagle Creek Park will be in the September newsletter. Admission to the park is $1.75 per vechicle for Marion county residents and $2.00 for non-Marion county residents.

William M. Lucid, HUG vice pres.

Converting other Basic's

Rich Klein had an interesting article in the May 1986 issue of the Chicago Times newsletter concerning the use of BASIC and X-BASIC's DEFine statement. DEF allowes the programmer to define his/her own functions, for example: if you wanted to use PI in a BASIC program you could start off by typing

```
100 DEF PI=3.141592654
```

From that point on, anytime your program came across the function PI it would evaluate it as defined.

A similar situation could be used to define functions found in other BASIC's but not found in TI BASIC. For example, many BASIC's contain the functions LEFT$, MID$, RIGHT$. These could be handled in TI BASIC by defining them as follows.

```
100 DEF LEFT$(X$,Y)=SEG$(X$,1,Y)
110 DEF MID$(X$,Y,Z)=SEG$(X$,Y,Z)
120 DEF RIGHT$(X$,Y)=SEG$(X$,LEN(X$)-Y-1
,Y)
```

LIBRARY BITS

By Dennis Sherfy

The Extended 11 disk contains several interesting programs. MICKYMOUSE is an excellent graphics program written by Dave Rose. It draws an image of Micky Mouse on your screen, and spells out his name in large type. If you have a screen dump program and a printer, you can transfer this image to paper.

CALLSOUNDS is a very good program to learn more about the sound capability of the TI 99/4A Computer. The program provides a sequence of code and allows you to study the code and hear the sound. Then, it gives you a new code sequence and sound. When you learnhow these sounds are created, you can incorporate the code into your own programs. If you want to add sound to your programs, this is an excellent teaching program.

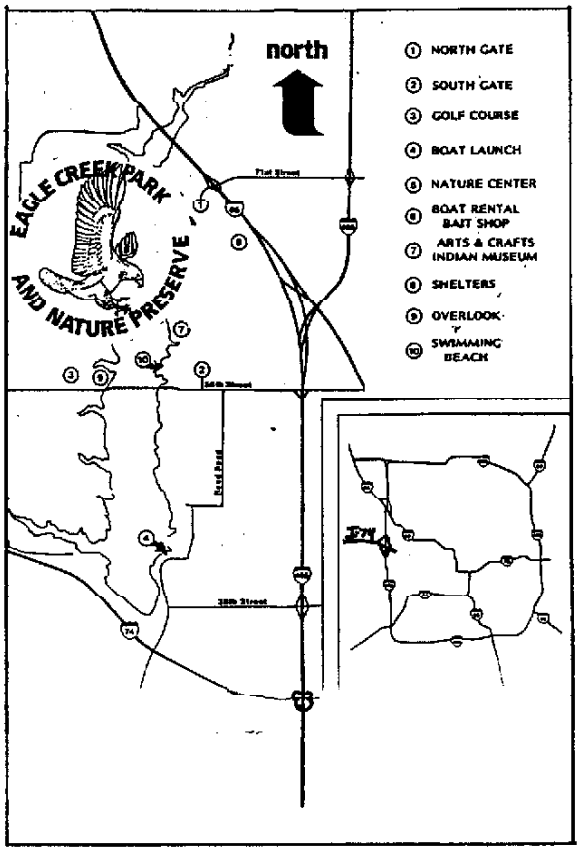
XBSPTTUTOR.....try to pronounce that one! Remember the Speech Synthesizer you bought some time ago, and never found much of a use for it? This is a speech program. It may not look like much to an adult, but I can guarantee that pre-schoolers will'love it! The program displays a scene on the screen including trees and a lake. Then, animals push either letters or numbers onto the screen. The computer speaks the letter or number so the child can press the proper key. If the child presses the wrong key, he/she is told to try again. If the right key is pressed, an animal pushes out another letter. For young children, this program provides practice at recognizing lettrs and numbers, and gives them CONTROL over the computer keyboard. Watch the enthusiasm on a pre-schooler's face and you will see that this is a powerfull educational tool.

TI 99-4/A EAGLE CREEK PARK PICNIC

Sunday, September 14, 1986

Eagle Creek Park is north of 56 th street and west of I-65, in Indianapolis, IN. There are two gates to the park, one is on west 71 st street (north gate) and one is on west 56 th street (south gate).

Eagle Creek Park is the location of THE HOOSIER USERS GROUP picnic. The picnic will be Sunday, September 14, at the north MT. PLEASANT shelter house, noon till 6 PM. Everyone coming should bring a covered dish, a dessert, tableware, and lawn chair. Soft drinks will be available, same as at our meetings. Electical service, consists of one 20 amp circuit with 2 outlets. There are 6 large picnic tables and 2 small grills around the shelter. Maybe after the "bytes" stop, we will be able get up a volleyball game, toss frisbes around, or enjoy the "BROWN COUNTY" like setting of Eagle Creek Park.



SLOWING FAST DM-1000 V3.1 by Louis Guion (Courtesy of John Creviston)

Condensed from: NET 99er HCUG, newsletter.

The newest version of DISK MANAGER 1000 (DM1000, Version 3.1), suffers from the previously known defect of having any key which is depressed and held for only a moment, running away at breakneck speed and repeating several times before you can get your finger lifted from the key. Fast? Yes!, but a pain in the uh-huh! Well, you can fix it anytime you like, and set the repeat action just as fast, or as slow as you want to make it. You must have a single-sectoring program like DISKO or DISK+AID. Copy the file "MGR1" of DM1000 Version 3.1 to * NEWLY INTIALIZED*, *BLANK* diskette. You'll have only the one file. "MGR1" on the new diskette.

Now, load your DISK+AID and either go to sector >36, or have the program search for the HEX string of..... 06 03 16 F9 03 80 00 A0 FF 00 C0 1D. The important bytes are #s >42 and >43 which are the ... 00 A0 ... in the string above. >00 A0 is 160d, (decimal). You want to change this 160d, or 00 A0 to another value which will slow down the repeat key. The range of acceptable values will fall between 160d to 2000d or hex values >00A0 to >07D0.

HOOSIER USERS GROUP

Committee Chairperson/s are needed for membership committee and the newsletter committee. Contact one of the officers of the **HOOSIER USERS GROUP.**

SOUTH REGIONAL MEETING.

The South Regional meeting will be held on August 20, 1986, beginning at 7:30 P.M. The location--4582 Moccasin Pl., Greenwood. More information can be obtained by calling 881-5918.

!! NEW GRAPHICS CAPABILITIES AVAILABLE !!

Thanks to two Compuserve/TI Forum users, Travis Watford and Paul Gray, the TI community is now able to use RLE (Run Length Encoded) Graphics. This means that many high resolution pictures created for other computers are now available to 99/4A users. The pictures on this page are examples of RLE images available in various "libraries" on Compuserve. They were downloaded just like any other file and then run through a program written by Travis Watford to make them "usable" on the 99/4A.

"Run Length Encoding" is a standardized method of storing graphic images. Other computers have been able to use this type of files for quite some time, but until recently TI users had been left out. The files are called "Run Length Encoded" because of the manner in which the graphic images are converted into a "standardized code". A "RLE" graphic screen has 256 columns and 192 rows (luckily, that is just the "dimensions" of a 99/4A bit map mode screen). To convert a high-res image into an RLE file the encoding program begins at the upper left corner of the screen and determines if the first pixel is "on" or "off". For the sake of this "explanation", let's assume the first pixel is "on". Then, the program would count across the top row of the screen until it reached the first pixel that was "off", and then it would begin counting how many pixels in the row were "off" until it came to the next pixel that was "on". This sequence is repeated until the entire image has been "encoded". (Each of the "numbers" obtained while the encoding takes place has 32 added to it to convert it into the hexidecimal code for a "printable" ASCII character, and the final RLE file is simply a collection of these ASCII characters.) To reconstruct the image, the "decoding" program follows the reverse procedure. It begins at the upper left corner of the screen and then row after row turns "on" or "off" groups of pixels depending on the values in the RLE file.

The program that allows 99/4A users to use RLE pictures is called "Max-RLE", and has been placed into the public domain by the author. With it, we can load RLE files that have been previously downloaded (as either DV/80, "ASCII" files or as DF/128, "Xmodem" files) into the computer and then "manipulate" them in several ways. We can save them back to disk in a form that can be used by "Graphx" or "TI Artist", which allows us to "color" or change the pictures however we desire. OR we can print the image out on a printer.

If all that could be done was "decode" RLE files, this would be a great program, but "Max-RLE" also allows the user to "encode" pictures drawn with either "Graphx" or "TI Artist" into RLE files. This means that pictures drawn by 99/4A users can be seen and used by owners of other kinds of computers that support RLE graphics. (We may be orphans, but we're still an "active" part of the home computer community!!!)

Currently there are over 300 such pictures in various libraries on Compuserve. But those of you who don't subscribe to that service may get a chance to "experience" RLE graphics anyway. Now that we have the "Max-RLE" program, we can keep this kind of pictures on smaller bulletin boards also. Before long we may be sending "art" with our text all over the country. (Now, if someone would just come up with a "cheap" way for 99/4A users to "digitize" photographs.....)

HOOSIER USERS GROUP MEMBERSHIP RENEWAL REMINDERS

Lionel Sipes membership was up for renewal in March '86. Micheal Bunting, Jane Farber, Roger Frank, Mark Hackleman, George Lottes, Benito Martinez, Larry Rockafellow, John Jeff White, and Jack Witt, memberships were up for renewal in April '86. David Amock, Richard Frost and Robert V. May, memberships were up for renewal in June '86. Andy Armstrong, Ed Brown, Merle Cogswell, Larry L. Conner, Vic Kelson, Phil Kurtz, Bill Roland, Dennis Sherfy, John Stobaugh, and Robert Summers, memberships were up for renewal in July '86. David Collom, Don Donlan, David Johnson Jr., Anthony Miller, Shelia Smith, Larry Vaugh, Lawrence Wisthoff, memberships are due for renewal in August '86. Tom Allington, Mathew Brown, Helen Chastain, Carolyn Daries, Joe Edmiston, Jim Ellis, Richard Griffin M.D., Richard Johnson, Rex Kemple, Greg Larson, Junnie Nichols, and Joe Marilynn Teegarden, memberships are due for renewal in September '86.

The upper left corner of the mailing label on this newsletter has the year/month your membership is due for renewal. Membership renewal is $15.00. This list, to the best of my knowledge is correct as of August 6, 1986.

William M. Lucid, HUG vice president

NO MEETINGS ARE SCHEDULED UNTIL THE SEPTEMBER 14, EAGLE CREEK PARK PICNIC, DUE TO NO MEETING PLACE AVAILABLE!

‡‡ ROMRAIDER ‡‡

ROMRAIDER is an assembly language Fairware program that will save/load the contents of your Super Cartridge to/from diskette. You can also upload Minimemory object code files from cassette to diskette with ROMRAIDER. The "save" option will run with an E/A and a cartridge expander, but to use ROMRAIDER to its full extent you need a Super Cartridge. (A Super Cartridge is an E/A module with 8K of RAM added to it. An article in Micropendium told how to build one, for about 1/6 the cost of the Gram Kracker.) You can change the ROM data at addresses >6000 to >7FFF, (this is the game port ROM address lines used by some cartridges and not normally available to the programmer until now), but you can not change the GROM without a GRAM simulator like GRAM KRACKER or GRAM KARTE. GROM stands for Graphics Read Only Memory. It was contained in a special chip which provided the 99/4A with unaccessible memory banks for the operating system and TI cartridges. There are no cartridges made by Texas Instruments that did not use this protective device. (The GRAM KRACKER and the GRAM KARTE open up this memory now, changing the computer from a closed architecture to a more opened one.) Some cartridges have only GROM chips, some have only ROM chips, and some have both. Cartridges like Editor/Assembler, TIWriter, and Disk Manager II use only GROM chips. Cartridges like Munchman, TI Invaders, Chisholm Trail and Tombstone City have both GROM and ROM. With the GROM from one of these transplanted to your Super Cartridge, you can change the ROM portion (which usually contains the program and subprograms--the GROM contains most of the graphics and DATA used by the program).

Using ROMRAIDER, you can upload Minimemory object code or the ROM portion of any cartridge that has ROM at >6000 to >7FFF to diskette. ROMRAIDER can NOT be used successfully on bank switched (Extended Basic) or GROM only cartridges, but it can be used on other cartridges. Once on diskette, what was contained in ROM can be loaded into the Super Cartridge. If you also transplant the associated GROM chip to your Super Cartridge, then you can change the ROM image or run the program as is, provided the GROM chip is powered up. (I used chip sockets in a few of the cartridges I have built. This allows me to easily change GROM chips should I decide to do so.)

The link word ROMRAIDER uses to save a memory image to disk is 'RSAVE'. The link word to load the image from diskette to memory is 'RECALL'. ROMRAIDER always saves to or reads from a file called 'RAMROM' in drive #2. (The reason it is called "RAMROM" is because the contents of the image may be either a RAM image or a ROM image or, in the case of the Minimemory, both.) ROMRAIDER creates the file containing the memory image on drive #2 if it is not already there when you use the link word 'RSAVE' or hit the load interrupt switch. If it is already there ROMRAIDER will replace it with the memory image presently at >6000 to >7FFF, if "RAMROM" has no file protection. If the file is protected then it will not be changed on diskette. Both the link word 'RSAVE' and the load interrupt switch link to the save memory to disk routine. After linking to ROMRAIDER, whether saving or loading, your next step is to press any key. ROMRAIDER waits for you in this manner so you have time to switch the cartridge expander. Next it tells you when the transfer has been completed. This is true for saving or loading. Once the memory image has been transferred, you can either press the reset switch or switch the cartridge expander back to the E/A. Then press any key and you are returned to E/A.

If you decide that the memory image you have saved to disk is worth keeping, you simply can use a disk manager to make a copy of it, changing the name to something more familiar than "RAMROM". I use the first 5 letters of the program name followed by "ROM" to let me know that it is a memory image for use with ROMRAIDER. Thus the Munchman ROM image file would have this file name "MUNCHROM". To load it back to RAM at >6000 to >7FFF, you would make a copy of "MUNCHROM" (the archival file) named "RAMROM" (the work file). Remember that "RAMROM" is the work file for ROMRAIDER and can be thought of as a temporary file for short term storage.

ROMRAIDER comes as two files : ROMRAID/O and HELP. The ROMRAID/O is the object code which either saves or loads a memory image (at >6000 to >7FFF) to or from diskette. The HELP file explains how to use ROMRAIDER and should be read before attempting to use the program. Feel free to pass along these files.

For the people who respond to the Fairware offer, I include a GROM looker program that will show you what is in the GROM if there is a GROM at the selected memory bank. Also included is a method which allows users without expanded systems to be able to use a Super Cartridge. It involves two separate programs and requires the use of someone else's expanded system to create a third program. The first program (BASICROM$) creates a data file in Merge format (163 VARIABLE) called "CARTROM". It is run from TI Basic with the memory image in place, and takes over 10 minutes to complete its task.

The second program named "LOADER$" is loaded into Extended BASIC, then "CARTROM" is merged into it. A REM statement can be added at the beginning of the program to identify the memory image contained in the combined program. The program is then saved to cassette. (Without using the check feature of the cassette save routine.) Once the loader with the merged DATA statements is on cassette, it is ready to be called back off cassette and run by the nonexpanded system user. When it runs it reads the data statements and loads the memory image into the Super Cartridge.

A MYARC RAM disk version is available which uses the increased speed of the RAM disk to load the Super Cartridge. If you wish a copy of the source code for ROMRAIDER, the Minimemory version, the MYARC RAM Disk version, or the latest documentation (not the docs uploaded to COMPUSERVE) send an initialized diskette, a postage paid mailer, and a donation of no more than $10.00, (or just send $12.50 and I'll supply the diskette, postage, and mailer) with a note specifying your request to:

C. Slenker
628 East Walnut, Apt #3
Springfield, MO 65806

(Any questions about ROMRAIDER that you might have should be sent to the above address, also.)

TIPS FROM THE TIGERCUB

#33

TIGERCUB SOFTWARE
156 Collingwood Ave.
Columbus, OH 43213

Over 130 original programs in Basic and Extended Basic, available on casette or disk, only $3.00 each plus $1.50 per order for PPH. Entertainment, education, programmer's utilities.
Descriptive catalog $1.00, deductable from your first order.

Tips from The Tigercub, a full disk containing the complete contents of this newsletter Nos. 1 through 14, 50 original programs and files, just $15 postpaid.

Tips from the Tigercub Vol. 2, another diskfull, complete contents of Nos. 15 through 24, over 60 files and programs, also just $15 postpaid. Or, both for $27 postpaid.

Nuts & Bolts (No. 1), a full disk of 100 Extended Basic utility subprograms in merge format, ready to merge into your own programs. Plus the Tigercub Menuloader, a tutorial on using subprograms, and 5 pages of documentation with an example of the use of each subprogram. All for just $19.95 postpaid.

Nuts & Bolts No. 2, another full disk of 100 utility subprograms in merge format, all new and fully compatible with the last, and with 10 pages of documentation and examples. Also $19.95 postpaid, or both Nuts Bolts disks for $37 postpaid.

Tigercub Full Disk Collections, just $12 postpaid! Each of these contains either 5 or 6 of my regular $3 catalog programs, and the remaining disk space has been filled with some of the best public domain programs of the same category. I am NOT selling public domain programs - my own programs on these disks are greatly discounted from their usual price, and the public domain is a FREE bonus!

TIGERCUB'S BEST
PROGRAMMING TUTOR
PROGRAMMER'S UTILITIES
BRAIN GAMES
BRAIN TEASERS
BRAIN BUSTERS!
MANEUVERING GAMES
ACTION GAMES
REFLEX AND CONCENTRATION
TWO-PLAYER GAMES
KID'S GAMES
MORE GAMES
WORD GAMES
ELEMENTARY MATH
MIDDLE/HIGH SCHOOL MATH
VOCABULARY AND READING
MUSICAL EDUCATION
KALEIDOSCOPES AND DISPLAYS

For descriptions of these send a dollar for my catalog!

I found a bug in Nuts & Bolts #2 which prevents using HIGHCHAR after HEAVYCHAR. To fix it, remove the write-protect tab,

```
MERGE DSK1.HEAVYCHAR
RES 21000,1
SAVE DSK1.HEAVYCHAR,MERGE
```

Replace write-protect tab.

While they last, and the supply is limited, I will sell a single Texas Instr. cassette interface cable for $2.00 with any order for casssette software.

Did you ever wonder how a computer sort actually worked? This program will let you actually see it in action. It will also show you the value being held in the temporary variable T$, and the total number of swaps and comparisons made.

Then you can change any of the variables and resort. Try AAA in the last position or ZZZ in the first. You will find that some of the fastest sorts are not so fast when a list is already almost in sequence.

```
100 CALL CLEAR :: CALL SCREEN(16):: FOR SET=2 TO 9 :: CALL COLOR(SET,5,16):: NEXT SET :: ON WARNING NEXT :: RANDOMIZE
110 DISPLAY AT(21,1)ERASE ALL:">>>TIGERCUB SORT WATCHER<<<": :"Wait, please - generating":"random array...." :: DIM A$(100),B$(100),ST(25,2)
120 FOR J=1 TO 100 :: FOR L=1 TO 3 :: B$(J)=B$(J)&CHR$(INT(26*RND+65)):: NEXT L :: X=J :: A$(X)=B$(X):: GOSUB 3270 :: NEXT J
130 DISPLAY AT(3,1)ERASE ALL:"(1) BUBBLE SORT": :"(2) SHAKER SORT": :"(3) SWAP SORT": :"(4) SHUTTLE SORT": :"(5) EASY SORT"
140 DISPLAY AT(13,1):"(6) QUICK SORT": :"(7) RESORT SORT": :"(8) SHELL SORT": :"(9) RESERVED": :"Type number of choice"
150 ACCEPT AT(21,23)VALIDATE(DIGIT)SIZE(2)BEEP:K :: IF K<1 OR K>10 THEN 150
160 DISPLAY AT(24,1):"Size of array? (10-100)" :: ACCEPT AT(24,25)VALIDATE(DIGIT)SIZE(3):G :: IF G<1 OR G>100 THEN 160
170 ON K GOSUB 230,300,430,500,550,650,850,910,2500 :: DISPLAY AT(22,1):W;"SWAPS":C;"COMPARISONS" :: C,W=0
180 DISPLAY AT(24,1):"Choose (1)Menu or (2)Resort" :: ACCEPT AT(24,7)VALIDATE("12")SIZE(1):Q :: IF Q=1 THEN 130
190 DISPLAY AT(24,1):"Change which position? 0" :: ACCEPT AT(24,24)VALIDATE(DIGIT)SIZE(-3):P :: IF P=0 THEN 210 ELSE IF P<1 OR P>G THEN 190
200 DISPLAY AT(24,1):"Change to?" :: ACCEPT AT(24,12)SIZE(3):A$(P):: X=P :: GOSUB 100 :: GOTO 190
210 DISPLAY AT(22,1):" ":" " :: GOSUB 1000 :: N=G :: ON K GOSUB 240,310,440,510,560,660,860,920,2510 :: DISPLAY AT(22,1):W;"SWAPS":C;"COMPARISONS" :: C,W=0 :: GOTO 180
220 REM *BUBBLESORT*
230 CALL CLEAR :: GOSUB 980
240 FOR J=2 TO N :: C=C+1 :: IF A$(J)>=A$(J-1)THEN 260
250 T$=A$(J):: GOSUB 1050 :: A$(J)=A$(J-1):: X=J :: GOSUB 1020 :: A$(J-1)=T$ :: X=J-1 :: GOSUB 1020 :: W=W+1 :: F=1
260 NEXT J :: C=C+1 :: IF F=0 THEN 280
270 W=W+1 :: F=0 :: N=N-1 :: GOTO 240
280 RETURN
290 REM *SHAKERSORT*
300 CALL CLEAR :: GOSUB 980
310 W=W+1 :: L=1 :: N=N-1 :: R=N
320 W=W+1 :: F=0 :: FOR J=L TO R-1 :: C=C+1 :: IF A$(J)<=A$(J+1)THEN 340
330 T$=A$(J):: GOSUB 1050 :: A$(J)=A$(J+1):: X=J :: GOSUB 1020 :: A$(J+1)=T$ :: X=J+1 :: GOSUB 1020 :: W=W+1 :: F=1
340 NEXT J :: C=C+1 :: IF F=0 THEN 410
350 W=W+1 :: R=R-1 :: C=C+1 :: IF R=L THEN 410
360 W=W+1 :: F=0 :: FOR J=R TO L+1 STEP -1 :: C=C+1 :: IF A$(J)>=A$(J-1)THEN 380
370 T$=A$(J):: GOSUB 1050 :: A$(J)=A$(J-1):: X=J :: GOSUB 1020 :: A$(J-1)=T$ :: X=J-1 :: GOSUB 1020 :: W=W+1 :: F=1
380 NEXT J :: C=C+1 :: IF F=0 THEN 410
390 W=W+1 :: L=L+1 :: C=C+1 :: IF L=R THEN 410
400 GOTO 320
410 RETURN
420 REM *SWAPSORT*
430 CALL CLEAR :: GOSUB 980
440 FOR J=1 TO N-1 :: W=W+1 :: R=J :: FOR JJ=J+1 TO N :: C=C+1 :: IF A$(R)<=A$(JJ)THEN 460
```

```
450 W=W+1 :: R=JJ
460 NEXT JJ :: C=C+1 :: IF R
=J THEN 480
470 T$=A$(J)!! GOSUB 1050 ::
 A$(J)=A$(R)!! X=J :: GOSUB
1020 :: A$(R)=T$ :: X=R :: G
OSUB 1020
480 NEXT J :: RETURN
490 REM ###SHUTTLE SORT######
500 CALL CLEAR :: GOSUB 980
510 FOR J=1 TO N-1 :: FOR JJ
=J TO 1 STEP -1 :: C=C+1 ::
IF A$(JJ)<=A$(JJ+1)THEN 530
:: T$=A$(JJ)!! GOSUB 1050 ::
 A$(JJ)=A$(JJ+1)!! X=JJ :: G
OSUB 1020
520 A$(JJ+1)=T$ :: X=JJ+1 ::
 GOSUB 1020 :: NEXT JJ
530 NEXT J :: RETURN
540 REM ######EASY SORT######
550 CALL CLEAR :: GOSUB 980
560 W=W+1 :: D=1
570 W=W+1 :: D=2*D :: C=C+1
:: IF D<=N THEN 570
580 W=W+1 :: D=INT(D/2)!! C=
C+1 :: IF D=0 THEN 630
590 FOR J=1 TO N-D :: W=W+1
:: Y=J
600 W=W+1 :: Z=Y+D :: C=C+1
:: IF A$(Y)<=A$(Z)THEN 620 :
: T$=A$(Y)!! GOSUB 1050 :: A
$(Y)=A$(Z)!! X=Y :: GOSUB 10
20 :: A$(Z)=T$ :: X=Z :: GOS
UB 1020
610 W=W+1 :: Y=Y-D :: C=C+1
:: IF Y>0 THEN 600
620 NEXT J :: GOTO 580
630 RETURN
640 REM *QUICKSORT*
650 CALL CLEAR :: GOSUB 980
660 W=W+1 :: L=1 :: W=W+1 ::
 R=N :: W=W+1 :: T=0
670 T$=A$(INT((L+R)/2))!! GO
SUB 1050 :: W=W+1 :: J=L ::
W=W+1 :: JJ=R
680 C=C+1 :: IF A$(J)>=T$ TH
EN 710
690 W=W+1 :: J=J+1
700 GOTO 680
710 C=C+1 :: IF A$(JJ)<=T$ T
HEN 730
720 W=W+1 :: JJ=JJ-1 :: GOTO
 710
730 C=C+1 :: IF A$(J)<>A$(JJ
)THEN 760
740 C=C+1 :: IF J>=JJ THEN 7
60
750 W=W+1 :: J=J+1 :: GOTO 7
30
760 C=C+1 :: IF J>=JJ THEN 7
80
770 W=W+1 :: H$=A$(J)!! A$(J
)=A$(JJ)!! X=J :: GOSUB 1020
 :: A$(JJ)=H$ !! X=JJ :: GOS
UB 1020 :: GOTO 690
780 W=W+1 :: J=J+1 :: W=W+1
:: JJ=JJ-1 :: C=C+1 :: IF J>
=R THEN 800
790 W=W+1 :: T=T+1 :: W=W+1
:: ST(T,0)=J :: W=W+1 :: ST(
T,1)=R
800 W=W+1 :: R=JJ :: C=C+1 :
: IF L<R THEN 670
810 C=C+1 :: IF T=0 THEN 830
820 W=W+1 :: L=ST(T,0)!! W=W
+1 :: R=ST(T,1)!! W=W+1 :: T
=T-1 :: GOTO 670
830 RETURN
840 REM ###RESORT SORT######
850 CALL CLEAR :: GOSUB 980
860 FOR J=2 TO N :: C=C+1 ::
 IF A$(J)>=A$(J-1)THEN 900
870 T$=A$(J)!! GOSUB 1050 ::
 FOR L=J-1 TO 1 STEP -1 :: A
$(L+1)=A$(L)!! X=L+1 :: GOSU
B 1020
880 C=C+1 :: IF A$(L-1)>=T$
THEN 890 !! A$(L)=T$ :: X=L
:: GOSUB 1020 :: GOTO 900
890 NEXT L
900 NEXT J :: RETURN
910 REM *SHELLSORT*
920 CALL CLEAR :: GOSUB 980
930 W=W+1 :: M=N
940 W=W+1 :: M=INT(M/3)+1
950 FOR J=1 TO N-M :: FOR JJ
=J TO 1 STEP -M :: C=C+1 ::
IF A$(JJ)<=A$(JJ+M)THEN 970
:: T$=A$(JJ)!! GOSUB 1050
960 A$(JJ)=A$(JJ+M)!! X=JJ :
: GOSUB 1020 :: A$(JJ+M)=T$
:: X=JJ+M :: GOSUB 1020 :: N
EXT JJ
970 NEXT J :: C=C+1 :: IF M>
1 THEN 940 :: RETURN
980 REM *RENEW ARRAY*
990 FOR J=1 TO G :: A$(J)=B$
(J)!! X=J :: M$=A$(J)!! GOSU
B 1020
1000 NEXT J :: N=G
1010 DISPLAY AT(24,1):"A to
abort  P to pause" :: RETUR
N
1020 RR=X
1030 IF RR>20 THEN RR=RR-20
:: GOTO 1030
1040 CC=1-(X>20)*5-(X>40)*5-
(X>60)*5-(X>80)*5 :: DISPLAY
 AT(RR,CC):A$(X)!! W=W+1 ::
GOSUB 1060 :: RETURN
1050 DISPLAY AT(22,14):"T$="
;T$ :: W=W+1 :: GOSUB 1060 :
: RETURN
1060 CALL KEY(3,K1,S5)!! IF
S5=0 THEN 1090
1070 IF K1=65 THEN 130
1080 CALL KEY(3,K2,S5)!! IF
S5<1 THEN 1080
1090 RETURN
```

Don't try timing these sorts, because the screen display distorts the speed. Option 9 has been left open so that you can add your own favorite sort routine, in the same format, starting in line 25000.

These routines may not be the most efficient forms, and their names may not be correct. If you know better ones, let me know!

```
100 !BASKET WEAVING by Jim P
eterson
110 CALL CLEAR :: W=11 :: T=
2 :: CH$="A5A5A5A5A5A5A5FF
00FF0000FF00FF" :: CALL CHAR
(142,CH$)!! CALL COLOR(14,2,
W,13,2,W)!! CALL SCREEN(W)
120 CALL HCHAR(1,1,143,768)!
: CALL CHAR(134,CH$)!! CH=14
2
130 FOR C=1 TO 31 STEP T ::
FOR R=1 TO 23 STEP T :: CALL
 HCHAR(R,C,CH)!! NEXT R :: F
OR R=24 TO 2 STEP -T :: CALL
 HCHAR(R,C+1,CH)!! NEXT R ::
 NEXT C
140 CH=ABS((CH=142)*135+(CH=
134)*143)!! RANDOMIZE :: T=I
NT(3*RND+2)
150 FOR R=1 TO 23 STEP T ::
FOR C=2 TO 32 STEP T :: CALL
 HCHAR(R,C,CH)!! NEXT C
160 FOR C=31 TO 1 STEP -T ::
 CALL HCHAR(R+1,C,CH)!! NEXT
 C :: NEXT R :: CH=CH-1 :: W
=INT(14*RND+3)!! T=INT(3*RND
+2)
170 IF CH=134 THEN CALL COLO
R(13,2,W)!! GOTO 130 ELSE CA
LL COLOR(14,2,W)!! GOTO 130
```

The following routine will create a D/V80 file named GRAPHPAGE, to be loaded into TI-Writer as a 77x57 grid numbered along the left and bottom. Arrow keys can then be used to create a line graph of asterisks or whatever, annotated with text as desired.

```
100 OPEN #1:"DSK1.GRAPHPAGE"
,OUTPUT :: PRINT #1:TAB(4);R
PT$("_",75)!! FOR J=1 TO 57
:: J$=STR$(J)
105 IF J<10 THEN J$=" "&J$
110 PRINT #1:J$&RPT$("!_",38
)&"!" :: NEXT J
120 FOR T=1 TO 2 :: PRINT #1
:"  "!;: FOR J=1 TO 77 :: J$
=STR$(J)&" " :: PRINT #1:SEG
$(J$,T,1)!;: NEXT J :: PRINT
 #1 :: NEXT T :: CLOSE #1
```

```
1 !TO PRINT A HANDY REFERENC
E CHART OF ASCII TO HEX CODE
 - MODIFIED FROM READING-BERK
S AUG 85
90 OPEN #1:"PIO" :: PRINT #1
:CHR$(27);CHR$(77);CHR$(5)
100 FOR X=32 TO 63 :: FOR Y=
X TO X+64 STEP 32 :: CALL CH
ARPAT(Y,Y$)!! PRINT #1:Y;" "
;CHR$(Y);" ";Y$;!! NEXT Y ::
 PRINT #1:"" :: NEXT X
```

```
100 CALL CLEAR :: CALL MAGNI
FY(2)!! RANDOMIZE :: DISPLAY
 AT(3,2):"TIGERCUB SPEED TYP
ING TEST": :TAB(12);"SPEED"
:: T=10
110 DISPLAY AT(5,18):100-T :
: X=INT(26*RND+65)!! CALL SP
RITE(#1,X,2,96,120)!! FOR D=
1 TO T :: CALL KEY(3,K,ST)!!
 ON (K=X)+2 GOTO 120,130
120 T=T-1 :: GOTO 110
130 NEXT D :: T=T+1 :: GOTO
110
```

The UG newsletters are full of good editorials, reminding people that they had better pay for their freeware or there won't be anymore. I totally agree with that - but I can't help thinking that if there had been as much emphasis on paying for commercial software instead of pirating it, there would still be a lot more good programmers supporting the TI!

MEMORY FULL

Jim Peterson

HOOSIER USERS GROUP DIRECTORY

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MONTHLY MEETING LOCATION

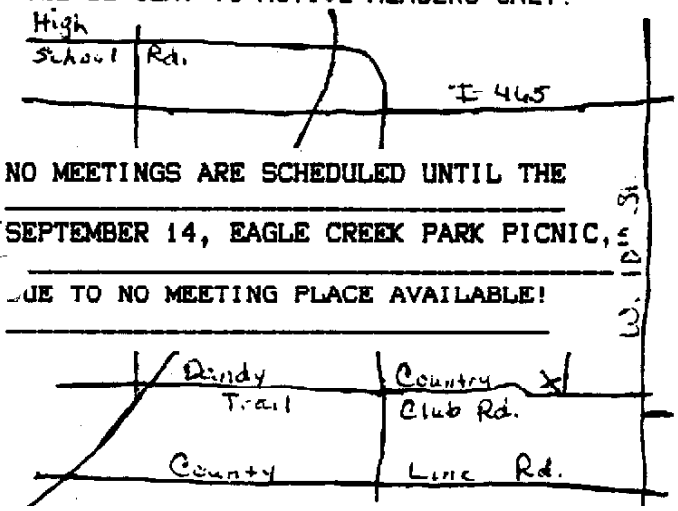
NO MEETINGS ARE SCHEDULED UNTIL THE SEPTEMBER 14, EAGLE CREEK PARK PICNIC,
(About 1600 North [illegible]

NEWSLETTER EXCHANGE

The Hoosier Users is participating in a Newsletter Exchange program with other TI Users Groups. This offer is made with the understanding that, with proper credit, your Users Group can reprint articles from the Hoosier Users Group Newsletter, and with proper credit, we can reprint articles from other TI Users Groups Newsletters.

PRINTOUTS

Library listings can be ordered for $.25 & a 6x9 self addressed envelope with $.66 postage. The HUGbbs Reference Guide can be ordered for $.50 and a 4x9 self addressed envelope with $.22 postage. Please send orders to our P.O. Box. SORRY, PRINTOUTS WILL BE SENT TO ACTIVE MEMBERS ONLY!



HUGbbs INFORMATION

317-631-994A
^X=abort ^S=pause ^Q=resume
^B=skip to next

MSG #177
From:GREG LARSON
To :ALL
Subj:TYPO
07/11/86 06:59:16PM
There is a publishing error in my Assembly Tips article in the July newsletter. As those who have tried to read the article may well imagine, the example was destroyed by the TI-Writer formater. The correct example is as follows:

```
AMODUL MOV  R11,@AMODU1
       ...
       BL   @BMODUL
       ...
AMODU1 EQU  $+2
AMOD99 LI   R11,0
       RT
```

ADVERTISING POLICIES

There will be no charge for advertisements submitted to the HUGger Newsletter by members (for private sale only). Format for the advertisements is 45 characters wide by 10 lines long. The Ad should be typed or hand printed exactly how it is to appear in the Newsletter. Deadline for an ad to appear in next month's Newsletter is the 2nd Saturday of the month.*

For companies who wish to advertise in the HUGger Newsletter, our rates are as follows:
Pre-Printed Inserts (one page) $20.00
One Full Page (one sided) Ad: $25.00
One Half Page Ad: $13.00
One Quarter Page Ad: $7.00
All ads must be in a ready to print condition. Advertisements must be in our P.O. Box before the 2nd Saturday of the month to appear in the following month's Newsletter.*

***NOTE:** The Officers of the Hoosier Users Group reserve final approval on all advertisements submitted for the HUGger Newsletter and the HUGbbs. The Officers and the Newsletter committee are not responsible for typographical errors due to illegible advertisements. All proceeds are accepted as donations to the Hoosier Users Group.

HOOSIER USERS GROUP
P.O. Box 2222
Indianapolis, IN 46206-2222

Forwarding and Address
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Bulk Rate
U.S. Postage
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MATERIAL

APPLICATION FOR MEMBERSHIP

Below you will find an application for membership to the Hoosier Users Group. Active memberships entitles you to the Newsletter, up and download on the HUGbbs, attendance and voting rights at regular club meetings, access to the HUGger Library of Programs, special club activities and special guest speakers for one year. Subscribing members will receive the **NEWSLETTER** only.

Make check or money order payable to **Hoosier Users Group.** Send completed application to:

HOOSIER USERS GROUP
P.O. Box 2222
Indianapolis, IN 46206-2222

(Cut on dotted line)

Check One:

Active Member
New: $20
Renewal: 15

Subscribing Member
New: $10
Renewal: 7.50

Amount Enclosed: $ _____

_____ D _____
S _____ O _____

Name: _____ Today's Date: _____

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Interests/Comments: _____