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THE HUGger's
HOOSIER USERS GROUP
People Helping People

JULY, 1986

THE HUGger's NEWSLETTER

VOLUME 4, NUMBER 4

NO MEETINGS ARE SCHEDULED UNTIL THE

 SEPTEMBER 14, EAGLE CREEK PARK PICNIC,

 DUE TO NO MEETING PLACE AVAILABLE!

THE OFFICERS CORNER

by William M. Lucid HUG, Vice president

NOTICE TO ALL MEMBERS, THERE WILL BE NO MEETING THIS MONTH due to a lack of meeting place. Anyone knowing of a place for meetings should contact an officer of the HUG, phone numbers are listed on the last page. Members in attendance last meeting were informed that CREATIVE LOGIC would not be available for future meetings. The HUG does not have the financial resources to pay rent for a meeting place.

STEVE SIMS has table space available at the Indianapolis Hamfest for members that would like to sell electronic or computer related items. Steve is asking that if you want to take advantage of this offer, that you tell him your bottom dollar. Whatever the item sells, for 15% of the selling price will go to the HOOSIER USERS GROUP. I feel this is a good opportunity for members that go to hamfest and do not want to be tied down to a table for two days and miss the bargains. Steve has paid for the tables out of his own pocket. This is your option, if YOU want to take part in helping generate resources for the HOOSIER USERS GROUP. Our major on going expenses is publishing and mailing the newsletter.

SOUTH REGIONAL MEETING
 Wednesday, July 23, 1986
 starting at 7:00 PM

You can call 881-5918 for details.

Since I have been vice president of HUG I know it to be fact, our main concern to the group has been to maintain contact with members by the newsletter, meetings, and HUG bbs are ways we maintain contact. I have heard the PREZ, ask for volunteers many times, to those that have, our hearty THANKS and those that like to argue, go to the meetings to get the latest library program only, I ask what can you do for the group. The time has come for us to really reach down in to our richest resource, our members in HUG, whenever you hear the call for volunteers. Remember we survive without the backing of the big TI corporation or any other corporation, HUG is what the members want, what you get is what you put into your OWN effort and effort of other VOLUTEERS.

We have reserved a shelter house at EAGLE CREEK PARK in Indianapolis for a picnic / Meeting the second sunday in September. Cost of the shelter reservation with electrical hookup was \$50.00. Picnic is scheduled for Sept. 14th meeting at the Mount Pleasant North Shelter in EAGLE CREEK PARK. Mary Clark has offered to coordinate picnic activities, her telephone number is 317-398-6226.

Exchanging newsletters with other TI user groups, benefits the TI community of 99'er users. Jim Ellis recently had his article on putting mutiple GROMs in a module published in at least two other newsletters, one of which expanded upon Jim's orginial article, Jim also had article about the TI cursor in TI-WRITER republished. Greg Larson's and Dennis Sherfy's articles have been reprinted in other newsletters. Jim, Gregg and Dennis are three more HUG volunteers, that contribute, positively to PEOPLE HELPING PEOPLE.

The next time we get together, I plan to have information ready on the steps you need to take before you use the Tearing Method for disassembling machine code. It was apparent last month that several people had questions about that, and it doesn't do any good to explain a method if you don't know how to do the preliminary steps involved. I will also have information on the Tearing Method as well. I am continuing to think about moving towards the roundtable approach for the Programmer's Corner (so far it's been mostly "my corner"). I am thinking about changing the time of the PC during the meeting so that it happens after the workshops. I don't know if this is feasible, but it would allow one to catch two things. I hope to present tutorials as newsletter articles rather than presentations at the meetings. I think this will help make a roundtable format possible as well as making the information available to more members.

In other topics, I have v2 of c99 by Clint Pulley, and it's pretty much all people have said it is. With the additional function libraries available, c99 is comparable with v2.1 of Small C as described in the Hendrix book. It is now feasible for an individual to learn C using c99 and a good book (THE C PRIMER PLUS is recommended). We should have a workshop to get people started with c99 sometime.

I've also been playing around with Miller Graphic's DISKASSEMBLER. If you're going to buy a disassembler, this is the one to get. For those (few) who want to see how programs work or want to modify them to suit their needs (an increasingly important use, what with Gram-Kracker, Super-Cart, Geneve, et al), this is an indispensable tool.

NO MEETINGS ARE SCHEDULED UNTIL THE

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 DUE TO NO MEETING PLACE AVAILABLE!

It has been a while since the last byte was written for this column. It sure did provide for a lot of material to go through. We read that Pat Saturn of MICROSTUPH in Ohio is working on a new expansion box for the 4A. Will have 5 slots, power supply, interface card, space for 2 slimline drives, and a smaller round cable. Micro Computers Corporation have several items on sale. The ad says Christmas in June but there is not an expiration date. E.g. Adams' Adventure Series \$2.95 ea. or any 5 for \$13.95. These are listed to be on tape but that shouldn't bother anyone. XB by TI \$49.95. Just to mention a couple. I ran across an article that compares MS-DOS to 4A DOS, using a CorComp Disk Controller. The comparison shows that the TI with all of its drawbacks has a pretty fair DOS. I know from my own experience that it is much more stable than the CoCo II operating system. The comparison goes like this:

System	#-tracks	#-sec/tk	#-Bytes/sec.
CC	40	18	256
MS-DOS	40	9	512
#-sides	Total Storage		
2	368,640		
2	368,640		

The MS uses 512 bytes/sector compared to 256 for TI. For a closer look at just what this means, consider you save a program of 700 bytes on both systems.

System	sec/used/file	bytes/available
CC	3	768 (3x256)
MS-DOS	2	1024 (2x512)
	bytes/used/file	bytes wasted
	700	68
	700	324

So now, what do you think of our little orphan? This also explains why the IBM and compatibles can not read 4A disks and vice versa. Any further info contact me via box 12 on the HUGbbs at 1-317-631-994A. One final note for you do-it-yourselfers, Megatech Computer Surplus has 5-1/4" 1/2-height drives in their flyer at \$50. Those listed are: Shugart, Tanden, MPI, and Teac, all are listed as DSDD. They would appear to be pull-outs.

It's here and it's...GENEVE from Myarc. saw it! Just as he promised to do, Lou Phillips of Myarc showed up at the Chicago Consumer Electronics Show on Sunday with several working Peripheral Expansion Boxes running his "computer-on-a-card." These were fully functioning printed circuit boards running 80-column and hi-res graphics demos.

- * 99/4(A) compatible, runs over 100 existing TI cartridge programs
- * 99/4(A) compatible, runs over 95% of all Assembly language programs utilities
- * BASIC 3.0
- * TI-WRITER, now a full 80-columns.
- * Multiplan, also 80 columns.
- FASTER At least 2-3 times faster.
- LARGER Standard 640K RAM
2 MEGABYTES Addressable RAM
MYARC Memory Card Compatible
With Myarc 512K Card,
Supplies 1.1 MEGABYTES RAM

IBM TYPE KEYBOARD included
PHONE TYPE CABLE

Replaces Old Hex Bus Cable

MOUSE SUPPORT

On the back of the page was a list of more features, including:

Composite Video Output

RGB Output (Note: I was informed this is Analog RGB, with "thousands" of colors available)

40 column display

80 column display

Mouse Output Port

Joystick port

128K VDP RAM memory

You probably won't need XB anyway, since the machine will come with Myarc's BASIC 3.0, as well as 80 column versions of TI-Writer and Multiplan.

Myarc plans at this time to include the keyboard, and the suggested retail for all of the above is \$495.00. When asked if they would sell the machine without a keyboard for less, Phillips quickly added that it was likely they would do so.

Text of Dave Wakely of
THE CHICAGO USERS GROUP

TENEX in Southbend, IN has information about GENEVE, in there summer '86 cat.

THREE SLOT EXPANSION KIT

by William M. Lucid

This kit gives the TI user a mini-expansion system that connects directly to the right side of the console, there is NO FAN required on this expansion kit. Source of the kit:

Captain's Wheel
17295 Chippendale
Farmington, MN 55024
(612) 460-6348

Cost of the kit is \$35.00, plus \$5.00 shipping and handling. Disk power supply option is an additional \$10.00. The kit comes with all edge connectors (gold-plated) soldered in place, this saves the kit builder 180 plus delicate soldering connections. All parts needed to complete the kit are included, except an enclosure. Dimensions are given in the documentation for constructing your own enclosure. Captain's Wheel no longer sells three slot kit enclosures. Balance of the assembly consists of a few resistors, a few capacitors, two integrated circuits and 30 jumpers, (another some 60 solder points). Wire provided with the kit, is rainbow, multiconductor ribbon cable, that is stripped for jumpers, (insulation on this wire has a very low melting point). Solder traces on the one sided pc board a very fine line and closely spaced.

Documentation is complete with good illustrations. During assembly you proceed by checking off each step on the instructions. Verification check out explained in the documentation, this consists of using a voltmeter to verify voltages called out at points on the pc board. This is IMPORTANT to assure proper voltages are present, so NO DAMAGE results when hardware cards are installed into the system.

Captain's Wheel allows you to return the assembled kit for check out verification and installation of cards at no charge; however, you must send \$5.00 to cover the return cost of shipping and handling.

CALL KEY

THE CALL KEY PROGRAM IN EXTENDED BASIC IS A VALUABLE TOOL BUT I FOUND THAT IT HAS TAKEN ME A LONG TIME TO REALLY UNDERSTAND IT'S PROPER USAGE. ONE THING THAT HELPED ME WAS THE FOLLOWING QUICK REFERENCE CHART WHICH I PASTED INTO MY EXTENDED BASIC MANUAL FOR QUICK REFERENCE. Joyce Corker, Waltham, Mass.

CALL KEY (0,KEY,STATUS)

0=becomes whatever mode was used by previous CALL KEY statement
KEY=is returned as ASC VALUE()
STATUS=-1 if NO KEY is pressed

CALL KEY(1,K,S)

Returns K values from LEFT SIDE of keyboard

CALL KEY(2,K,S)

Returns K values from RIGHT SIDE of keyboard

CALL KEY=(3,KEY,STATUS)

3=TI/99 4 MODE (FORGIVING)
K=only UPPER CASE letter values are returned even if a lower case letter is pressed in error BUT only works with FUNCTIONS 1-15 - NO CONTROL KEYS

CALL KEY=(4,K,S) PASCAL MODE

provides UPPER and LOWER case letter values
FUNCTIONS 129-143 - CONTROLS 1-31

CALL KEY(5,K,S)

5=BASIC mode for TI/994A
K=returns BOTH UPPER LOWER CASE letter values BUT if upper case answers are asked for and lower case are returned, the lower case answers won't be accepted.

STATUS KEY CHANGES (EXCEPT IN '0' MODE)

S=1 (NEW KEY PRESSED)
S=-1 (SAME KEY PRESSED)
S=0 (NO KEY PRESSED)

ACCESSING FUNCTION AND CONTROL KEYS AND ARROWS:

```
100 DISPLAY AT(3,3)ERASE ALL:"PRESS CONTROL KEY , "  
110 FOR DELAY=1 TO 600 :: NEXT DELAY  
120 CALL KEY(5,K,S)  
130 IF K=128 THEN PRINT "CONTROL,COMMA PRESSED"
```

```
OR: 100 DISPLAY AT(3,3)ERASE ALL:"PRESS FUNCTION RIGHT ARROW"  
130 IF K=9 THEN PRINT "RIGHT ARROW KEY PRESSED"
```

```
OR: 100 DISPLAY AT(3,3)ERASE ALL:"PRESS FUNCTION 8"  
130 IF K=6 THEN PRINT "FUNCTION 8 PRESSED"
```

CALL KEY COMBINATIONS

I ALSO KEEP A NOTEBOOK OF USEFUL (AND REUSEABLE) TIPS AND TRICKS FOR PROGRAMMING AND I'VE WORKED OUT A FEW USEFUL CALL KEY COMBINATIONS THAT I CAN PULL OUT AND USE WHENEVER I NEED THEM. OF COURSE, YOU CAN SUBSTITUTE LINE NUMBERS OR DIRECTIONS TO SUB PROGRAMS OR OTHER INSTRUCTIONS INTO THE LOGIC INSTRUCTIONS.

YES OR NO ANSWERS WITH CALL KEY 0

```
80 CALL CLEAR  
90 PRINT "Y OR N? "  
100 CALL KEY (0,K,S)  
110 IF K=78 THEN PRINT "NO" :: STOP  
120 IF K<>89 THEN 100 ELSE PRINT "YES"  
130 STOP :: END
```

SPACE BAR OR CARRIAGE RETURN (ENTER) ANSWERS WITH CALL KEY 5

```
100 DISPLAY AT(3,3)ERASE ALL:"PRESS SPACE BAR TO CONTINUE"  
110 FOR DELAY=1 TO 600 :: NEXT DELAY  
120 CALL KEY(5,K,S)  
130 IF K=32 THEN PRINT "SPACE BAR PRESSED" ELSE IF K<>13 THEN 120  
140 IF K=13 THEN PRINT "ENTER (C/R) WAS PRESSED"  
150 STOP :: END
```

RIGIDLY CONTROLLED ANSWERS WITH CALL KEY 5

```
100 DISPLAY AT(3,3)ERASE ALL:"PRESS Y FOR YES" : " PRESS N FOR NO"  
110 FOR DELAY=1 TO 600 :: NEXT DELAY  
120 CALL KEY(5,K,S)  
130 IF K=89 THEN PRINT "YES,YES" ELSE IF K<>78 THEN 120  
140 IF K=78 THEN PRINT "NO,NO"  
150 STOP :: END
```

ALPHABET ANSWERS THAT ARE FORGIVING OF WRONG CASE ANSWERS WITH CALL KEY 3

```
100 DISPLAY AT(3,3)ERASE ALL:"PRESS R TO REPEAT": :  
" PRESS P TO PRINT"  
110 FOR DELAY=1 TO 600 :: NEXT DELAY  
120 CALL KEY(3,K,S)  
130 IF K=82 THEN PRINT "HERE YOU WOULD GO TO YOUR REPEAT SUBPROGRAM" ELSE IF K<>80 THEN 120  
140 IF K=80 THEN PRINT "HERE YOU WOULD GO TO YOUR PRINT SUB PROGRAM"  
150 STOP :: END
```

YES OR NO ANSWERS WITH CALL KEY 3

THAT FORGIVE YOU IF YOU ANSWER AN UPPER CASE QUESTION WITH A LOWER CASE ANSWER.

```
100 DISPLAY AT(3,3)ERASE ALL:"PRESS Y FOR YES": : " PRESS N FOR NO"  
110 FOR DELAY=1 TO 600 :: NEXT DELAY  
120 CALL KEY(3,K,S)  
130 IF K=89 THEN PRINT "YES, YES" ELSE IF K<>78 THEN 120  
140 IF K=78 THEN PRINT "NO,NO"  
150 STOP :: END
```

LIBRARY BITS
by Dennis Sherfy

If you have a full system, you ought to have DM1000. This is an assembly language program which will run from Extended Basic with the included "LOAD" program.

I have held off writing about DM1000 for several months because I have heard that there are bugs in the program. I think that some of them have been corrected. I'm told that one verified bug is that it will not properly function if you have a very large number of programs on a single disk. There may be other problems, but I am not aware of them. Now, the program.

DM1000 stands for Disk Manager 1000. The DM1000 disk contains two Display Variable 80 files which can be printed with TI-WRITER. These are the detailed instructions. The files are named DM1000DOC1 and DM1000DOC2. DM1000 performs the same functions as Disk Manager cartridge, but it has at least two additional functions that are very usefull.

First, if you have deleted a file from a disk, but have not written over that file, you may recover it. When you delete a file, it is removed from the disk's directory, but the file still remains on the disk. The disk directory says that the sectors containing the program are available, and the file may be erased when you save the next program. If the file has not been written over by another program, you may salvage it with the "Recover File" option.

The second unique feature of DM1000 is it's ability to "sweep" a disk. This means that the disk's directory is wiped clean, and the disk can be used like a newly formatted disk. I used to reformat disks that I wanted to clear. Now I "sweep" them. Sweeping takes a fraction of the time it takes to reformat a disk.

While you can perform this next option with Disk Manager in two sweeps, DM1000 can do it in one step. This option is

called "Move". When a file is copied onto a new disk, it is deleted from the orginial disk.

DM1000 has an option to copy a whole disk, in either sector by sector mode, or in "bit map" mode. In sector by sector mode, each sector on a disk is reproduced on the copy disk. In the "bit map" mode, only those sectors which are used will be copied. You can copy an entire disk with DM1000 in no more than 4 passes.

Other functions include adding or deleting file protection; adding or deleting disk protection; copying, renaming, deleting files, renaming, initializing, cataloging disks.

As far as I know, this program is available without charge. It was created by Bruce Caron of the Ottawa, Ont. TI-99/4A User's Group.

SAVE \$\$\$ SAVE \$\$\$ SAVE \$\$\$ SAVE \$\$\$
SAVE \$\$\$ SAVE \$\$\$ SAVE \$\$\$ SAVE \$\$\$

The Indianapolis Amateur Radio Convention (Hamfest) on Saturday July 12 and Sunday July 13 will feature the largest market of new and used electronic equipment including computer equipment and amateur radio equipment. The commercial building and the 4 flea market buildings will be open both days. The Hamfest will be at the Marion County Fairgrounds in S.E. Marion County on Troy avenue. Take the Southeastern Avenue exit from I 465 and follow the signs to the Marion Co. Fairgrounds. The Hamfest will start at 6 am on Saturday July 12 and close for the night at 5 pm. The Hamfest will reopen at 6am on Sunday and end at 4 pm on Sunday. There will be technical forums on Sunday. To reserve a place in the flea market buildings or in the commercial buildings, write the Indianapolis Hamfest, P.O. Box 11776, Indianapolis, IN 46201. See you at the Hamfest. Malcolm Mallette, WA9BVS

ASSEMBLY TIPS TRICKS by Greg Larson

TIP - from TE3 V3.1

After looking at all of the assembly source code I have, I find the label naming conventions used in TE3 to be unique. TE3 takes what I believe to be a software engineering approach to label names that makes it easier to understand and modify the program. It's a simple method really - here's how it works. (I find V3.1 a better example of this than V3.3.)

First, make the entry point label of a module as unique and descriptive a name as possible. Then make all other labels in the module the same name except replace the last character with a number (e.g., GETCHR, GETCH1, GETCH2, to append a "99" to the exit label of the module. In other words, if you see a jump to a label with a 99 at the end, you know it will exit the module.

This system allows you to use a well chosen label for each module without having to think up new label names for looping such. Also, all labels in a module will have identifiably similar names.

TRICK - from TE3 V.3.3

If you look through the source code for V.3.3 of TE3, you may notice code similar to this,

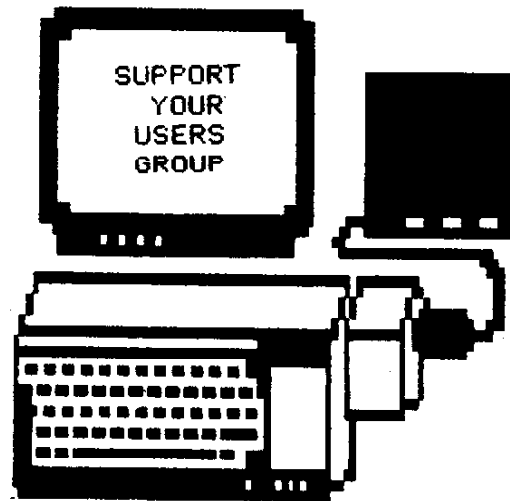
```
AMODUL MOV R11,AMODU1 BL BMODUL AMODU1
          AMODU1      BMODUL
          AMODU1      BMODUL
          AMODU1      BMODUL
EQU $+2 AMOD99 LI R11,0 RT
```

and wonder what's going on (at least I did). The obvious answer is that the return address in R11 is being saved and later restored because the BL (Branch and Link) is going to overwrite R11. There's nothing novel about that, but this is a tricky way to do it. The usual method used is to define a storage area to hold the return address from R11, and locate it just before the entry point of the module. This requires a label name for the storage area. Another way is move the contents of R11 to a different register, but this ties up registers and you have to keep track of where everything is.

The beauty of this new method is that: 1) It's contained inside the module, 2) You don't have to dream up new label names for storage areas, 3) It takes less memory, 4) It's faster, and 5) It doesn't use up registers.

It works like this: the LI (Load Immediate) is a two word (4 byte) instruction and the second operand (initialized to zero) occupies the second word. This is where we want to save the return address that's in R11, but we can't address this location directly. Herein lies the trick. The EQUate is an assembler directive that assigns a value to a label and does not change the Location Counter. The \$ is a symbol that is equal to the value of the Location Counter, which, at this point, is the location of the first word in the LI instruction. The +2 adds two to the Location Counter value giving AMODU1 the value of the location of the second word of the LI instruction. So the MOV instruction puts the contents of R11 where the LI instruction can use it. Voila!

This method can also be used to save the contents of other registers you use in a module.



TIPS FROM THE TIGERCUB

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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've found a bug in the Tigercub Menuloader V.05 which won't let you print a disk catalog if the disk contains the maximum 127 files. This should fix it.

```

348 I=I+1 : IF I>127 THEN K
=I : GOTO 438
328 DISPLAY AT(X+5,12)SIZE(1
2):" 07" : ACCEPT AT(X+3,13
)SIZE(3)VALIDATE(DIGIT):KD :
: IF KD<1 DR KD>NN THEN 328
    
```

I think that all program listings should be printed in 28-column format, exactly as they appear on the screen - it makes it so much easier to key them in without errors. I combined parts of two of my programs to make

the following. It is written for the Gemini 18X but the lines of printer control codes are annotated to help others make adjustments.

```

188 DIM K$(248): LN=188 :
DISPLAY AT(3,4)ERASE ALL:"TI
GERCUB PROGLISTER": " Will
convert a program's listing
to 28-column format,"
118 DISPLAY AT(7,1):"exactly
as it appears on the"scree
n, and print it in 4"colu
ms."
128 DISPLAY AT(11,1):" Progr
am must be RESequenced":and
LISTed to disk by:"RES (en
ter)":LIST DSK1.(filename)
(Enter)"
138 DISPLAY AT(18,1):"Filena
me? BSK" : ACCEPT AT(18,14)
BEEP:F8
148 OPEN #1:"BSK"&F8,DISPLAY
,VARIABLE #8,INPUT
158 IF EOF(1)=1 THEN 268 :
LINPUT #1:A8
168 IF LEN(A8)<88 THEN LN=LN
+18 : GOTO 218
178 LINPUT #1:B8 : IF POS(B
8,STR$(LN),1)=1 THEN FLAG=1
: LN=LN+18 : GOTO 218
188 A8=A8&B8 : IF LEN(A8)<1
68 THEN LN=LN+18 : GOTO 218
198 LINPUT #1:C8 : IF POS(C
8,STR$(LN),1)=1 THEN FLAG=1
: LN=LN+18 : GOTO 218
208 A8=A8&C8 : LN=LN+18
218 S=1
228 L8=SE8$(A8,B,28)
238 IF L8<"" THEN 248 : IF
FLAG=1 THEN FLAG=0 : A8=B8
: GOTO 168 : ELSE GOTO 15
8
248 X=X+1 : K$(X)=L8 : S=S
+28 : IF X=248 THEN 258 :
GOTO 228
258 X=8 : CALL PRINTER(K$(
)) : GOTO 228
268 CLOSE #1 : FOR J=X+1 TO
248 : K$(J)=" : NEXT J :
CALL PRINTER(K$(J)): PRINT
#2:CHR$(12): END
278 SUB PRINTER(B$(1)): IF F
=1 THEN 348 : F=1
288 OPEN #2:"PIO.LF",VARIABL
E 132 : PRINT #2:CHR$(15);C
HR$(27);"N";CHR$(6):!condens
ed print and perforation ski
p
298 PRINT #2:CHR$(27);"6":!
    
```

- double-struck printing, optional

```

308 PRINT #2:CHR$(27);CHR$(4
2);CHR$(8):!download normal
characters - required if lin
es 318-338 are used
318 PRINT #2:CHR$(27);CHR$(4
2);CHR$(1);CHR$(48);CHR$(8);
CHR$(64);CHR$(38);CHR$(96);C
HR$(17);CHR$(72);CHR$(5);CHR
$(66);CHR$(61);CHR$(8):!slas
h the zero - optional
328 PRINT #2:CHR$(27);CHR$(4
2);CHR$(1);CHR$(42);CHR$(8);
CHR$(8);CHR$(34);CHR$(8);CHR
$(8);CHR$(62);CHR$(8);CHR$(8
);CHR$(34);CHR$(8):!broaden
the asterisk - optional
338 PRINT #2:CHR$(27);CHR$(3
6);CHR$(1):!activate redefin
ed characters - required if
lines 318-328 are used
348 FOR C=1 TO 68 : IF B$(C
)="" THEN 368 : PRINT #2:TA
B(18);B$(C);TAB(41);B$(C+68)
;TAB(72);B$(C+128);TAB(183);
B$(C+188);CHR$(18)
358 NEXT C
368 SUBEND
    
```

I had trouble in debugging that program because printing the control codes gave me unwanted line feeds, and using semicolons to prevent line feeds will interfere with tabs in the first line of text. An article by Art Byers in the Central Westchester UG newsletter gave me the solution - suppress all the line feeds by opening the printer with PIO.LF, and put them back in where you need them with CHR\$(18)!

We haven't had a random music player in a long time. This one is called ECHO but I don't know where it came from.

```

188 RANDOMIZE : DEF X=INT(R
ND*7): FOR B=0 TO 6 : A(B)
=VAL(SE8("24726229433834939
2448", (B+1)*3-2,3)): NEXT B
: B,C,D=X
118 CALL SOUND(-788,A(B),B,A
(C),9,A(D),19): D=C : C=B
: B=X : GOTO 118
    
```

```

Sound effects - thanks to
Greg Healy in the Edmonton
User Group newsletter -
100 CALL INIT
110 FOR J=2000 TO 2300 STEP
10 : CALL LOAD(-31368,J):
NEXT J

```

```

To go directly from XBasic
to console Basic - thanks to
Greg Healy in the Edmonton
User Group newsletter -
CALL INIT : CALL LOAD(-3196
2,8787)
Enter. Ignore the error
message. Type NEW and Enter.
> TI BASIC READY

```

```

This routine will read a
file of 28-character records
and scroll them up the lower
half of the screen without
disturbing the upper half.
100 DISPLAY AT(12,1)ERASE AL
L:"FILENAME? DSK" : ACCEPT
AT(12,14)BEEP:F0 : CALL CLE
AR
110 OPEN #1:"DSK"&F$,INPUT
112 DIM M$(400)
113 X=X+1 : LINPUT #1:M$(X)
120 DISPLAY AT(24,1):M$(X)
125 R=24
130 FOR T=X-1 TO 1 STEP -1 :
: IF R>13 THEN R=R-1 : DISP
LAY AT(R,1):M$(T)
140 NEXT T : IF EOF(1)<>1 T
HEN 113 ELSE CLOSE #1

```

```

10 !ONE-LINE MORTGAGE PAYMEN
T CALCULATOR BY SAN MORABITO
100 CALL CLEAR : INPUT "ENT
ER P,R,N WHERE P=AMOUNT, R=R
ATE, N=YEARS":P,R,N : PRINT
"0",INT((P*R/1200)/(1-1/(1+
R/1200)^(N*12)))+100+.5/100)
"PER MONTH"

```

```

A number always prints out
with a blank space before
and after it (except that a
negative number is preceded
by -). This is not always
desirable when formatting a
screen or printout. The
solution is to change the
number to a string by using
STR$ -
100 CALL CLEAR
110 PRINT " MULTIPLICATION
TABLES" :

```

```

120 FOR J=1 TO 9
130 FOR K=1 TO 9
140 PRINT TAB(K*3-2);STR$(J*
K);
150 NEXT K
160 PRINT :
170 NEXT J

```

```

Regarding the CHECKER
program in Tips #31, I
should have mentioned that
the two programs to be com-
pared must first be LISTed
to one disk by -
LIST "DSK1.(filename)
- using a different file-
name for each.

```

```

We are still finding new
ways to skin the kitty. In
Tips #26 I listed three
algorithms to alternate be-
tween the two joysticks.
Rick Husborg sent me another
which is the simplest and
fastest of all -
100 Z=2
110 Z=3-Z : CALL JOYBT(Z,X,
Y).....and back to 110!

```

```

Here are some more dark
secrets Texas Instruments
didn't tell us. The User's
Reference Guide claims that
the computer can produce
frequencies up to 44733 Hz,
"well above human hearing
limits", but then admits
"the actual frequency pro-
duced may vary from 1 to 10
percent depending on the
frequency." According to Jim
Hindley, the highest
frequency actually produced
is 37287 (which is certainly
not above the hearing range
of some humans, but neither
is 44733!), and the maximum
error rate far exceeds 1%
because any frequency you
call for from 31953 to 43733
ends up as exactly 37287!
Not to worry, the frequen-
cies in the normal range
of music are accurate enough
and your TV speaker probab-
ly can't reproduce frequen-
cies above 20000 anyway.

```

And did you know that TI
really gave us only 15 vol-

```

umes, not 30? Listen and
count them -
100 FOR V=0 TO 29 STEP 2
110 CALL SOUND(1000,500,V)
120 CALL SOUND(1000,500,V+1)
130 FOR D=1 TO 500
140 NEXT D
150 NEXT V

```

And the duration values
are just as inaccurate.
Experimenting with a series
of 8 CALL SOUNDS in a loop
repeated 100 times, I found
that execution time was 40
seconds for any duration
between 1 and 49, or a
negative duration; 54
seconds for any duration
between 50 and 66; 67
seconds between 67 and 83;
80 seconds between 84 and
99; 94 between 100-116; 106
between 117-133.....!

```

I guess I've been neglect-
ing those who don't have the
Extended Basic module, so -
100 CALL SCREEN(16)
110 CALL CLEAR
120 PRINT TAB(0);"GREENSLEEVE
ES": : : : : : : : : :
: "programmed by Jim Peterson"
130 DIM S(15)
140 FOR N=1 TO 12
150 READ S(N)
160 NEXT N
170 M0="421800995ABDCS24E7DB
A5106699182400425A000BC33A66
A3243C7EB1974200A37E660BDC3CA5
423C107E423C0D5A810099FFC3"
180 RANDOMIZE
190 FOR R=1 TO 12
200 CALL COLOR(R+1,1,1)
210 CALL CHAR(32+R*0,CH0&CH0
)
220 FOR T=R TO 25-R
230 CALL MCHAR(T,R,32+R*0,34
-2*R)
240 NEXT T
250 NEXT R
260 CALL SCREEN(2)
270 FOR R=1 TO 12
280 CALL COLOR(R+1,R+2,1)
290 CH0=BEG$(N0,INT(47*RN0+1)
)02-1,0)
300 CALL CHAR(32+R*0,CH0&CH0
)
310 NEXT R

```

```

320 DATA 247,277,294,311,330
,370,392,440,494,523,554,587
330 DATA 2,5,5,4,7,5,2,8,5,3
,9,5,1,10,1,2,9,3,4,8,3,2,6,
3,3,3,1,1,5,3
340 DATA 2,6,1,4,7,5,3,5,2,1
,4,2,2,5,2,4,6,1,2,4,4,1,1
350 DATA 2,5,1,4,7,5,2,8,5,3
,9,5,1,10,5,2,9,5
360 DATA 4,8,3,2,6,3,3,3,3,1
,5,3,2,6,3,3,7,5,1,6,2,2,5,1
370 DATA 3,4,1,1,2,2,2,4,1,4
,5,1,2,1,5,6,5,1
380 DATA 2,12,9,2,12,7,2,12,
3,3,12,12,1,11,9,2,9,7
390 DATA 4,8,6,2,6,3,3,3,3,1
,5,5,2,6,3,4,7,5,2,5,3
400 DATA 3,5,5,1,4,4,2,5,5,4
,6,1,2,4,1,6,1,1
410 DATA 6,12,9,3,9,12,1,11,
0,2,9,7,4,8,6,2,6,3,3,3,3
420 DATA 1,5,3,2,6,2,3,7,5,1
,6,6,2,5,5,3,4,1,1,2,2,2,4,4
,6,5,1,1,1,5,7,5,1
430 FOR J=1 TO 223 STEP 3
440 READ T,A,B
450 GOSUB 530
460 FOR TT=1 TO T
470 CALL SOUND(-999,S(A),0,S
(B),7)
480 NEXT TT
490 NEXT J
491 FOR V=0 TO 20
492 CALL SOUND(-999,S(A),V,S
(B),V+7)
493 NEXT V
500 CALL SCREEN(INT(14*RN0+2
))
510 RESTORE 330
520 GOTO 270
530 CALL COLOR(A+1,INT(14*RN
D+2),1)
540 CALL COLOR(B+1,INT(14*RN
D+2),1)
550 RETURN

```

```

1 !from 9 T 9 UG news1. Aug
85
100 PRINT ""Hello"" said TI
"
110 PRINT "Press ""ENTER"" t
o continue"

```

If you bite the hand that
feeds you, you'll go hungry
tomorrow. Don't be a pirate!

MEMORY FULL TO BUSTIN'

Jim Peterson

HOOSIER USERS GROUP DIRECTORY

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317-631-994A

The HUGbbs operates on a 24 hour basis.

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Newsletter.....Pam Sims 631-7255

MONTHLY MEETING LOCATION

Creative Logic
8240 Indy
Indianapolis 46224

(About North Country Club Road)
NO MEETINGS ARE SCHEDULED.

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!

BACK ISSUES

Back Issues purchased at the monthly meeting is \$1.00 each. Mail order price is \$1.50 per Newsletter (postage included). Orders will be filled within 3 weeks of receipt by the Documents Committee.

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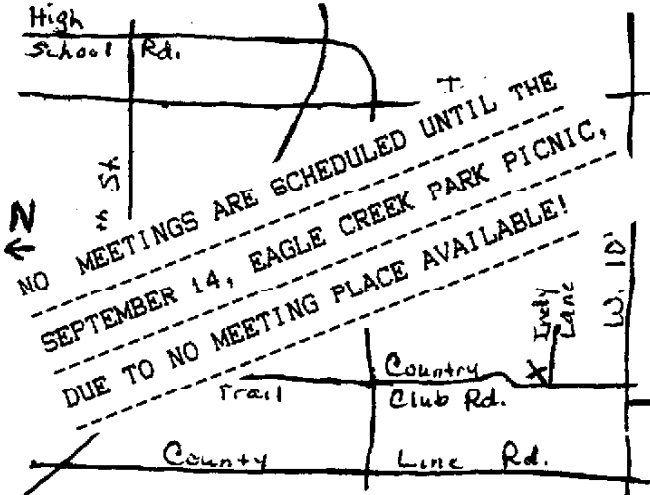
There will be no charge for advertisements submitted to the HUGger Newsletter by members (for private sale only). Format for the advertisements is 45 characters wide by 10 lines long. The Ad should be typed or hand printed exactly how it is to appear in the Newsletter. Deadline for an ad to appear in 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) \$28.00
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*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.



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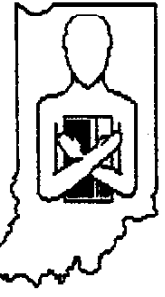
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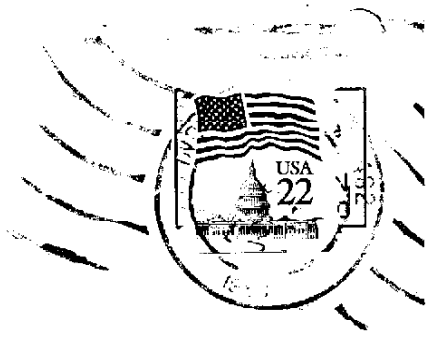
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