TI FORTH

We now have TI FORTH gratis Ed Wiest and Texas Instruments. Ed promised to send a copy to all users groups who have supported TI and the consumer. Our hats are off to you Ed. Your support and consern has been appreciated and the abolishing of your position is certainly a loss felt by many. Good luck in your future endeavers. Hopefully, TI realizes your potential and value.

Once we get the mechanics worked out we will have copies of TI FORTH available to our members. You must have the Editor /Assembler Module in order to address this program which is on Disk.

We will give further details as they become available.

MARCH MEETING

MARCH 13

Jefferson County Fargrounds

Auditorium 7:00 PM

6th Ave West to Indiana Ave.

MARCH TO MEXICO

MARCH
1984

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
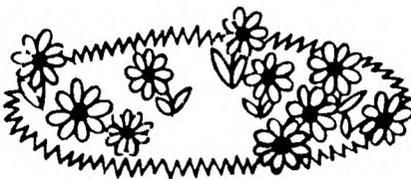
Easy Character Codeing
by Ted Michelsen

When I work on a program that has defined characters in it I use to have to always take out the Basic manual and look up the codes for all the "blocks". I have since found an easy way to remember the code, or at least figure them out as I need to. It is based on the fact that the codes are the hexidecimal value for the sum of the "bits" used in the half word. To explain it, all that is necessary is to put the numbers 1,2,4,8 over each box of the four spaces in each character block, starting from the right,as shown below.

```
        8 4 2 1
        □ □ □ □
```

To determine what the value is for the "on" blocks, just add the numbers above the "on" block. This is shown below.

```
        8 4 2 1
        ■ □ ■ ■
```

This would be 8+2+1=11 or B since the hexidecimal system uses:
A=10
B=11
C=12
D=13
E=14
F=15

If no blocks are "on" then the value is 0. The character code starts with the left set of 4 blocks followed by the right set of 4 blocks for the first row then the second row again starting with the left set and going through untill all 16 sets of 4 blocks have been defined. I hope that you will find this as helpful as I have.

HELPFUL HINT — EXTENDED BASIC OWNERS

The following article was reprinted from the Kentuckiana 99/4 Computer Society Newsletter of June 1983. J. Tucker.

There is an undocumented command that can be used with Extended Basic. The next time you load a tape, instead of using the command OLD CS1, try RUN "CS1" (also RUN "DSK1.FILENAME"). This command eliminates the need of using the RUN command after the tape (or disk) has finished loading. It will automatically run the program when you stop the cassette recorder and press enter (immediately from disk).

RANDOM JOTTINGS
By Mike Holmes

In the last article that I wrote I included a short program to check passwords for file access. This program was, of course, only an intellectual exercise because it is much easier to check the whole password at once by reading it into a variable and comparing this to the input password.

Validity checking still presents problems in T.I. Basic that we haven't looked at yet. In this month's installment let's take a look at a more common way of validating data.

Logical operations are commonly used to check the validity of input data. I'm sure that you have all seen a program statement like this.

```
100 IF N=3 THEN 400
```

But did you ever stop to consider what this computer is really doing in this statement? First the computer compares the present value of the variable you have called 'n' to the constant '3'. If this relationship is true then the computer goes on to the statement number 400 if it is false then the computer will go on to the next line in the program. All of this can be rather interesting and (maybe) exciting in itself but there are other things that you can do with logical comparisons.

The computer sees true and false as numbers and this gives us more ways of checking logical values in console basic. Before you read on try entering the following short program. When you have entered it enter some numeric values and see whether the computer thinks that they are true or false.

```
100 REM PROGRAM TO EVALUATE THE LOGICAL
VALUES OF NUMBERS ON THE TI99/4A
110 INPUT "ENTER THE NUMBER TO CHECK: ":C
120 IF C THEN 150
130 PRINT "THE NUMBER ":C:" IS FALSE."
140 GOTO 110
150 PRINT "THE NUMBER ":C:" IS TRUE."
160 GOTO 110
```

What does this experiment tell us about the way the T.I. sees logical statements and how can we use it? When you run this program any numeric value other than zero returns an answer of true. This suggests that we might use a logical if statement to check for non-zero values. If, for example, we wanted to check for a valid divisor we could code.

```
100 REM CHECKING FOR ZERO DIVISOR
110 IF DIVISOR THEN 140
120 PRINT "THE DIVISOR IN THIS CASE IS ZERO.":
"PLEASE REENTER."
130 GOTO 100
140 QUOTIENT=DIVIDEND/DIVISOR
```

Logical comparison on the T.I. returns one of two values for any expression evaluated. A true expression returns a value of -1 and a false expression returns a value of 0. Here is a short program to demonstrate this relationship.

```
100 REM DEMO OF VALUES FROM LOGICAL CHECKS
110 A=10
120 B=30
130 PRINT "A=A":PRINT STR$(A=A)
140 PRINT "A<B":PRINT STR$(A<B)
150 PRINT "A>B":PRINT STR$(A>B)
160 PRINT "B<>A":PRINT STR$(B<>A)
170 PRINT "A=B":PRINT STR$(A=B)
180 END
```

One advantage of using -1 for the true value of a logical expression is that you can use a logical expression to change the sign of a value if the expression is true. The following code should allow only positive values to be assigned to the variable named "POSITIVE".

```
100 DEF CSIGN=POSITIVE*(POSITIVE<0)
110 IF POSITIVE >=0 THEN 130
120 POSITIVE=CSIGN
130 REM CONTINUE PROGRAM WITH POSITIVE NUMBERS
```

Here I have used a user defined function which will react in the same manner anywhere in the program. This allows us to change the sign of the value assigned to the variable positive at any time within the program. We could also use the oposite relationship (POSITIVE<0) to assign negative values to the variable.
Now what about combining these bits of fact that we've gathered and using them to examine the following fragments of code which we have all seen in programs.

```
100 IF (A>B)+(C=D) THEN 200
              AND
110 IF (A>B)*(C=D) THEN 200
```

Let's play computer and think about these two statements the way your computer would. If you look in the Basic Manual you will find that T.I. describes these statements as a logical 'OR' (addition) and a logical 'AND' (multiplication).
In statement number 100 the possible values the relationships (A>B) and (C=D) may take are.

```
. 1 true (-1) + true (-1) = -2 which evaluates as true.
  2 true (-1) + false (0) = -1 also true
  3 false (0) + false (0) =  0 the only false condition.
```

This statement, then, is true unless both relationships are false.   To state
this another way if either the first 'OR' the second relationship 'OR' both
relationships are true the entire statement is true.
Now let's look at the combinations which may result from the statement in line
110 above.

```
  1 true (-1) ‡ true (-1) = -1 or true
  2 true (-1) ‡ false (0) =  0 or false
  3 false (0) ‡ false (0) =  0 or false
```

In this case the relationship is only true if both expressions are true or in
other words if expression 1 is true 'AND' expression 2 is true.
There is one more logical relationship which can exist call an exclusive or
(XOR).   This operation is true only if one or the other expression is true.
If both expressions are true the 'XOR' relationship is false. Can you think
of any way to write an XOR statement in T.I. console basic basic? Good luck
and good bye for now.

Extended Basic Screen Dump Program
by Ted Michelsen

I wanted a screen dump program, i.e. a program to copy the screen to a printer. I elected to write it in extended basic because extended basic has a statement called CALL CHARPAT which returns the hexidecimal code of the various characters. Using this statement and the CALL GCHAR, which "reads" the screen it was possible to "read" the screen by location and determine which characters are where and what their code is. A problem then came up. My printer, a Gemini-10X, assigns the print locations vertically while the TI 99/4A assigns the "print" locations horizontally. Therefore, it was necessary to "rotate" the character code from the TI 99/4A. So the program then prints the screen 90 degrees off, i.e. what is vertical on the screen is horizontal on the print out. I also, only made the print out 24 characters long and 28 characters wide.

The program is given below, but just a word of warning, like lots of home written software, it is not as good as most purchased software. This program because it is written in basic, is slow. It takes about 50 seconds to determine and format one line, so a 28 line print out takes about 25 minutes. Luckly, you do not have to be around to babysit it.

To use the program, it must be added to any existing program that you have that you might want to use it on, since if you load a new program you will change the screen.

```
1 OPEN #1:"PIO"
11 PRINT #1:CHR$(27);CHR$(65);CHR$(8)
12 DIM A$(30),A(30)
13 FOR C=3 TO 30
14 FOR R=1 TO 24
15 CALL GCHAR(R,C,X)
16 CALL CHARPAT(X,A$(R))
17 NEXT R
18 PRINT #1:CHR$(27);"K";CHR$(196);CHR$(0)
19 FOR R=24 TO 1 STEP -1
20 FOR M=15 TO 1 STEP -2
21 FOR I=1 TO 2 :: ON I GOTO 250,300
22 B$=SEG$(A$(R),M,1)
23 GOSUB 350
24 A(R)=16*T
25 GOTO 400
26 B$=SEG$(A$(R),M+1,1)
27 GOSUB 350
28 A(R)=A(R)+T
29 IF A(R)=13 THEN A(R)=12          (cont. on p.7)
```

```
30 GOTO 400
31 IF ASC(B$)>47 AND ASC(B$)<58 THEN T=VAL(B$)ELSE T=ASC(B$)-55
32 RETURN
33 NEXT I
34 PRINT #1:CHR$(A(R));
35 NEXT M
36 NEXT R
37 PRINT #1:CHR$(13)
38 NEXT C
39 END
```

One last note, if you have a different printer than a Gemini,
then some of the printer codes in the program may have to be
changed.

ASSEMBLER BOOKS

John Colson

There are several Assembler Books now on the market for the TI 99/4A Computer.

    "Introduction to Assembly Language for the TI Home Computer"
    by Ralph Molesworth $14.95 + $1.50
    Source: Steve Davis Publishing
            P.O. Box 190831
            Dallas, TX 75219

    "Software Development"
    by Texas Instruments $9.95 + $1.50
    Source: TIC SUPPLY
            6926 W. Fremont Pl.
            Littleton, CO 80123

    "TI Home Computer Assembly Language Power"
    by John T. Dow $20.00
    Source: 99er Home Computer Magazine

    "Fundamentals of TI-99/4A Assembly Language"
    by M.S. Morley
    Source: Tab Books
            P.O. Box 80
            Blue Ridge Summit, PA 17214

< Page 8 >

TIC FEVER

by LLOYD MAPLE

We want to thank the wonderful spirit of co-operation that exists between all the Users Groups. We all have basically the same questions, problems, hopes, and desires. I especially want to thank Don Verth with the 99'ers Users Group Association for his keeping us all informed on the various subjects that pertain to our computer.

Sad to report two manufactures have decided not to be involved with the 99/4A; SPINNAKER SOFTWARE and KOALA TECHNOLOGIES. SPINNAKER is dropping their education games and KOALA has decided not to make their Koala Pad available for our computer. boo! hiss!

I feel we should voice our opinion and write our disapproval of their decision to discontinue support. We should also show our interest and support for their products being made available for th 99/4A. Their addresses are:

Spinaker Software   Koala Industries
215 First Street   3100 Patrick Henry Drive
Cambridge, MA 02142   Santa Clara, CA 95050

Also on the letter writing campain, we should write our feelings to SYBBX COMPUTER BOOKS for deciding to drop publication on books for the 99/4A. Their address is:

SYBBX COMPUTER BOOKS
2344 Center Street
Berkley, CA 94710

We have information from TERRI MASTERS, President of the LA 99er U.G. that a company has published an excellent book titled Basic Tips. The price is a little high but if there is enough interest, Terri states the publisher will give a substantial discount if ordered on Group stationery.

AMLIST
4542 Memorial Dr. Suite 202
Decatur, GA
(800)241-6083
$24.95 - List Price

```
 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
 \\\\\\\\\\\\\\\\\\\   ┌─────┬─────┬─────┐  \\\\\\\\\\\\\\\\\\\
                      │  T  │  I  │  C  │
                      └─────┴─────┴─────┘
 ┌────────────────────┬────────────────────┬────────────────────┐
 │  TIC SUPPLY  CO     │   KID  SUPPLY       │ COLUMBINE COMPUTERS │
 │  PETE CROWELL       │   RON KUSESKI       │   LLOYD MAPLE       │
 │  (303) 750-5949     │   (303)  444-1797   │   (303) 979-6677    │
 └────────────────────┴────────────────────┴────────────────────┘
```

\\\

We have reorganized TIC into three companies to better serve you.
Our purchasing power has been extended to include many additional
items for the 99/4A as well as other computer systems. We call this
TIC PLUS!

****

We have quite a few items that are in stock. The following is a list
as of February 15:

We have EXTENDED BASIC

PHM3002 Early Lrn Fun	PHM3145 Sneggit	(3RD Party Hardware)
PHM3004 Number Magic	PHM3150 Sewermania	and Misc.
PHM3006 Home Fncl Dec	PHM3151 Big Foot	
PHM3007 Hshld Bgt Mgt	PHM3152 Meteor Belt	Printer Paper
PHM3013 Prsnl Rckd Kp	PHM3153 Super Fly	Teac DS/DD Disk Drive
PHM3023 Hunt the Wump	PHM3156 Honey Hune	Cor Comp RS232 Card
PHM3033 Blkjk / Poker	PHM3158 M*A*S*H	Enjoy Joy Stick
PHM3035 Trsnl Emltr II	PHM3168 Trsur Island	Prostick II Joy Stick
PHM3039 Yahtzee	PHM3177 Facemaker	Volksmodem and cable
PHM3041D Adventure	PHM3178 Story Machine	Flip-n-File(Dskt
PHM304B Reading Rally	PHM3197 Slymoids	BMC Printer
PHM3052 Tmbstn City	PHM3220 Microsurgeon	BMC Color Monitor
PHM3056 Alpiner	PHM3225 Star Trek	Gemini 10x Printer
PHM3057 Munchman	PHM3233 Burgertime	Epson Prntr Ribbons
PHM3058 Mini-mem		Gemini Prntr Ribbons
PHM3060 Schlstc Spell	(3rd Party Software)	Generic Diskettes
PHM3064 Tch Typ Tutor		Printer Parallel Cbls
PHM3082 Reading Flt	TC001 General Ledger	Dual Drive Cables
PHM3094 Intergers	TC002 Accts Receivbl	Cassette Cables
PHM3109 Logo II	TC003 Accts Payable	Joy Stick Adapter
PHM3111 TI Writer	TC004 Inventory	Dskette Dr Clean Kit
PHM3112 Parsec	TC005 Payroll	Plastic Dsk Cases
PHM3113 MultiPlan	TC006 Mail System	Prowriter Ribbon
PHM3117 Dragon Mix	BEST Computer Coach	TI Program Recorder

We have been trying to print up a list but due to the fact that we are
adding items almost daily it has become impractical. We will attempt to
get some sort of list to you shortly. In the meantime if you need any-
thing just give us a call for price and availablity.

Anyone interested in the FORTH language will want to entertain the idea of membersip in F.I.G. or FORTH INTEREST GROUP. Annual membership is $15 and this gives you six issues of their publication Forth Dimensions and access to one of their 45 local chapters. Their address is:

>   FORTH INTEREST GROUP
>   P.O. Box 1105
>   San Carlos, CA 94070
>   (415) 962-8653 (for books or membership only)

The group recommends STARTING FORTH by Leo Brodie as a necessary book for all FORTH programmers. The group has this book and other items about FORTH available for purchase. The group has input from 100 vendors who support the Forth Modification Laboratory, Forth National Convention, and the Forth Standards Team which monitors and guides the evolution of FORTH. Contact their group if you plan to get seriously involved in this language.

Texas Insturments has contracted March Direct Marketing to provide access to the TI list of 99/4A Home Computer owners to third parties interested in providing information of their products. It appears that a quarterly catalog will be mailed to this list of owners. The catalog is to contain TI hardware and software (while inventories last), as well as hardware and software from third parties. If and when, is the remaining question.

Some of you have stated that some of the software you have purchased will not run on your computer. This is true on version V2.2 and you can tell which version you have when you first turn on the computer. While you have the title screen with the color bars, look at the bottom of the screen. One of the following will be shown:

>   1981 Texas Instruments
>   or
>   1983 Texas Instruments V2.2

The color or serial number of the computer will not tell you the version; only the above statement will. This only applies to cartridges manufactured by anyone other than companies licensed by TI.

Lastly, the PHOENIX should hatch soon. COR-COMP Inc. is planning a publicity drive shortly for their new computer the 99/64 which is supposed to be fully compatible with all 99/4A software and hardware. They have available now, RS232 cards and 32k Memory cards for the TI P-box and soon will have the Disk Controller card available as well. They will also have their own P-box soon. Hurray for COR-COMP.

< Page 10 >

FROM THE GRAPEVINE
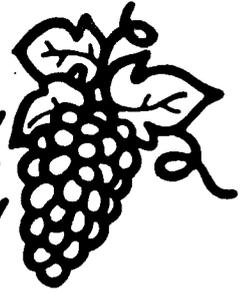
Book Review from Amarillo User's Group

PROGRAMS FOR THE TI HOME COMPUTER by Steve Davis (ISBN 0-911061-00-2) is copyrighted in 1983 by Steve Davis Publishing, P.O.Box 190831, Dallas,Tx. 75219. It has 126 pages and after a short preface and introduction, 6 pages, the remainder of the book is devoted to programs. There is a total of 46 programs presented in the book, 32 will run in TI BASIC and the remaining 14 require Extended BASIC. Some of the programs in each group require additional peripherals and/or accessories. Each program is prefaced with a discussion about the operation of the program and additional information as needed to assist in using the program.

A list of program titles would be too extensive to print here and generally a title does not fully describe a program. But, the programs represent a broad area of software applications that can lead the reader to see other applications of software they can write themselves. Also the variety of programming techniques used in the programs are valuable to study and use in other programs.

For the price of $14.95 this book is a gem when considering what you get for your dollar. Even if only half of the programs are usable by the new TI 99/4A owner, each program costs less than $1 and the experience of keying-in and figuring out how the program works is invaluable to those learning BASIC. (NOTE: The second edition is ISBN 0-13-729534-0 a SPECTRUM BOOK distributed by Prentice-Hall,Inc. Englewood Cliffs, N.J. and is available in computer stores in the Denver area.)

TUNNELS OF DOOM

Review by Charles Watkins
        Central Texas U.G.

Since your Tunnels of Doom adventure begins in the top floor store, that's
where this column begins. However, you should be aware that there are also
stores on the forth and eighth floors where you can buy replacements for
damaged weapons, replenish your supply of arrows or quarrels, or shop for
high-powered weapons such as the infamous warball.   The catch is that the
prices in the fourth floor store are four times as high as the top floor,
presumably due to the cost of transporting the goods through four floors of
wandering monsters.   Prices in the eighth floor store are even steeper, a
whopping eight times as high as at the top.   Thrifty shoppers, then buy
everything they can carry at the top level store and replenish only as
necessary at the deeper levels.

Since you begin the game with only a few gold pieces, you can't buy everthing
you need on your initial visit. In fact, you can barely afford a few rations
and one decent weapon. So the idea is to make a couple of forays (sorry, but
some puns are irresistable) to the first and second floor to get enough gold
to enable you to stock up for the long descent. For two fighters, a wizard,
and a rogue, you need to collect about 500 gold pieces before you head down.
Even then, you are going to have to buy rations on the fourth floor, but by
then you should be able to afford them easily. I avoid going back up to the
top floor to take advantage of the "bargain" prices because it takes too much
time.   Remember, your King is suffocating in a vault somewhere down on the
tenth floor!

I usually plan to visit each store twice at most. I start at the top floor
store and return as soon as I have the 500 gold pieces. By the time I find
the fourth floor store, I usually need more rations, ammunition, and hit
points.   (I can usually find money for a warball or two.) If my luck holds
out, I can sometimes make it all the way to the eighth floor without going
back for healing. If not, it's back to four to see the doctor. Whether I
visit the eighth floor store depends on time. When time is short and I find
the map and the stairs to nine before I find the store, I go straight down.
(If I'm hurt, I figure I can always try a fountain.) If I have plenty of time
or I stumble across the store before I find the map and stairs, I'll shop at
eight. On the way back up, I usually don't storp anywhere unless I'm
critically wounded.

NEXT MONTH - SHOPPING for WEAPONS

TIPS FROM THE TIGERCUB

Tigercub Software will continue to produce and sell low-cost TI BASIC programs. I will be happy to send anyone my catalog for $1, refunded on the first order. I have over a hundred original programs for only $3 each. Tigercub Software - 156 Collingwood Ave. - Columbus, Ohio 43213. The following may be reprinted by anyone, with credit to Tigercub.

```
100 REM - TIGERCUB WIPE FROM OUTSIDE IN
110 CALL HCHAR(1,1,90,768)
120 FOR R=1 TO 12
130 CALL HCHAR(R,R,32,34-(R*2))
140 CALL HCHAR(25-R,R,32,34-(R*2))
150 CALL VCHAR(R+1,R,32,26-(R*2))
160 CALL VCHAR(R+1,33-R,32,26-(R*2))
170 NEXT R
```

```
100 REM TIGERCUB 3D SPRITE DEMO XBASIC
110 CALL CLEAR
120 CH$=RPT$("FF",32)
130 X$="FF818181818181FF818181818181FFFF010101010101FF010101010101FF" ::
CALL CHAR(40,X$)
140 CALL CHAR(36,CH$)
150 FOR X=2 TO 26 STEP 2
160 CALL SPRITE(#X,36,X/2+1+ABS(X>13),X*6,40+X*6):: CALL MAGNIFY(4):: NEXT X
170 A=8 :: B=48 :: CALL SPRITE(#1,40,2,A,B):: CALL MOTION(#1,0,15):: FOR D=1 TO
350 :: NEXT D :: CALL POSITION(#1,A,B)
180 FOR X=3 TO 23 STEP 2 :: CALL SPRITE(#X,40,2,A,B):: CALL DELSPRITE(#X-2)::
CALL MOTION(#X,0,-15):: FOR D=1 TO 400-4*X :: NEXT D
190 CALL MOTION(#X,15,0):: FOR D=1 TO 39 :: NEXT D :: CALL MOTION(#X,0,15)::
FOR D=1 TO 400 :: NEXT D :: CALL POSITION(#X,A,B)
200 NEXT X :: CALL DELSPRITE(#23):: GOTO 170
```

TIPS FOR BEGINNERS

If your white text on a black screen looks blurry, try grey on black. If your colored graphics on a black screen look pale or colorless, try this:

```
100 CALL CLEAR
110 CALL COLOR(1,2,2)
120 CALL SCREEN(16)
130 CALL VCHAR(1,31,1,96)
```

Now put on your colored graphics and see the difference! The same trick will give you that professional looking bordered screen for your text:

```
100 CALL CLEAR
110 CALL SCREEN(5)
120 CALL VCHAR(1,31,1,96)
130 FOR SET=1 TO 12
140 CALL COLOR(SET,2,16)
150 NEXT SET
```

Now put your text on the screen, with a blank in the 1st and 28th spaces of
each line.   This border is not affected by scrolling but will be erased b.
CALL CLEAR, so clear the screen with CALL VCHAR(1,3,32,672)

This routine will print key input on the screen in position corresponding to
its keyboard position:

```
100 CALL CLEAR
110 KEY$="1234567890=QWERTYUIOP/ASDFGHJKL;"CHR$(13)"ZXCVBNM,."
120 CALL KEY(3,K,ST)
130 IF ST=0 THEN 120
140 X=POS(KEY$,CHR$(K),1)
150 Y=ABS(X>11)+ABS(X>22)+ABS(X>33)+1
160 R=Y*3
170 C=((X-ABS(Y>1)*(Y-1))*2)+4+Y
180 CALL HCHAR(R,C,K)
190 GOTO 120
```


Does your sorting routine allow you to add another name without resorting the
whole list?
```
100 REM - SHORT SHOEHORN by Jim Peterson, Tigercub Software
110 REM - This routine will insert a name into its proper place in a oresorted
list of N number of M$(N) names.
120 REM - Takes 12 to 14 seconds for a list of 500
130 INPUT "ADD NAME":ADD$
140 J=0
150 J=J+1
160 IF J>N THEN 230
170 IF ADD$>M$(J)THEN 150
180 FOR L=N+1 TO J STEP -1
190 M$(L)=M$(L-1)
200 NEXT L
210 M$(J)=ADD$
220 GOTO 240
230 M$(N+1)=ADD$
240 N=N+1
```


If you have the Memory Expansion and are sorting long lists, you might find
this faster:
```
100 REM - LONG SHOEHORN by Jim Peterson
110 INPUT "ADD NAME":ADD$
120 LEAST=0
130 MOST=N
140 IF ADD$>M$(1)THEN 170
150 D=0
160 GOTO 280
170 IF ADD$<M$(N)THEN 200
180 M$(N+1)=ADD$
190 GOTO 320
200 D=INT((MOST-LEAST)/2)
```

```
210 IF (ADD$>=M$(D))*(ADD$<=M$(D+1))THEN 380
220 IF ADD$>M$(D)THEN 250
230 MOST =D
240 GOTO 200
250 LEAST=D
260 D=D+INT((MOST-LEAST)/2)
270 GOTO 210
280 FOR J=N+1 TO D+2 STEP -1
290 M$(J)=M$(J-1)
300 NEXT J
310 M$(D+1)=ADD$
320 N=N+1
```

Pat Saturn, Editor of the Spirit of 99 Newsletter of the Central Ohio Ninety-Niners, gave me this trick for making the computer go absolutely crazy. Type 100 REM and then hold down CTRL and U while the computer runs through 4 lines and stops; or in Extended Basic, type 100 ! and do the same for 5 lines. Enter. Type 100 again, press FCTN and down-arrow.When the computer finishes printing RANDOMIZE, start pushing any keys and see what happens!

MORE TIPS FOR BEGINNERS:

To get the computer to read the CALL KEY input as upper case letters, even if the Alpha Lock is up, just use key-unit 3 : CALL KEY (3,K,ST)

To get the computer to hold 24 lines of text on the screen without jumping the first line off the top - just put a semi-colon after the 24th line.

You don't have to RESTORE anything with the RESTORE statement. In other words, you don't have to read a DATA statement before you can RESTORE it. You can write your program to optionally or randomly RESTORE any one of your DATA statements and thus to begin reading DATA from any one of the DATA statements.

If you have the Extended Basic module, why not leave it plugged in and select the Extended Basic option even when you are programming in Basic? This will allow you to type 5 lines on a line number, which will still run in Basic (unless you put too many short items in a DATA statement), and the Extended Basic option will accept input of your program lines much faster, especially when the program gets long. It also accepts changes and deletions much more quickly, and is especially useful when you want to delete a large number of lines. It will quickly tell you how much memory you have left with the SIZE command (but you'll have more in Basic) and will bring your rejected input back to the screen for correction, with FCTN B. It will also run your program, if you stay away from character sets 15 and 16, and watch those double colons. Almost out of memory, so Happy hackin' - Jim Peterson Tigercub.

<<<<< WANT ADDS >>>>>

FOR SALE - EPSON FX-80 Printer and cable, $475.00; Voice Synthesizer, $50.00; Game software to $15.00; TI Writer and Terminal Emulator II, $65.00 each. contact - Drew Becker - 388-7705

FOR SALE - Near New TI Internal Disk Drive (PHP1250) with cable, $150.00; contact - Gick Gefford - 695-4928

FOR SALE - New TI 32k Memory Card (PHP1260), $139.00; contact - Ernie or Joan Peters - 985-3239 evenings

----

FOR SALE - 99/4A Console, P.E. Box, Teac Disk Drive, $350.00; contact - Charles Schnarr - 364-2433h or 497-7310w

----

FOR SALE - Disk Controller (PHP1800) This is by TI and does not require the Box System, $125.00; contact - Tony Maple - 979-6677

FOR SALE - RS232 Card, $100.00; P Box, $175.00; Mark III Modem, $90; contact - Mark Albrecht - 455-6538

FOR SALE - Newer TI810 RO Printer, $1150.00; Older TI810 RO Printer, $750.00; contact - Dave Becker - 697-6741

<<<<< WANT ADD RATES >>>>>

MEMBERS - FREE (25 word max) We must have you add by the 20th of the month to assure insertion in the next issue. Call 979-6677 or mail to BOX 3400 Littleton, CO 80161.   NON-MEMBERS not allowed!

<<<<< DISPLAY ADDS >>>>>

          10 in X 7.5 in - $30.00   ALL DISPLAY ADDS must be camera ready
RATES: 4.5 in X 7.5 in - $16.00   and must be received before the 20th
          4.5 in X 3.5 in - $9.00   of the month and accompanied by a check
made out to the ROCKY MOUNTAIN 99ers. Since the Club is a non-profit organization all money collected for advertizing goes toward publishing costs of this newsletter.

~~~~OFFICERS and CHAIRMEN~~~~

PRESIDENT	RON KUSESKI	444-1797 **	PROGRAM	TED MICHELSEN	986-3513
VICE-PRES.	TED MICHELSEN	986-3513 **	LIBRARIAN	PETE CROWELL	750-5949
SECRETARY	MARTHA WEEG	455-4309 **	MEMBERSHIP	MARTHA WEEG	455-4309
TREASURER	KEN MONSON	233-1788 **	ASSEMBLY SIG	MIKE HOLMES	751-7945
EDITOR	LLOYD MAPLE	979-6677 **	What's your SPECIAL INTEREST	750-5949	

* * ROCKY MOUNTAIN 99ers * *
         P.O. Box 3400
       Littleton, CO 80161

```
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$ Do you see stars or the label $
$ this means your membership is $
$ now due.  Send in your renew- $
$ al today so you don't miss  a $
$ single  issue  of TIC-TALK!'' $
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
```