

NEW HAMPSHIRE 99'ERS  
MARCH 1985  
NEWSLETTER



NHUG NEWSLETTER - PO BOX 7199 HEIGHTS STATION

- VOL. 3 NO. 3

((((RANDOM RAMBLINGS))))

**!! CONGRATULATIONS RICHARD SCOTT !!**

We have just received word that NH99'er, Richard Scott, has just been awarded first prize in Quality Software's DRAW & PLOT contest for his drawing of the majestic owl which graced last month's cover! QS will now use this drawing in future ads.

Continued thanks to Jim Peterson whose TIGERCUB TIPS appear in each issue of our NEWSLETTER. He is one of the few authors who still write for the BASIC user. This month's tips on TI-WRITER gave me a better insight on formatting.

New NH99'ER author this month is LTC Chris Agrafiotis of Hooksett. From reading Chris' article you can tell that he is pragmatic. After all, that's why he bought the 4A in the first place!

There's a little bit (byte?) of everything in this month's issue... Paul Lanoie's article gives a different perspective in choosing a monitor, Ed Aho tackles a hardware project, and Richard Bailey offers a tutorial on inputting info into your programs. Super!

Most of our members who own expansion systems own a TI disk drive controller with DISK MANAGER II. It was quite enlightening to see and hear Mike Veprauskas demonstrate the CORCOMP 2.3 Disk Manager at the February meeting. It is supplied on a disk and is considerably faster than TI's. One of the many enhancements of this program is that it allows the user to configure the manager to his system. He can select his own text and screen colors, set up each of the different drive types attached to the controller for the number of sides, density and number of tracks. The printer type can be configured for catalog and disk test printouts. The configuration is saved on the disk and used as the defaults when the disk manager is loaded. The CC-Disk Controller also adds the following new commands and programming statements to BASIC and EXTENDED BASIC:

CALL POKE & CALL PEEK for rapid reading and writing to CPU memory.

CALL MOVV, CALL PEEKV for rapid reading and writing to VDP RAM.

CALL MOVEM for moving blocks of memory from one location to another.

CALL EXEC for executing ROM or expansion memory routines.

CALL MGR for loading and running the CorComp Disk Manager program.

Needless to say, Mike's demo left DMII owners wanting!

Thanks to the efforts of your fearless leaders, SEARS (So. Willow St Manchester) has dropped the prices of the Peripheral Expansion Boxes to \$50, the internal drives (no controller card) to \$50, and the External Drives (1850's) have dropped to \$90 (packed) and \$70 with no packing box. Again, speak with someone from the computer department to get the low down (Marie Doyon has been very straightforward with us), 669-8280 extension 257.

Member Conrad Baranowski took advantage of the American Design Components ad which appeared in the 2/85 COMPUTER SHOPPER (see reference in 2/85 NH99'ERS NEWSLETTER) and purchased an external drive (PHP1850) AND disk controller (PHP1800C) both for \$22 plus postage. These units are sold "as is" but are "tested and in working condition". His appears to be relatively new with very minor blemishes. The drive was shipped with the necessary protective card. He has used it for over 10 hours without any problems.

Our order from Sundisk Software (PO Box 1690 - Warren, MI 48090-1690 - TIBBS 1-313/751-1119) has been straightened out and prez Craig Barton gave us an extra diskful of programs for our trouble. Thanks Craig!

Addendum to the ARDEN ENTERPRISE ad which appears in this edition... Owner Dick Johnson suggests that anyone wishing additional info before purchasing can feel free to write, requesting the info at no cost.

Joseph and Susan Berk wrote to us to acquaint us with their book, FINANCIAL ANALYSIS ON TI COMPUTERS (Chilton Book). We have not seen the book but they state that it contains 18 chapters on various topics of financial interest written in a user-friendly format, but at a level where the analytical techniques provide powerful tools for students, business people, or anyone interested in maximizing wealth. The programs are written in BASIC. Pb 160pages/\$10.95. Normally stocked in B. Dalton's and can be ordered through any bookstore.

HAC LABS LTD. 121 Camelot Dr. RFD5 - Bedford, NH 03102 1-603/472-3369. (ok... so I'm going to plug my own company!) The manuals which we sell are original, genuine TI manuals not photocopies. At press time all the Memory Expansion cards have been sold! Quantities on all but the diskettes are limited to available stock. These WABASH diskettes are super!

UNSUBSTANTIATED RUMORS... RYTE DATA a Canadian company is in the process of doing market research for a new TI compatible computer. This new computer is supposed to be fully compatible with all existing TI hard/software. It features 128K RAM and combination 40'80 column display. It is due to be unveiled at the June Consumer Electronic Show. ...Personal Peripherals has an addendum to SUPER SKETCH which will enable us to dump the graphics to both disk and printer. For more info write to Personal Peripherals.

Lastly, our meetings are generally held on the last Wednesday of the month. The next meeting will be held in the function room of PABLO'S at 7:30 p.m. on WEDNESDAY, MARCH 27th. The April meeting is scheduled for 4/24.

I signed off too soon! I must mention the following:

You will find a handy subscription form for COMPUTER SHOPPER on the next page. Those members who have already paid are anxious to get their copies. As you will recall, CS has offered UG's a special subscription rate of \$5 for 6 months. NHUG is collecting the funds but your subscriptions will be mailed to your homes. We would like to send the orders on MARCH 28th. If interested, please fill out the form and send it along with your check (payable to NH99'ersUG) to: NH99'ersUG - c/o HM LaBonville - 121 Camelot Drive RFD5 - Bedford 03102.

We now have 4 members interested in the GRAPHX program but need one more to bring the price down to \$30. If interested contact Helene at the above address or call her @ 472-3369 ASAP.

Now anyone with either the EXTENDED BASIC or TI-WRITER cartridges, a disk drive, and memory expansion can use FORTH! Thanks to Greg Goodwin and the Hoosier User Group, XB-FORTH is now available in the NHUG library. Greg released this version of FORTH to the UG's along with a limited license to produce copies for members. It contains the FORTH that TI released to public domain with some enhancements. Thanks Greg and thanks Hoosiers!

## MONITOR OPTIONS

LTC Chris Agrafiotis

As most TI owners, I started out using an older 16" color TV as a monitor for my computer. Needless to say, this is a less than satisfactory solution. Because of the size of the screen and the cabinet itself, such problems of poor resolution, RF interference and physical space restrictions soon convince the user that there must be a better way to go.

Well there are several options, obviously. One can invest in a true video monitor (either green screen or amber), a composite TV/monitor, a small screen regular TV or a true color monitor like the TI. (Unfortunately for us, the 4A will not adapt to a RGB monitor.) My first choice, since I hate spending money on equipment that can only be used for one purpose, was to get a 13" Quasar TV set. This is an excellent unit and, for a while satisfied me. I still had to use the 4A RF modulator and this is where my dissatisfaction began. There was good resolution, plenty of color and good contrast control present, but there was also enough RF interference to give me a headache every time I worked with my machine. A wave pattern would slowly shift from left to right and back again in the background of my picture. Worst of all, everytime the police or fire department or some CB operator keyed their transmitter, I would know it.

When I could stand it no more, I began looking at other alternatives. Green and/or amber screen monitors did nothing for me. They had tremendous resolution but no color. Well, being a true TI "colorlover", I couldn't settle for a single tone monitor. RGB's were very expensive and not compatible with the 4A. So, I had to settle for a "composite". The first one I looked at (in November 84) was a new 13" model made by RCA. It was a straight VHF TV and had RCA jacks on the back that would accept both audio and video-in plugs from the TI. I tried one out. It gave an excellent picture, excellent color and had absolutely no interference on the screen. The sound was less satisfactory. The speaker directed the sound to the right giving a weird sensation, especially when watching regular TV programming. I took it back and kept looking. Incidentally, the price was \$360.

I looked at a myriad of composites at Lechmere Sales. None turned me on. And then, lo and behold, I saw an ad for "the complete video system" sold by Sears. (There were certainly others in the \$500 plus range but that was more than I could afford.) I went to see the Sears unit... I liked it, bought it and took it home to play with (I love toys!).

The unit is a cream colored and sports a 13" screen. It has the following features:

- a. full cable ready reception (which means it can receive all TV channels without an adapter box).
- b. audio/video RCA inputs on the back allowing easy connection to the 4A without the RF adapter.
- c. a switch on the front which allows you to choose RGB, video monitor, or TV.
- d. a button on the front which, when pressed, gives you an immediate green screen.
- e. a button to be used in the RGB mode to compress the screen.
- f. full channel tuning control for all channels in a side compartment.

As far as performance, I would judge it as excellent, both as a monitor and as a TV set. Of course, you have to settle for "good" rather than "excellent" resolution because it is a TV set as well, but, I'm not greedy. Overall, the performance more than suits my needs. The price was right too, \$349 at your local Sears store.

I don't doubt that there are other units out there that are just as good or even better. But, if you're suffering as I was, Sears has a reasonable option.



----- GREEN MONITOR BLUES -----

Paul G. Lanoie, PO Box 658, Berwick, ME 03901

OK, so you did it. You bought a monochrome monitor (GRNORYEL). For whatever reason it seemed like the thing to do. In my case, it had to be an improvement on that \$5 yard sale B/W tv set, and it sure didn't cost as much as the color monitors. As for color, well I intend to work with text most of the time and the clarity of a monitor seemed logical. So Santa picked up that \$100 Sakata monitor and plugged it in. Surprise!!!

What the heck is wrong with this!!! OK, here's what I figured out so far. TV specialists, pay attention, I'm counting on you to come up with some electronic wizardry. THE PROBLEM: Monochrome monitors don't like color video signals. What's the video chip in the TI? Right, a TMS9918 color video display processor. Turn the computer on, look at the title screen, and notice that all color blocks except black and white are grainy in appearance. There you have it; the monitor likes black or white video signals, but not color. So what do you do now?

The most reasonable thing to do is to sell the monochrome monitor and buy the color one. But that's the most expensive solution and that would be like admitting that you goofed in the first place. So I'm going to forget that one for a while. Also I know at least one other guy who did the same thing, so I suspect that there may be an elite group forming here.

I was hoping that there was a magical pin on the 9918 that would drive the video processor to all black and white output. This looks bad, as it seems that all color control is done with software. So, here are some software fixes. Understand one thing right away; (TV experts pay attention) I'm still looking for a hardware fix for this problem. These software fixes are only good for programs that you can get into, ie. Basic, X-Basic, Assembly etc. There's no way (well practical way) to get into the console resident ROM and GROM to get rid of that CYAN that keeps popping up as the screen background color on so many programs. OK, Programs written in BASIC; add or change these lines if they are already in the program:

```
### CALL SCREEN(x)          ### = line number, variables x, FOR, BAC,
### FOR SET=1 TO 16          will be either 2(black), or 16(white).
### CALL COLOR(SET, FOR, BAC) Try different combinations to get what
### NEXT SET                 suits you best.
```

In X-BASIC programs, I like to put this all on one line; also you must use different character sets, so what you get is this:

```
### CALL SCREEN(X)::FOR SET=0 TO 14::CALL COLOR(SET, FOR, BAC)::NEXT SET
```

Now assembly language; this takes a lot more work. I only have Mini-Mem, (no Editor-Assembler yet), but here's how this goes. The 9918 chip has a register that holds the color information for the TEXT mode of operation. With Mini-Mem you get this data to the 9918 by using a Mini-Mem utility routine. To change color data in a program that is already written, you must 1- disassemble the assembly program in order to find the location of the utility routine. (See page 36, Mini-Mem manual). What you will see in the assembly program is something like this: LI R0, >07F4 This line tells the 9918: data will go to register 7, and the color codes are F(white), 4(dark blue).

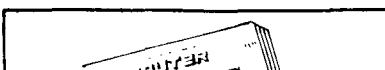
BLWP @>6034 This line tells the Mini-Mem to go to it's utility routine that will load the above data.

What you need to do is change the color codes in the line containing the LI command. So 07F4 will become 07F1 (white on blk.) or 071F (blk. on wht.) I have done this to the "Mini-Writer" program. Using the "Easy-bug" feature of the Mini-Mem cartridge, I changed line 7519 in the "Mini-Writer" program.

Whew!!! You've got to be kidding. I thought you might say that. These solutions are easy to implement in BASIC or X-BASIC; downright time consuming in Assembly language. However it's great excersize in understanding Assembly language programing. Now, as for you TV experts; can you hang something magical between the TI and the monitor to correct the Luminance and Chromanence levels. (I think the problem has something to do with these parameters) Look if you don't come up with something, I'm probably going to have to buy a B/W TV (I can't stand the RF noise on a color TV) or I'll have to wait for more \$\$\$ to buy a color monitor.



NEW HAMPSHIRE VIDEO  
USA GROUP, INC.



CLOCK/ANALOG-TO-DIGITAL CONVERTER FOR THE TI99/4A  
Contributed by Edward R. Aho

I know that some of you out there are interested in having a real time clock for your TI99/4A's. A kit for an clock/Analog-to-digital converter card is available from MPB, 5522 East Harry, Wichita KS 67218.

Purchasers should have some experience with a soldering iron or know someone who does. The kit was selling for \$39.50 + \$2.00 shipping and handling. MBP will send you a kit with instructions. You will have to purchase some additional parts.

The last time I was online with the Wichita KS TI-BBS (Bulletin board system) a program was available which would print the date and/or time on an upper corner of the screen and would continue to run even while you were programming or running a program! The program is written in assembly language so required equipment would include a Editor/Assembler or Extended Basic cartridge.

Purchasers of the kit should be aware that part numbers 1N914 and 1N4004 are interchangeable.

The TI-BBS in Wichita has one of these clock cards installed in their system. As a result they can tell you how long you have been logged onto their system.

The Clock card also functions as an Analog-to-digital converter, this means that you can "interface" your computer with the "real" world. As an example the BBS in Wichita indicated that they hoped to be able to give you weather information thru the BBS. I would imagine they mean wind speed and direction. A person with a little electronic background could hitch your computer up, through this ADC card, to appliances in your home and have your computer monitor the appliances (ie. your hot water heater).

For those of you interested the telephone number of the Wichita BBS is 1-316-681-3167. You should use the default values of the Terminal Emulator II program when accessing the TI-BBS. Most TI-BBS's will require you to sign on and leave your phone number so that they can check its validity before they allow you to access other information on their BBS's. This means that you may have to make two phone calls to be able to download the program I mentioned earlier.

```
*****
*                               NEW for the TI-99/4A                               *
*                               *                               *
*                               CRYPTOCOMPUTE                               *
*                               and                               *
*                               SCANNERS                               *
*                               *                               *
* CRYPTOCOMPUTE decodes cryptograms...                               *
* The program disk has a resident data file of 47 original cryptic *
* messages which may be updated by subscription. Or, you may type *
* cryptograms from your favorite publication and decode those.    *
* CryptoCompute is challenging, it's fun and it's educational.    *
*                               Copyright 1984 R.A. Johnson          *
* SCANNERS has two levels of play and tests your memory and your  *
* dexterity by requiring rapid decisions and executions of commands*
* to prevent the universe from being captured by the evil forces of*
* the Klidsons. SCANNERS requires 32K memory expansion.           *
*                               Copyright 1984 Doug Johnson          *
* Both programs require Extended BASIC and one disk drive.        *
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I have over 600 non-copyrighted programs in my library. I will process your choices onto cassette, disk, or hardcopy for \$1.00 each plus copy unit. Comparable programs may be exchanged. For more info, see me at the next meeting or contact:

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## DISKETTES + DISKETTES + DISKETTES

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Lifetime Warranty - 100% Error Free  
Box of Ten 5 1/4" SS/SD (10)....\$12.50

SHIPPING CHARGES: Add shipping weights FROM EACH ITEM ORDERED and  
[ENTER] total in the following CONSOLE BASIC Program:

```

5 CALL CLEAR
10 INPUT "ENTER] TOTAL SHIPPING WGT " : WT
20 IF WT>9 THEN 60
30 SH = .55 + (WT*.2)
40 PRINT "PLEASE ADD $"; SH; "S/H CHARGES TO YOUR ORDER"
50 END
60 SH=2.5+INT(WT/16.1)*.5
70 GO TO 40
  
```

### IMPORTANT NOTE:

Supplies on many of these items are limited  
ORDER EARLY and avoid disappointment!

TERMS: MONEY ORDER OR CERTIFIED CHECK.

THESE ARE ORIGINAL MANUALS

THESE ARE NOT PHOTOCOPIES

# ADVERTISING POLICIES

Current NHUG members may place up to a quarter page classified ad per issue, free, during their entire membership (subject only to available space). Display ads at 50% off. All ads must be computer related and must be in our PO Box before the end of the month, to appear in the following month's NEWSLETTER.\*

To firms who wish to advertise in the NHUG NEWSLETTER, our rates are as follows:

One full page (one-sided)...\$18.00/mo

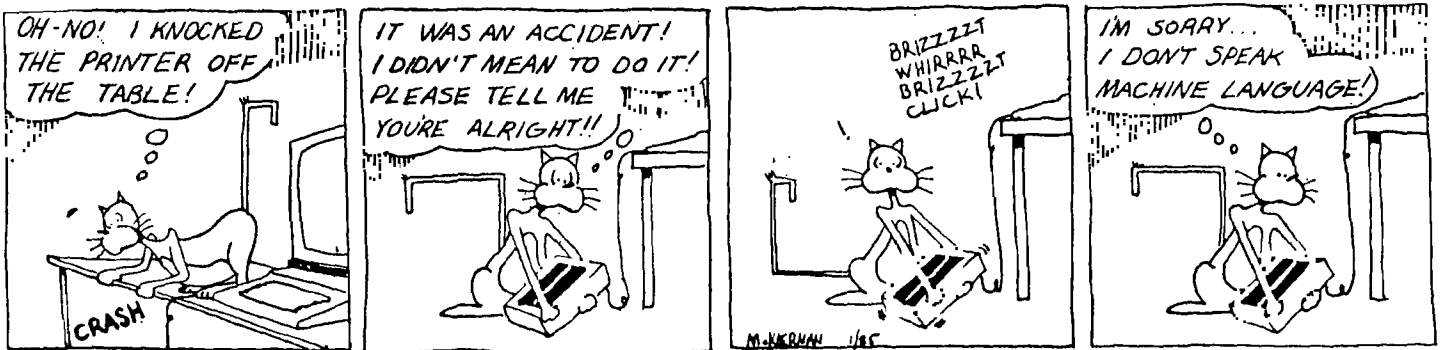
One half page.....\$10.00/mo

One quarter page.....\$ 6.00/mo



All ads must be in a "ready to print" condition. Advertisements must be in our PO Box before the end of the month, to appear in the following month's NEWSLETTER.\*

\*NOTE: The officers of NHUG reserve final approval on all ads submitted for the NHUG NEWSLETTER. The Officers and the Newsletter committee are not responsible for typographical errors due to illegible ads. All proceeds are accepted as donations to the NH99ersUG, Inc.



THE 99'ERS ASSOCIATION  
7575 SO. H. ST., #93  
BAKERSFIELD, CALIF. 93304  
(805) 397-4361  
JANUARY 22, 1985

TO : ALL SUBSCRIBERS

FROM : DON VEITH, EDITOR

Effective with Vol. I, No. 10 issue, September, 1984, our newsletter is being reproduced on an offset press located in Little Rock, Arkansas. Your issues will be forwarded via third class bulk rate postage. It currently takes 2 to 3 weeks for the newsletter to reach all our subscribers after being mailed from Little Rock.

Due to the Holiday Season and other reasons, the issues listed below will be delivered by the approximate dates listed below:

ISSUE	MONTH	ESTIMATED DELIVERY
Vol. I No. 12	DECEMBER, 1984	Feb. 10, 1985
Vol. II No. 1	JANUARY, 1985	Feb. 25, 1985
Vol. II No. 2	FEBRUARY, 1985	March 10, 1985
Vol. II No. 3	MARCH, 1985	March 25, 1985

We are restructuring our subscriber fees for those who wish to receive their newsletter at an earlier date. You may wish to pay for mailing the newsletter via First Class Mail for an additional \$5.00. The new rates reflect our increased costs. The revised subscription rates are outlined below:

SUBSCRIPTION TYPE	AMOUNT
Third Class - Bulk Rate	\$12.00
First Class - US and Canada	\$17.00
First Class - Overseas	\$22.00

We apologize for the delay in mailing the newsletter and any inconvenience it may cause each of you. Our complete staff is composed of volunteers who donate their time to keep you informed about the 99/4A. Thank you for your patience and support.

## TIPS FROM THE TIGERCUB

#19

Copyright 1985

TIGERCUB SOFTWARE  
156 Collingwood Ave.  
Columbus, OH 43213

Distributed by Tigercub Software to TI-99/4A Users Groups for promotional purposes and in exchange for their newsletters. May be reprinted by non-profit users groups, with credit to Tigercub Software.

The entire contents of Tips from the Tigercub Nos. 1 through 14, with more added, are now available as a full disk of 50 programs, routines and files for just \$15.00 postpaid!

Nuts & Bolts is a diskfull of 100 (that's right, 100!) XBasic utility subprograms in MERGE format, ready for you to merge into your own programs. Contents include 13 type fonts, 14 text display routines, 12 sorts and shuffles, 9 data saving and reading routines, 9 wipes, 8 pauses, 6 music, 2 protection, etc., and now also a tutorial on using subprograms, all for just \$19.95 postpaid!

And I have about 140 other absolutely original programs in Basic and XBasic at only \$3.00 each! (plus \$1.50 per order for cassette, packing and postage, or \$3.00 for diskette, PPM) Some users groups charge their members that much for public domain programs! I will send you my descriptive catalog for a dollar, which you can then deduct from your first order.

Folks, I just can't afford to keep mailing out these Tips if you don't BUY something once in awhile! I am hearing from more and

more groups who want to get on my mailing list, but I am having to cut back. I am dropping those groups which don't give any indication that their members ever get to see the Tips, and I'll have to cut further. If you do send me an order, or even ask for my catalog, mention your users group so I'll know there is someone still alive out there!

If you know of any schools in your area, especially elementary schools, that have TI-99/4As in the classroom, won't you please give me their address? I'll send them a free catalog.

Danny Michael has improved his graphics screen dump to include rotate and double size! It is in assembly, very fast, and runs out of XBasic, E/A module or Mini Memory. He has also written an assembly Neatlist program which lists an XBasic program to a printer in single line statements, indented, expanded, etc., very useful for debugging, setting up pre-scan, etc.

These are freeware, pay if you want and whatever you want. Just send an initialized disk for either one, or two disks (or SSD or floppy) for both, in a returnable mailer with ENOUGH RETURN POSTAGE, to

Danny Michael,  
Rt 9 Box 460  
Florence, AL 35630.

John Hamilton of the Central Iowa Users Group will send you his 22-page booklet of "99 Tips" for the TI-99/4A, for just \$4.00. The address is

John Hamilton,  
4228 E. Clinton, Des Moines IA 50317.

I have been experimenting with

TI-Writer, and this issue of the Tips is being printed in 4 columns, right justified directly from the printer. Here's how -

Use TI-Writer, editor mode, in any line length you want. The first line should be .RM 27;F1;AD but don't use any other formatter codes. Don't indent paragraphs. Use some other character as a temporary substitute for any ^, @, & or \$ in the text. Don't include any program listings, yet.

Save the file as DSK1.TEXT. Print an edit copy. Then go into formatter mode. Select DSK1.TEXT to be printed, but instead of your printer spec, type DSK1.TEXT2. Your file will now be in 28-column format and right justified, and indented.

If the text is to include any program listings, run them through my 28-Column converter (see Tips #18), using the Editor option of that program.

Go back to TI-Writer editor and load DSK1.TEXT2. Merge in the program listings. Then PF to print file, but instead of a printer spec, type C DSK1.TEXT3. When it has printed to disk, LF the DSK1.TEXT3 and you will find that all control characters are gone.

Now for a bit of editing. Delete the 3 blank lines at the beginning, and the 6 blank lines that have appeared after every 60th line. Center the title by erasing with the space bar and retyping - do NOT use FCTN 2! Also replace any temporary characters with the ^, @, & or \$.

You will print 4 columns of 60 lines per page, so the total lines in your file must be a multiple of 240. Add enough blank

lines to the end of the file to reach that count.

Save that file back to disk as DSK1.TEXT3. Now go into XBasic, key in this program and RUN!

```
100 OPEN #1:"DSK1.TEXT3",INP
UT :: OPEN #2:"PI0",VARIABLE
255 :: PRINT #2:CHR$(15);CH
R$(27);CHR$(69):: DIM B$(240
)
110 FOR A=1 TO 2 :: FOR B=1
TO 240 :: LINPUT #1:B$(B)::
NEXT B
120 FOR C=1 TO 60 :: PRINT #
2:TAB(10);B$(C);TAB(41);B$(C
+60);TAB(72);B$(C+120);TAB(1
03);B$(C+180):: NEXT C :: PR
INT #2:CHR$(27);CHR$(97);CHR
$(6):: NEXT A :: CLOSE #1 ::
CLOSE #2 :: END
```

The A loop is for a 2-page printout of 480 lines, of course.

You can modify this routine to print in 2 or 3 columns, adjust the margins, change the type font or size, rewrite for your own printer, etc. And the column width can be anything you want, just change that .RM 27 in the first line of the text (don't forget that the left margin is set at 0, not 1).

If you want a 2-column page, you can dump the file back to disk instead, and then print it out of TI-Writer editor. Use this routine, modified as you wish.

100 !Dpens a file TEXT3 of 240 lines 35 char long and converts it into a file which can be printed out of TI-writer Editor as 2 pages in 2 columns

```
110 OPEN #1:"DSK1.TEXT3",INP
UT :: OPEN #2:"DSK1.TEXT4",O
UTPUT :: DIM B$(120)
120 FOR A=1 TO 2 :: FOR B=1
TO 120 :: LINPUT #1:B$(B)::
NEXT B
130 FOR C=1 TO 60 :: PRINT #
2:"    "&B$(C)&RPT$( " ",38-
```



```
LEN(B*(C)))&B*(C+60)): NEXT
C : FOR D=1 TO 6 : PRINT #
2: " " : NEXT D : NEXT A :
CLOSE #1 : CLOSE #2
```

It is best to run a program to set up your printer, and leave it turned on, before printing that file out of the Editor. It is not at all easy to label control characters in the file, because they affect the line in all columns and also shift the lines out of alignment.

I understand that there are a couple of kids who wait every month for their dad to key them in a bit of nonsense from the Tiger Cub, so -

```
100 !KEYZAP - by Jim Peterson
n
110 DISPLAY AT(6,11)ERASE ALL:
!KEYZAP" : DISPLAY AT(12,
11): " Zap the Zprite by typ
ing the key in the correspon
ding position on the keyboard
."
120 DISPLAY AT(24,10): "Press
any key" : CALL KEY(0,K,S)
: IF S=0 THEN 120
130 RANDOMIZE
140 CALL CHAR(47,"B17EA5B199
A5423C")
150 CALL CLEAR : T=0 : CAL
L FLASH(T)
160 CALL KEY(3,K,ST): IF ST
=0 THEN 180
170 C=C+1 : IF C=101 THEN 1
90 ELSE CALL KEYBOARD(K,T)
180 CALL MOTION(1,25*RND-25
*RND,25*RND-25*RND): CALL C
OINC(1,2,16,A): IF A=0 TH
EN 160 ELSE CALL FLASH(T):
GOTO 160
190 CALL DELSPRITE(ALL): DI
SPLAY AT(12,9): "GAME OVER" :
: DISPLAY AT(14,9): "SCORE": T
: DISPLAY AT(16,9): "PLAY A
6AIN?"
200 CALL KEY(3,K,S): IF S<1
THEN 200
210 IF K=89 THEN C=0 : GOTO
150 ELSE END
220 SUB KEYBOARD(K,T)
230 IF FLAG=1 THEN 250 : PL
```

```
A6=1
240 KEY$="1234567890=QWERTYU
IOP/ASDFGHJKL;"&CHR$(13)&"ZX
CVBNM,."
250 IF (K=47)+(K=61)+(K=13)T
HEN SUBEXIT ELSE X=POS(KEY$,
CHR$(K),1): Y=ABS(X>11)-(X>
22)-(X>33)+1 : R=Y*6 : C=(
(X+(Y>1)*(Y-1)*11)*3)
260 CALL SPRITE(2,42,16,R*8
-7,C*8-7): CALL COINC(1,2
,16,N): IF N=0 THEN SUBEXIT
270 CALL FLASH(T): SUBEND
280 SUB FLASH(T): FOR W=1 T
O 10 : CALL SCREEN(16): CAL
L SCREEN(8): NEXT W : CAL
L SPRITE(1,47,2,1,1): T=T+
1 : DISPLAY AT(1,20): T : S
UBEND
```

And here's another -

```
100 ! QUICK & DIRTY DOODLER
by Jim Peterson
Use joystick #1. Press fire
button to change color or
pattern, Enter to clear the
screen.
110 DATA FFFFFFFFFFFFFFFF,FF
,0101010101010101,0000000000
0000FF,0B0B0B0B0B0B0B,01020
4081020408,0A020100B040201,
FFB1B1B1B1B1B1FF
120 CALL CLEAR : FOR J=1 TO
8 : READ CH$(J): NEXT J
130 FOR CH=32 TO 136 STEP 8
: FOR CN=CH TO CH+7 : X=X+
1 : CALL CHAR(CN,CH$(X)):
NEXT CN : X=0 : NEXT CH :
CALL CHAR(32,"0")
140 CALL SCREEN(16): FOR S=
2 TO 14 : CALL COLOR(S,S+1,
1): NEXT S : R=12 : C=16
: CH=33
150 CALL HCHAR(R,C,CH): CAL
L FASTJOY(C,R,Q): IF Q=18 T
HEN CH=CH+1+(CH=143)*110
160 CALL KEY(0,K,S): IF K=1
3 THEN CALL CLEAR : GOTO 15
0 ELSE 150
170 SUB FASTJOY(C,R,Q): CAL
L JOYST(1,X,Y): CALL KEY(1,
Q,S): X=S*6N(X): Y=-S*6N(Y):
: C=C+X+(C=32)-(C=1): R=R+Y
+(R=24)-(R=1): SUBEND

And a pretty one -
100 CALL CLEAR : CALL SCREE
N(12): FOR S=2 TO 8 : CALL
```

```
COLOR(S,15,1): NEXT S : DI
SPLAY AT(12,7): "KALEIDOSQUAR
ES" ! by Jim Peterson
110 FOR CH=40 TO 136 STEP 8
: FOR L=1 TO 4 : RANDOMIZE
: X=SE6$("001B243C425A667
E8199A5BDC3DBE7FF",INT(16*R
N D+1)*2-1,2)
120 B=B&X : C=X&C :
NEXT L : CALL CHAR(CH,B&C
): B,C=NUL : NEXT CH
130 FOR S=2 TO 14 : X=INT(1
5*RND+2)
140 Y=INT(15*RND+2): IF (Y=
X)+(Y=8) THEN 140
150 CALL COLOR(S,X,Y): NEXT
S
160 AR,R,AVR,VR=1 : AC,C,AH
C,HC=4 : TT=24 : XX,XT=13
170 FOR L=1 TO 12 : T=TT :
XT=XX : R=AR : VR=AVR :
C=AC : HC=AH
180 FOR J=1 TO XT : X=INT(1
3*RND+2)*8+24 : CALL HCHAR(
R,HC,X,T): CALL HCHAR(25-R,
HC,X,T): CALL VCHAR(VR,C,X,
T)
190 CALL VCHAR(VR,31-C,X,T):
: T=T-2 : HC=HC+1 : VR=VR+
1
200 NEXT J : AR=AR+1 : AVR
=AVR+1 : AC=AC+1 : AHC=AHC
+1 : TT=TT-2 : XX=XX-1 :
NEXT L
210 IF INT(2*RND)<0 THEN 23
0
220 FOR S=INT(12*RND+2)TO 14
: CALL COLOR(S,1,1): NEXT
S
230 FOR J=1 TO INT(20*RND+1)
: S=INT(13*RND+2): X=INT(1
5*RND+2): Y=INT(15*RND+2):
CALL COLOR(S,X,Y): NEXT J
240 CALL SCREEN(INT(15*RND+2
)): ON INT(5*RND+1)GOTO 130
,160,220,230,240
```

The challenge in Tips #16 was - how can you store a hundred or more values of any size, positive or negative, integer or non-integer, even in exponential notation, without dimensioning an array or opening a file, and then link to another program with a RUN statement and recover those values - not by reading them from the screen? I had just one

reply! Was it too easy, too hard, or doesn't anyone care? Anyway -

```
20591 SUB CHARSAVE2(CH,N):
N$=STR$(N): N$=RPT$("0",16-
LEN(N$))&N$
20592 IF POS(N$,".",1)=0 THE
N 20593 : N$=SE6$(N$,1,POS(
N$,".",1)-1)&"A"&SE6$(N$,POS
(N$,".",1)+1,LEN(N$))
20593 IF POS(N$,"+",1)=0 THE
N 20594 : N$=SE6$(N$,1,POS(
N$,"+",1)-1)&"B"&SE6$(N$,POS
(N$,"+",1)+1,LEN(N$))
20594 IF N<0 THEN N$=SE6$(N$
,1,POS(N$,"-",1)-1)&"F"&SE6$
(N$,POS(N$,"-",1)+1,LEN(N$))
20595 CALL CHAR(CH,N$): SUB
END
```

And to recover the values -

```
20596 SUB READCHAR(CH,N): C
ALL CHARPAT(CH,CH$)
20597 IF POS(CH$,"A",1)=0 TH
EN 20598 : CH$=SE6$(CH$,1,P
OS(CH$,"A",1)-1)&"."&SE6$(CH
$,POS(CH$,"A",1)+1,LEN(CH$))
20598 IF POS(CH$,"B",1)=0 TH
EN 20599 : CH$=SE6$(CH$,1,P
OS(CH$,"B",1)-1)&"+"&SE6$(CH
$,POS(CH$,"B",1)+1,LEN(CH$))
20599 IF POS(CH$,"F",1)<>0 T
HEN CH$="-"&SE6$(CH$,POS(CH$
,"F",1)+1,LEN(CH$))
20600 N=VAL(CH$): SUBEND
```

Here's a jewel of a routine from Danny Michael, to avoid those lockups and other foul-ups that occur when you CALL INIT after you have already CALLED INIT - CALL PEEK(8198,A): IF A<>17 0 THEN CALL INIT

The best way to edit a program is to type NUM and the first line number, then Enter will take you through line by line with no danger of accidentally deleting a line. The edit functions will still work, and FCTN 4 gets you out of the NUM mode.

MEMORY FULL!

Jim Peterson





## INPUTTING INFORMATION IN YOUR PROGRAMS

Richard J. Bailey  
68A Church Street  
Gonic, N. H. 03867

If you're writing programs chances are you will need to input information at some point. There are many ways this can be accomplished depending on what you are trying to do. I'll briefly describe some of these methods but keep in mind that there are numerous variations and you can modify most methods to suit your needs.

DATA STATEMENTS This is one of the simplest means if the information you're using isn't going to change, as in a data table (array), or in a tune. Two examples:

100 DIM B(13)	100 REM MARY HAD A LITTLE LAMB
110 FOR I=1 TO 13	110 FOR I=1 TO 13
120 READ B(I)	120 READ N
140 NEXT I	140 CALL SOUND(400,N,1)
150 DATA 5,4,7,1,9,6,8	150 NEXT I
160 DATA 3,6,2,9,4,1	160 DATA 659,587,523,587,659
	170 DATA 659,659,659,587
	180 DATA 587,659,587,523

The left example reads the 13 values and puts them into an array. If you say PRINT B(5), the value 9 will be printed. In this example you're creating a table of more than 10 items so you have to dimension the array to reserve space for the 13 items. (see USING LOOPS AND SUBSCRIPTED VARIABLES Dec,84 newsletter) This method can eat up memory when running but with a large multidimensional array access to any data item is much faster than reading and creating a table each time data is needed. The array is created once at the beginning of the program and any item can be accessed by indexing the proper element of the array.

The second example (MARY HAD A LITTLE LAMB from the A9CUG June,84 newsletter) reads a value and "uses" it instantly in the CALL SOUND statement. The variable D is reused and its value depends on where you are in the tune. Tunes are slow by computer standards so reading the information sequentially each time the tune is played isn't a drawback. If you check some of the programs using graphics and music by C. Regina, you will see that she "sneaks" several graphic lines in between the CALL SOUND statements to speed up creation of the program's graphics with no interference to the music.

To replay this tune you could add the line 200 GOTO 110 but you would get a data error. Every time you read a data item the computer moves a pointer so it can keep track of which items it has read. When you finish reading once, the pointer is at the end of the last data line (assuming you had exactly 13 data items). To reread the data you must reset this pointer with the RESTORE statement. 190 RESTORE works wonders. You can also selectively RESTORE. If you have lines 700-800 as data lines, you can say 190 RESTORE 720 to reset the pointer to the beginning of line 720. An important thing to remember is to have at least as many data items as you are trying to read or you will get a data error.

One way around this if you don't know how many items you are going to have is to add a "dummy" data item like 99999 or any other value you won't be using as the last data item. Then add a line like: 130 IF B(I)=99999 THEN 2500 for the left example, or 130 IF N=99999 THEN 2500 for the right example. If you are reading string information remember that the variable must end with a \$ sign and the check could be 130 IF N\$="ENDOFDATA" THEN 2500 and include "ENDOFDATA" as the last data item. With this check you don't need the FOR-NEXT loop so you can eliminate the line FOR I=1 TO 13 & change the NEXT I line to GOTO 120.

```

100 DIM B(13) :: I=0
110 READ B(I):: IF B(I)=9999 THEN 2500 ELSE I=I+1 :: GOTO 110
120 DATA 5,4,7,1,9,6,8,3,6,2,9,4,1,9999

100 ! MARY HAD A LITTLE LAMB
110 READ N :: IF I=99999 THEN RESTORE :: GOTO 110 ELSE I=I+1
120 FOR V=5 TO 25 STEP 5 :: CALL SOUND(-400,N,V,N*2,
    V,N*7.5,30,-4,V)
130 NEXT V :: GOTO 110
140 DATA 659,587,523,587,659,659,659,587,587
150 DATA 659,587,523,99999

```

You can now have as many or as few data items as you want as long as your last data item is your "dummy" data item.

CALL KEY This subroutine works well for entering one-character commands without having to press enter.

```
80 CALL KEY(0,KY,ST)
```

```
90 IF ST=0 THEN 80
```

This can be thought of as a loop with a conditional GOTO statement to bring it back to the CALL KEY subroutine. If any key is pushed, KY is set equal to the ASCII code for that key and the computer continues to the next line. The ASCII codes are listed on most T.I. reference cards. For example, if 'N' were pushed, KY would be set equal to 78. In order to make the CALL KEY more useful you need to have a prompt line displayed to let you know what you're entering.

```

800 CALL CLEAR                800 DISPLAY AT(18,1)BEEP ERASE
810 PRINT "RUN AGAIN? (Y/N)"   ALL:"RUN AGAIN? (Y/N)"
820 CALL SOUND(150,1400,4)     810 CALL KEY(0,KY,ST) :: IF
830 CALL KEY(0,KY,ST)          KY=89 THEN 1000 ELSE IF
840 IF KY=89 THEN 1000         KY=78 THEN 2000 ELSE 810
850 IF KY=78 THEN 2000
860 GOTO 830

```

Both these examples: 1)Print a prompt on the screen and beep  
 2)Checks for a Y or N and branches accordingly  
 3)If not Y/N go back to CALL KEY, try again

The GOTO 810 or the ELSE 810 are important. If you press any key other than Y or N, you are sent back to the CALL KEY statement without passing go and collecting \$200. Note that lower case y and n won't be accepted. To accept either upper or lower case you could change the check to say IF KY=89 OR KY=121 THEN 1000 and IF KY=78 OR KY=110 THEN 2000 with extended basic or IF (KY=78)+(KY=110) THEN 2000, etc, in basic. An easier way is to change the CALL KEY to CALL KEY(3,KY,ST). Key 3 returns only upper case for all alphas so you don't have to worry about whether the alphalock is up or down.

With the GOTO 830 in the left example and the ELSE 810 in the right example above you don't need the IF ST=0 THEN ... because if the proper keys aren't pushed you will be returned to the CALL KEY statement anyway.

Line 820 in the basic version produces a tone identical to what the computer produces with a prompt (like the BEEP in the DISPLAY AT) to let you know when to make an entry. Just make sure that any tone isn't included inside a loop or the repeating tone will drive you crazy!

One use of the CALL KEY is to create a pause in a program. If you have instructions on how to run the program included (and every program should), the 250 CALL KEY :: IF ST=0 THEN 250 sort of line will allow your instructions to be displayed until any key is pressed. You don't care what key is pressed and you can reuse the CALL KEY later in the program with the same return variables.

To have a blinking cursor with a CALL KEY, try the following:

```

490 CALL CLEAR
500 PRINT "RUN AGAIN? (Y/N)"
510 CALL SOUND(150,1400,4)
520 CALL HCHAR(23,25,30)
530 CALL KEY(0,KY,ST)
540 IF ST<>0 THEN 630
550 FOR I=1 TO 25
560 NEXT I
570 CALL HCHAR(23,25,32)
580 CALL KEY(0,KY,ST)
590 IF ST<>0 THEN 630
600 FOR I=1 TO 25
610 NEXT I
620 GOTO 520
630 IF KY=78 THEN 1000
640 IF KY=89 THEN 2000
650 GOTO 520

```

This routine alternately displays the cursor (CHR\$(30)) and the space character (CHR\$(32)) at position row=23, col=25 similar to what you see with most other input statements. Lines 580-590 could be left out but the key response would be much slower.

If you need to have several one key inputs which the computer must keep track of, you can use return variables that have more meaning and are different for each occurrence of the CALL KEY. For instance:

```

350 PRINT "PRESS FIRE BUTTON"
360 CALL KEY(1,FIRE,ST)

```

This "looks" at the fire button on JOYST 1 and sees if it has been pressed. If you check the little booklet that comes with the JOYST you will find (although not obvious) that the fire button, when pressed, returns character 18. The check must be:

```

370 IF FIRE=18 THEN 450 or whatever.

```

Other function key codes are included on page 5 in the little addendum booklet that comes with the extended basic manual. Using the function key codes in return variables can be useful in some programs. Another way of using multiple CALL KEYS is to have a subroutine. For example:

```

200 PRINT "ENTER 1,2,3"
210 GOSUB 1500
220 IF (KY<49)+(KY>51) THEN 210
.
.
320 PRINT "RUN AGAIN? (Y/N)"
330 GOSUB 1500
340 IF (KY<>89)+(KY<>78) THEN 330
.
.
1490 END
1500 CALL SOUND(150,1400,4)
1510 CALL KEY(3,KY,ST)
1520 IF ST=0 THEN 1510
1530 RETURN

```

You could use the CALL KEY routine with the blinking cursor as the subroutine if desired. As with most of these methods there are an unlimited number of variations that can be used. The only thing that limits the computer is your imagination.

(TO BE CONTINUED NEXT MONTH)



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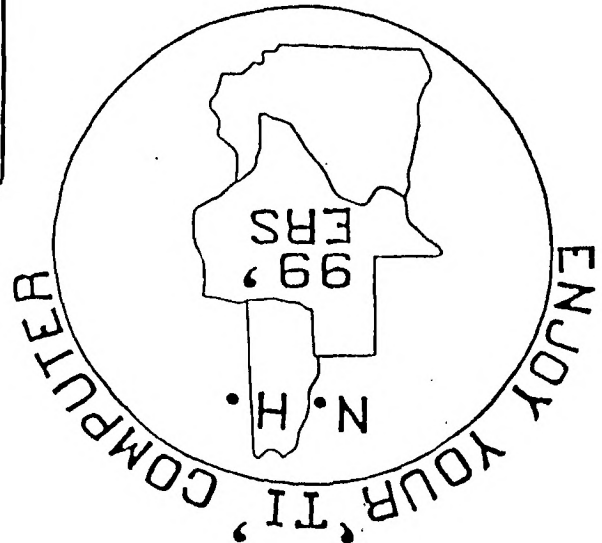
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