



NEW HAMPSHIRE 99'ers



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>OLD

The April meeting saw an interesting demonstration of telecommunications - TI style. I appreciate everyone making the meeting instead of staying home to pump out their basement.

Special thanks to Dave Villeneuve for bringing his bulletin board software (which he will give to anyone who wishes to set up a board). Dave walked us through a 'typical' board - menus, passwords, file transfers, etc. On the other end, we tried FASTTERM by Paul Charlton, TE-II, and 4A/TALK. FASTTERM and 4A/TALK were both impressive (as you would expect); TE-II does have graphics, sound and speech, but Dave's board (like most) doesn't support those capabilities.

Last year, April was the the month to appoint the nominating committee. I asked for volunteers to be on this committee (not to serve as officers, just nominate them!) and was completely underwhelmed by the response. If this interest level is indicative of the entire club, I can see that the elections in June will be a joke - if they are held at all. Let me get on my soapbox for a moment - the officers do not have to be TI experts! The requirement for being an officer is the time.... Time to answer letters sent to the club; time to call a few people to set up a demo for the next meeting; time to balance the club checking account; time for all the little things that make the club run as smoothly as it has. As I mentioned at the last meeting, I will continue to be the newsletter editor (but not chief writer). I also mentioned the possibility of writing a flight simulator in the near future. Those of you who have seen my Enhanced Display Package should agree that I could potentially write a decent program - given time. Time is a precious commodity that is evenly distributed to us all. You get 86,400 seconds each day just like I do. I also have a full time job, two kids and another on the way, church and social commitments, etc. I have been President for over two years and need a respite.

>NEW

At the May meeting, I hope to demonstrate the usefulness of LOGO. LOGO is really much more than just a kid's language. It can be used to demonstrate recursive procedures, which are extremely useful in solving complex problems. Fractals are also possible in LOGO (come to the meeting to see what a fractal is). I grant you that the TI implementation of LOGO has its limitations, but it is still a powerful tool for learning computer science.

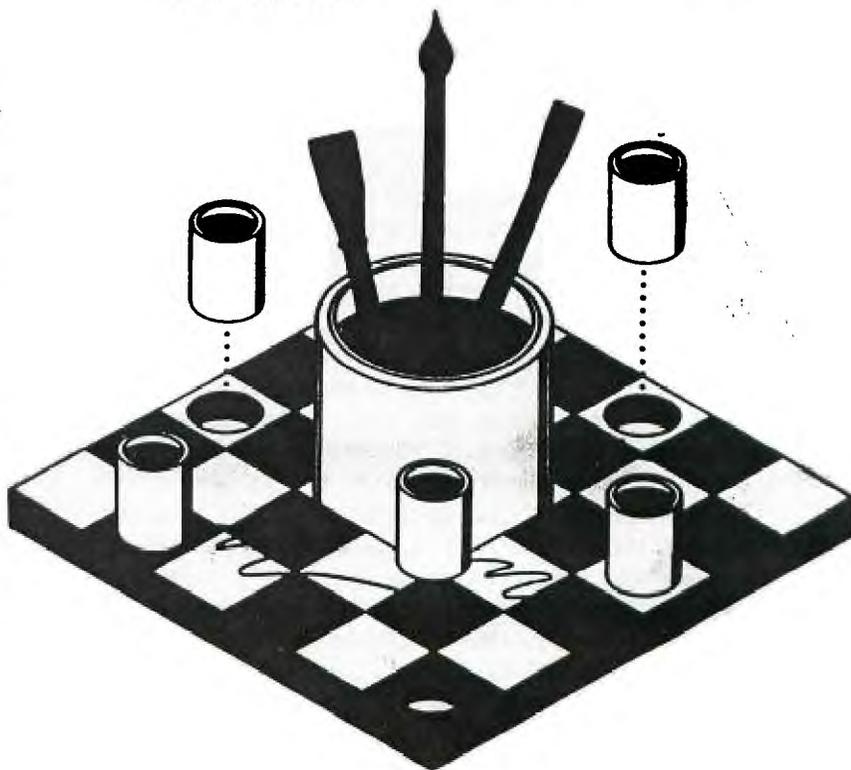
>NEW MEMBERS

Welcome to the new members who have joined us recently. I hope that you get to attend are meetings in the near future and meet other people in the group. Old members, if you see an unfamiliar face, please make it a point to introduce yourself. Contrary to what you may believe, most members have exactly the same problems with the TI that you do. Let's share our troubles and solutions.

APOLOGY

My apologies to Hiener Martin, author of TI99/4A INTERN. In a previous newsletter I was very critical of his book. In retrospect, I should have criticized the agency from whom I bought the book. The ad claims: "... this book gives you a detailed look at every secret....GROM 0, 1 and 2 are also listed and commented in detailed descriptions."

The book is most definitely not the book in the above description. This is not Mr. Martin's fault, though. TI99/4A INTERN is clearly the result of an enormous effort on Mr. Martin's part and he should be praised for that. I certainly would never have spent the time and effort to crack the TI as well as Mr. Martin has. In the future, however, let's be more accurate with our advertising. There are still many portions of code which are poorly commented (or not commented at all).



The C Column
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Sorry for the delay in getting this column out but for the past month my computer system has been disabled. Just recently I got it operational again with the exception of my RS232.

Well, this is my first column that I hope to have in the Newsletter on a regular basis. In order for this Column to be informative and helpful you must be willing to write or call me with your comments and suggestions. Feedback will most definitely be an important ingredient for "success" of this Column.

I find C programming to be very exciting and rewarding but like everything else it takes time and perseverance. If you're a beginner to C programming don't despair: I will make the process of learning C as painless as possible. Being a Computer Science student, I've programmed in several languages: Pascal, Fortran, Modula-2, Assembly, Forth, Basic, and Lisp - but my favorite is C. Hopefully, through my columns I will be able to show why C is my personal choice, but of course you may feel differently which is just fine. You may have heard or read that C programming is for "experts." The reason behind this remark is that C lets you do things that you couldn't do in other languages due to the flexibility of C.

With flexibility there's power and with power comes danger. The C compiler assumes one major thing and that is, "You know what you're doing." Because of this assumption you must be extra careful when writing C code or you will get into a real mess very fast. Am I scaring you? I hope not because C can be mastered just like everything else. You really don't have to be an "expert." You must only be patient and careful. When first writing C code you will continuously ask yourself, "Why doesn't this stupid program work!" and in most cases it's just a little programming bug. Just because a program compiles and assembles without errors doesn't mean it will work! Getting the program to compile and assemble is only half the task and the other half is getting it to do what you want it to do. Another important aspect of C is its efficiency and its ability to work at the bit level. More and more Operating Systems for various computers are written in C due to that important aspect of C. Many C programmers consider C to be more of a "low-level language" than a "high-level language" because one can manipulate bits, bytes, and words quite effortlessly thanks to "pointers" and operators (unary and binary) which we will cover in future C Columns.

The C Column will basically be comprised of DEMO's that will demonstrate the features of C that I feel to

be important and interesting. The following is a list of things that is needed to begin:

REQUIRED:

- o fully expanded system, i.e.
 - 32K memory expansion
 - disk controller with at least 1 disk drive.

o Editor/Assembler files

o c99 package

- c99REL2 and c99REL3

NOTE: c99REL2 is required because c99REL3 leaves out some programs, functions, and user manual that makes the package truly complete. You may get these releases from our group Librarian.

THINGS THAT WILL MAKE LIFE EASIER:

o FUNNELWEB version 3.4

o more than 1 disk drive

o RAMdisk

o RS232 with Printer

Now before next month make sure you get a copy of the c99 package (release 2 and 3) and print-out the c99 user manual. On the releases there will be files called -README or -README1 and -README2. Make sure you read these files. It will help you to get started in printing documents among other things.

I strongly recommend that you buy a good programming book on C. The one I found to be the most useful is the "C Primer Plus". This is an excellent book which has many examples. This book can be found in most bookstores for about \$22.95. You will quickly discover that some of the examples will not compile as they are printed in the book. The reason is c99 is a subset of C and it lacks several features.

There are several features that are not implemented in c99 due to the memory limitations of our computer. The C Column will inform you on what can and can't be done in c99. In some cases the the code can be modified slightly and c99 will compile it. Even though c99 is a subset of standard C it's still sufficiently powerful to write useful and elegant programs.

c99 is syntactically identical to standard C which means that what you learn with c99 you can apply to another machines which have or will have a C compiler such as the Myarc 9640 computer. By the way, if I can save up enough money, I'm definitely going to purchase a 9640 computer with a C compiler. I'm sure it will make me feel like I've died and gone to Heaven. I can't wait! Sorry for getting off track but when I think of the 9640 I can't help but get excited! Now

what was I talking about before derailing myself? Oh, I remember!

Don't get the idea that programming with c99 is a waste of time because it's a subset of C. As a matter of fact, c99 is useful the way it is. For example, there are some C functions for programming assignments that I can test with c99 and if it works I then upload the source code to a VAX-11 mainframe which has a full standard C compiler and it will compile with little or no modifications. c99 gave me the opportunity to do some of my work at home which was and still is a big help.

I intend to cover the following topics:

- o an introduction
 - starting with the c99 package
 - inline push code (memory and time tradeoffs)
- o simple I/O and c99 support functions
- o functions in general (main, user, and library)
- o preprocessor
- o loops and control transfer statements
- o operators and operator priority
- o arrays (character and 2-dimensional)
- o pointers
- o bit manipulation
- o files
- o interactive programming and error trapping
- o operators, functions, & features **not** in c99
- o assembly routines in a c99 environment
 - understanding the c99 environment
 - implementation of stack
 - stack usage
- o "The miracle of Recursion"
 - differences between iteration and recursion
 - are they compatible?
 - what are the tradeoffs?
 - graph theory program (non-trivial)

Again, if you have any suggestions, comments or problems, please feel free to call or write. I'll be more than happy to provide my assistance in every way I can. Well, round-up the thing you need and next month we'll dive right into c99 programming. Till then, 'C' you later...

DATA BASE PROGRAMS; A CONTINUATION
by Chris C. Agrafiotis

I am truly ashamed of myself and many of the other members of our fine TI Users's Group. I say this in all sincerity. I have been receiving the TI newsletter from the club for some time and I have noticed, much to my dismay, that the people who have been contributing to the content of the document can be counted on one hand. (and this doesn't even count my thumb). I know that many of us feel that we are not "computer-wise" and therefore we believe that we have nothing to contribute. Granted, we do not have the ability to program in "C" or assembly language....and we don't have the ability to "program" like Curtis or Richard but many of us do have the ability to contribute. We all buy programs for the TI (I hope). Many times we believe we have been ripped off. Sometimes we are happy with what we have purchased. Maybe we really don't know why we are disappointed or happy but that doesn't negate the fact that the rest of us would like to know how you feel. Let's face it, a review of a program does not need to be expertly correct. Personally I am very concerned about what TI users think about the software that they are purchasing and I am not to concerned with how expert they sound. I guess that I am trying to say that those of us who have the time should try and contribute to the newsletter no matter how insecure we feel about our ability to impress those readers who are truly "computer hackers." With this statement of my feelings I will get to the case at hand.....data base programs.

I have spent a heck of alot of money on Data Base Programs for the TI Computer. Unfortunately I must say that, in general, I have thrown my money away. PR Base was probably my biggest disappointment. This program provided the best, (by far) on-screen data base program. It was beautiful! It allowed me to create the ideal screen for data base input. Furthermore, it allowed the highest degree of control over the data entered than any data base program I have ever seen for the TI. Unfortunately I was never able to print the data produced from this program. In fact, when I wrote the author and told him of my problem with the printing utility, he answered me with a letter telling me that "I had some nerve criticizing his work!" He stated that other buyers had no problem with his program and he inferred that my own stupidity in understanding his work was the problem. O.K., maybe I am stupid. But the fact remains that neither I nor anybody else I know has been able to get his lousy program to print properly! That's got to tell you something about his work. Needless to say I trashed his program without regret. (this action cost me money and I don't appreciate it at all) I must say here that I do not subscribe to pirating other people's work. I pay the full stroke for software! I must admit that I feel cheated but it's a matter of principle. Pirating is stealing and I don't subscribe to the practice....but, if I continue to get ripped off by software producers I may change my attitude about

pirating.

O.K., enough said about PR Base. it's a waste of time. So what is left for the TI owner who would like a decent data base program? Well I have purchased the following Data Base Programs: PR Base, Acorn 99, Data Base 1, Turbo-Dataman, Name-It and TI's Personal Record Keeping. Very frankly they all leave something to be desired. There are other lesser data-based programs which also leave me frustrated. One way or another they all fail to provide me with a database program which can satisfy my simple needs.

This is a sad commentary on the community of writers for the TI. If this is the best they can do then, maybe it's about time we all purchased an IBM clone or an Apple and say, to hell with the TI!

Assuming that you want to stay with the TI and that you want to operate a database program, I must say that the best database program that I have used so far, (in my opinion) is Data Base 1 by SPC.

DATABASE 1 comes on disk and can be copied to provide a back-up. Its documentation is on disk and consists of about thirty pages of excellent, clear instructions on how the program works. This, in itself, is refreshing. On power-up the program self loads in extended basic and presents you with a menu that allows you to choose:

- 1.) RUN DATABASE 1
- 2.) RUN FORMLETTER PROGRAM
- 3.) RUN UTILITIES PACKAGE
- 4.) CATALOG DISK
- 5.) PRINT DOCUMENTATION.

Upon selecting #1, RUN DATABASE 1 you are presented with an opportunity to choose your screen and character color combinations and true lower case letters. Once this is done you are asked to "NAME YOUR LIST". If you already have a previously saved database you merely enter the name and it is called up from whatever disk drive you indicate. If you do not have a file the screen will tell you so and you then tell the computer to format a new file with a given name. It's that simple to get things going. Once you have named a new file the program continues and opens to a screen showing a built-in format for a name and address data base. If you do not like the built-in format or if you desire to label your own fields it is a simple matter to change the format by typing in your own fields. The program allows you ten lines (or fields) of data each consisting of twenty-eight characters. This may seem restrictive at first but as you work with these database programs you will find that ten fields of twenty-eight characters each is quite adequate. You are then asked some very basic questions like, how big a record size to you want, how many of the ten lines will you be using and what will be your "kill line". Once this is accomplished you will get a first look at the main menu of the program.

Once you tell the computer that you have a file already established, or open a new one and decide on the color scheme and character choice the main menu of the program comes up on the screen. The main menu looks like this:

- 1.) READ LIST
- 2.) ADD RECORDS TO LIST
- 3.) MAKE CHANGES IN LIST
- 4.) PRINTOUT
- 5.) FORMAT LIST
- 6.) SORT LIST
- 7.) SEARCH
- 8.) START PROGRAM
- 9.) END

Now the real fun begins. If you have an established list with plenty of data in it and you want to refresh your memory as to what you've got just hit #1, READ LIST. The screen asks you which of the ten fields you wish to display on the screen. You elect which field and up comes the listing, using your selected field, of everything you have in the file. Great! O.K., so now you know what you've got in the data base. Now it's time to add more data or change the data that is already there. Menu option #2 or #3 allows you to enter the existing database and either add or change data at will.

Menu choice #2, ADD RECORDS TO LIST, allows you to add new information to your database. I can't say that I prefer the way the screen allows you to enter new information. I prefer an input screen that indicates what the data field requires and a blank space in which to enter the information. Actually this is the feature that really impressed me in the PR BASE program. In DATABASE 1 you are not presented with such a screen. Instead you are shown the ten lines (or less) which you have established as your data entry fields in text form and, at the bottom of the screen you are prompted to input the data for each successive field. It is not a bad system...it is just time consuming compared to a fixed data entry screen. One way or another it is a simple matter to enter new information. Main menu selection #3, MAKE CHANGES IN LIST, is very similar to the initial data entry screen. It provides a simple method of changing data which is already in the database. Probably the nicest feature of this program is its ability to call up a specific data screen by inputting just a small part of the information. I think that the entry method for new or changed information is not as convenient as some other database programs but it certainly is functional and it works beautifully. I can't fault the program for providing a utility that works.

The main menu choice of SORT LIST, (#6) provides a great advantage over other database programs. This program will sort your data based on whichever of the ten (or less) fields that you have designated. Let's face it. The ability to sort your data is the key to any database program. This utility allows you to sort all of your data anyway you want in a relatively fast period of time. (Let's be honest....time is relative. How much of a hurry are we really in when we are playing with

our computer.) Everytime you sort your list of data a new file is set up so that you can use it again. I must admit that I really respect this program's ability to sort data.

PR BASE, the program that I have trashed because of the arrogance of it's writer, had a tremendous capability to search it's files. It was tricky and attractive. DATABASE 1 on the other hand searches your file with an ease that compares to falling off of a log. You can find anything you want in you database with such simplicity that you rapidly take it for granted without giving it the credit it is due. You can enter just one character in any of your fields and the program will find the screen you want. It searches the enter database, presents you with a screen full of data and asks you if that is the data you want. If, for some reason it is not, you merely tell it to continue searching and it does. Beautiful. I never have any problem finding a particular entry.

Selection #8 on the main menu simply resets the program at square number 1 and starts you at the very beginning. Selection #9 ends the program as you would expect. Selection #5, FORMAT LIST, allows you to rearrange the order of the fields that you have elected to use in your database. All of these additional utilities enhance the program tremendously by allowing you to manipulate your data at will. This is always a determinant in making one database program better than the next.

The final main menu selection that I wish to discuss is the PRINT selection. (Option #5) This option allows you to print out the data in you database in any fashion you choose. It is really very simple to set up compared to the other programs available to us. Most important, it works as it is supposed to, allowing you to indicate which fields you want printed, the order you want them printed in and what character parameters you want the printer to use. The only capability it lacks is that of adding a main heading to a report and the ability to title the columns of data that you wish to print out. At first I thought this was a severe limitation. However I have found that I can provide headings and titles for my database printouts very easily with TI-WRITER. I will admit is is an inconvenience. I wish that the program allowed the capability to include titles but it doesn't. (Maybe one of our club members who is a proficient hacker can rewrite the program to do this). I have found that I can print out the data in the database, in whichever order or format I want very easily. By combining it with headings put in using TI-writer I can come up with a professional looking document reflecting my data.

There is alot more to this program but I have to quit now and make room for the other articles in this newsletter. Just let me say that the program also contains a FORMLETTER utility which can be used with TI-WRITER and a UTILITY PACKAGE that provides additional routines including a full disk catalog system that uses DATABASE 1 for manipulation and printout.

In conclusion let me say that this program, DATABASE 1 by SPC is by far the easiest database program to use available to the

TI owner right now. Hopefully this will change. I pray that somebody, maybe the author of PR BASE will get off his high horse and provide us with a complete package to do database work. Let's be honest. Time is running out for the TI. Those of us who have stuck by the TI, for whatever reason, are tired of not being able to run simple programs which are available on every other system. Money used to be an issue but I don't think it is anymore. The price of IBM PC clones has dropped drastically and TI owners are thinking twice about their alligence to the system. The software producers are ignoring us. Those who are still writing for the TI are treating us like idiots, expecting us to pay good money for programs which other operating systems would be ashamed to produce. After all, what do we own computers for? Word processing, spreadsheeting and database programs. Yes, there are those who like to hack but they can't keep the TI alive. The bottom line is practical application! If the TI community hopes to remain on the map they must start sdatisfying the basic needs of the millions of TI owners or those owners will certainly become IBM or Apple owners. I firmly believe that the ability of the computer to crunch numbers and maintain a database is what the average user really wants. The TI community still does not have a good database program, DATABASE 1 notwithstanding. I want to keep my TI alive. I need help and I'm not getting it. Please, please somebody, listen to us!

This program can be purchased from:

SPC SOFTWARE COMPANY
BOX 121
Brightwaters, NY 11718
(516) 587-5462

A very special thanks to Mike Mannion for all the work and money he puts into this newsletter. Mike printed up the headers with appropriate graphics for each month. He also reproduces these on his own copying machine for the price of the toner - he supplies the paper.

Thanks also to Helene LaBonville, who continues to support the club in more ways than anyone can tell. She has also supplied letterheads, paste-ups, etc. and almost always (little jab in the ribs) articles of interest on printers, disk drives, etc. For you new members who weren't around in previous years, I need to tell ya' that the club wouldn't exist today had it not been for Helene.

I'm on a roll, now. Richard Bailey for his articles, software and hardware - an especially for his managing the software library. Elliot Hardy for managing the document library. And everyone who wrote an article, brought a piece of equipment, gave a demo

It is refreshing to see that club consist of so many people helpful people, and not just a core of diehard technical weirdos (I'm not really that weird).

STRANGE FIGURES

by Keith G. Koch

So how accurate is it? Huh?? When all is said and done computers are really nothing more than elaborate, expensive, number manipulators. All of our programming and visual results on the screen are nothing more than the results of "number crunching"--the very fast switching of ones and zeroes.

One of the tests for a computer, therefore, is its accuracy in handling and manipulating numbers. **CREATIVE COMPUTING** Magazine (vol. 10, #4) gave the results of 170 tests of a benchmark program involving 140 different computers: mainframes, mini's, micros and one TI SR-50 calculator. These tests were designed to determine the speed, accuracy and ability of the random number generator.

The results are "strange figures":

speed: fastest was the Cray 1 in 0.1 second, the slowest was the TI SR-50 in 12.7 days. Five computers were under 1 sec., 58 under 1 min., 39 between 1-2 min., 15 in 2-4 min., and 23 over 4 min. The TI 99 4/A finished in 3 min., 46 sec.

accuracy: the best (DEC 11/24) came in at .0000000000160298 and the worst (OSI Challenger 1P) was .32959. The 99 4/A had an error of only .00000011 (only 22 computers were better and none were the large mainframe types.)

random: the TI 99 4/A ranked 5th with a 2.7--remember these rankings are against 140 different computers, including the Cray 1, IBM mainframes, DEC Vax's, etc.

Let's compare the TI with the "home" computers (remember, the smaller the number the more accurate the computer):

<u>COMPUTER</u>	<u>ACCURACY</u>	<u>RANDOM</u>
TI 99 4/A	.00000011	2.7
Timex Sinclair	.0041294098	8.7
Coleco Adam	.000426292419	6.2
RS Color Computer	.000596284867	7.3
Commodore 64	.0010414235	8.9
Vic 20	.0010414235	23.7
Apple //e	.0010414235	12.0
DEC Rainbow 100	.005859375	7.2
IBM PC	.01159668	6.3
Atari 400/800	.012959	23.8
TRS-80 Model III	.0338745	5.8
Heath/Zenith H-98A	.187805	7.4
TI SR-50 (12.7 days later was:)	.193704289	16.4

WHAT IS A NIBBLE, ANYWAY?
BY JIM SVEDLOW
FROM THE USERS GROUP OF ORANGE COUNTY
A9CUG CALL NEWSLETTER

This month I am going to try and explain all of the various number words we run across. With luck, after you finish reading this, you will have some understanding of bit, byte, nibble, word, hex, binary, and where -31952 really is in memory. With luck.

Computers really think in binary. In this numbering system there are two numbers, 0 and 1 (or, if you are a computer, off and on). While this works for your 4A, binary is cumbersome for humans. For example, in binary 41,576 is 101000110001 1100. Hex, or hexadecimal, has sixteen numbers from zero to F. Here are the first sixteen numbers in binary, decimal and hex:

DECIMAL	HEX	BINARY
0	0	0000
1	1	0001
2	2	0010
3	3	0011
4	4	0100
5	5	0101
6	6	0110
7	7	0111
8	8	1000
9	9	1001
10	A	1010
11	B	1011
12	C	1100
13	D	1101
14	E	1110
15	F	1111

The next number would be 16 or >10 or b10000 (> means hex and b means binary).

One binary number is a bit. Four bits is a nibble. So, 10, A, or 1010 takes four bits or a nibble to express.

A byte is eight bits or two nibbles. With a bit you can count from zero to one. A nibble gets you from zero to fifteen. The range of byte is:

BASE	LOW	HIGH
Binary	0	11111111
Hex	0	FF
Decimal	0	255

You have probably noticed the numbers 16 and 255 when using your TI. ASCII character run from 0 to 255. There are sixteen colors (1 to 16, really 0 to 15). A string can be up to 255 characters long. And on and on.

Before tackling the next thing, a word, lets see if we can decode something. Lets take b10100 or >14. To convert either number to decimal, we need a method:

>14 is >10 plus >4
>10 is 16 and >4 is 4
16 plus 4 is 20
Hence, >14 is 20

b10100 is b10000 plus b100
b10000 is 16 and b100 is 4
16 plus 4 is 20
b10100 is 20

Futher than that I cannot go in this space. A word is sixteen bits or four nibbles or two bytes. The range of a word is:

BASE	LOW	HIGH
Binary	0	1111111111111111
Hex	0	FFFF
Decimal	0	65,535

But there are no negative numbers. Since we need them, we use something called twos compliment 1(which is way beyond the scope of this column and this writer). I can tell you, however, the impact;

Hex range	Decimal Range
0-7FFF	0 to 32,767
8000-FFFF	-32,768 to -1

Remember that >8000 is the next number after >7FFF.

Some examples:

7FFF is 32,767
8000 is -32,768
FFFF is -1
0 is 0

Confused? So was I until I worked with it for a while. These conversion rules may help:

>>Any number less than or equal to 32,767 requires no conversion.

>>Subtract 65536 form any number over 32,767.

>>Add 65536 to any number less than zero. This conversion process can be expressed in basic:

AD=AD+65536*(AD>32767)

If AD is the address, this returns the same number if AD is less than or equal to 32767. If AD is greater than 32767, the test returns true (-1) and a negative 65536 is added to AD. Try it on your computer.

Bottom line time. Suppose you see CALL PEEK(-31952,A,B). Where is -31952? Well, since it is less than zero, we add 65536 and get 3584 or >8330. NOW YOU KNOW!

QUICK REFERENCE SHEET

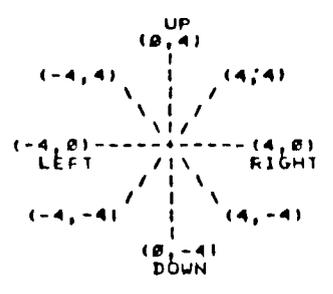
COLOR CODES		PATTERN IDENTIFIER		ERROR CODES	
COLOR	VALUE	CONVERSION TABLE		FIRST	COMMAND OR STATEMENT
TRANSPARENT	1	0	0	0	0
BLACK	2	0	0	1	1
MED. GREEN	3	0	0	1	2
LT. GREEN	4	0	0	1	3
DARK BLUE	5	0	1	0	4
LT. BLUE	6	0	1	0	5
DK. RED	7	0	1	1	6
CYAN	8	0	1	1	7
MED. RED	9	1	0	0	8
LT. RED	10	1	0	0	9
DK. YELLOW	11	1	0	1	A
LT. YELLOW	12	1	0	1	B
DK. GREEN	13	1	1	0	C
MAGENTA	14	1	1	0	D
GRAY	15	1	1	1	E
WHITE	16	1	1	1	F

ASCII CODES

CODE												
30	46	0	45	A	82	R	99	c	116	t	133	
31	49	1	66	B	83	S	100	d	117	u	134	
32	50	2	67	C	84	T	101	e	118	v	135	
33	51	3	68	D	85	U	102	f	119	w	136	
34	52	4	69	E	86	V	103	g	120	x	137	
35	53	5	70	F	87	W	104	h	121	y	138	
36	54	6	71	G	88	X	105	i	122	z	139	
37	55	7	72	H	89	Y	106	j	123	{	140	
38	56	8	73	I	90	Z	107	k	124		141	
39	57	9	74	J	91	[108	l	125)	142	
40	58	10	75	K	92	\	109	m	126	~	143	
41	59	11	76	L	93]	110	n	127	DEL	144	
42	60	12	77	M	94	^	111	o	128	~	145	
43	61	13	78	N	95	_	112	p	129	ELSE	146	
44	62	14	79	O	96	T	113	q	130	!!	147	
45	63	15	80	P	97	u	114	r	131	!	148	
46	64	16	81	Q	98	v	115	s	132	IF	149	
47	65	17	82	R	99	w	116	t	133	OO	150	
										134	GOTO	151
										135	GOSUB	152
										136	RETURN	153
										137	DEF	154
										138	DIM	155
										139	END	156
										140	FOR	157
										141	LET	158
										142	BREAK	159
										143	UNBREAK	160
										144	TRACE	161
										145	UNTRACE	162
										146	INPUT	163
										147	DATA	164
										148	RESTORE	165
										149	RANDOMIZE	ERROR

CALL KEY VALUE OF KEYSTROKES JOYSTICK RETURN VALUES

SET	ASCII CODES	CODE	KEYSTROKE
0	30-31	1	FCTN 7
1	32-39	2	FCTN 4
2	40-47	3	FCTN 1
3	48-55	4	FCTN 2
4	56-63	5	FCTN 8
5	64-71	6	FCTN 3
6	72-79	7	FCTN 6
7	80-87	8	FCTN 9
8	88-95	9	FCTN 5
9	96-103	10	FCTN X
10	104-111	11	FCTN E
11	112-119	12	FCTN 6
12	120-127	13	ENTER
13	128-135	14	FCTN 5
14	136-143	15	FCTN 9
15	144-151 BASIC		
16	152-159 ONLY		



CONTROL CODES EXTENDED BASIC STATEMENTS

ASC	PRESS	COMMENTS	ACCEPT	DISTANCE	KEY	ON WARNING	SCREEN
1	CTRL A	START OF HEADING	CHAR	END	LET	OPEN	SOUND
2	CTRL B	START OF TEXT	CHARPAT	ERR	LINK	OPTION BASE	SPSET
3	CTRL C	END OF TEXT	CHARSET	FOR	INPUT	PATTERN	SPRITE
4	CTRL D	END OF TRANS.	CLEAR	GCHAR	LOAD	PEEK	STOP
5	CTRL E	INQUIRY	CLOSE	GOSUB	LOCATE	POSITION	SUB
6	CTRL F	ACKNOWLEDGE	COINC	GOTO	MAGNIFY	PRINT	
7	CTRL G	BELL	COLOR	HCHAR	MOTION	RANDOMIZE	
8	CTRL H	BACKSPACE	DATA	IF THEN	NEXT	READ	
9	CTRL I	HORIZ. TAB	DEF	IMAGE	ON BREAK	REM	
10	SHIFT/ENTR	LINE FEED	DELSPRITE	INIT	ON ERROR	RESTORE	
11	CTRL K	VERTICAL TAB	DIM	INPUT	ON GOSUB	RETURN	
12	CTRL L	FORM FEED	DISPLAY	JOYST	ON GOTO	GAY	

CALL LOADS

ADDRESS	PARAMETERS	DESCRIPTION
-32748	POKE 0-255	RATE of FLASH of CURSOR
-31788	POKE 192	DISABLE SPRITE action
-31804	PEEK X,Y	Returns to Title Screen
-31806	POKE X,Y	
-31806	POKE 16	DISABLE QUIT KEY (Fctn =)
-31806	POKE 32	DISABLES SOUND
-31806	POKE 64	DISABLES AUTOSPRITE MOTION
-31806	POKE 4	Goes to Console BASIC after 'NEW' is typed
-31860	POKE 0	Runs DSK1.LOAD
-31876	POKE 0-26	Highest # SPRITE in motion
-31888	POKE 63,255	Disables Disks, NEW free mem
-31931	POKE 0/126	Unprotects/Protects program
-31962	POKE -2	Returns to TITLE SCREEN
-31962	POKE 55	Runs DSK1.LOAD
-31972	PEEK A, E, C, D	Recovers program with LOAD
-28672	PEEK A	96-Speech Syn. 0=NO Speech

We wish to give credit to the PUGET SOUND 99'ERS who printed this All Purpose Handy Dandy Reference sheet in their APRIL 85 Newsletter.

BACK TO BASICS

Curtis Alan Provance
New Hampshire 99er's User Group

If you have February's newsletter, dig it out, as I will reference it somewhat in the following discussion. The intent of this article is to share my style of programming, as well as some quirks of TI BASIC that may be useful to you in your programs.

1) DEFAULTS:

A default is the value assumed by BASIC when you don't enter one yourself. An example of this is the character count in HCHAR and VCHAR. Another is the RANDOMIZE statement. There are some defaults not published, one of them involving POS and null strings. Lines 580 and 590 of the disk jacket program ask for the user to enter a disk drive number. This number is then compared to a string to ensure that it is legal (very limited error trapping). This is done with:

```
580 INPUT "PLACE DISK TO BE
CATALOGUED IN ANY DRIVE AND
ENTER THE DRIVE NUMBER. (DE
FAULT IS 1)DRIVE #":DISK$
590 IF POS("1 2 3 4",DISK$,1
)THEN 600 ELSE 570
600 ....
```

What do I mean the default is 1? If the user simply presses enter (without typing a number) won't POS give a value of '0'? I'm sure you've guessed by now that the answer is NO! POS always returns a value of '1' when a null string is checked. In this case, the default is '1' because it is the first number in the list. If I were checking for 'YN' (yes, or no) I could have a different 'default'. This trick is handy for menu driven programs in which you want to cycle quickly through a common sequence without actually typing letters, numbers, or whatever.

2) DEF's:

I have written articles before about the usefulness of DEF's. Check out lines 440 through 470 for some simple uses. We can even modify line 590 to do further error checking with a DEF. Since we want people to enter a single number or character, we will create a DEF to get this for us. Below are two possibilities:

```
XXX DEF FIRST$(X$)=SEG$(X$,1,1)
XXX DEF FIRST$(X$)=CHR$(ASC(X$))
```

Look at both and make a choice - I hope you picked the first one! Not only is it aesthetically more pleasing (to me), it is also a more accurate representation of the desired function. The clincher, though, is that it will work correctly with a null string, while the second DEF won't. We may now modify line 590 as follows:

```
590 IF POS("1234",FIRST$(DIS
K$),1)THEN 600 ELSE 570
```

3) READ/DATA:

I get really PO'ed when I pick up a listing and see

dozens of lines which do the same thing. For example, there is a MORSE code program floating around with enough CALL SOUNDS for a score of programs (sorry about the pun). Another killer is a program with fifty or sixty CALL CHAR's. If you are doing something many times - but with different values - consider using READ and DATA statements, PLEASE! Look at lines 490 through 540. In six BASIC lines I have assigned values to 25 variables. I could have gone one better and done it five, but what the heck!

With judicious placing of data, and the use of RESTORE, you may READ the same items again and again (as when you set up a game, deck of cards, table of numbers, etc.).

4) INPUT:

When you want to ensure upper case input, precede the INPUT (or ACCEPT) with a CALL KEY(3,K,S). The '3' will set the keyboard to upper case only and that will remain in effect during the subsequent INPUT (or ACCEPT). INPUT is also handy in that it provides for a prompt. Be sure to leave a space at the end of the prompt, so the actual input doesn't butt up against it. You may even want to add enough spaces to cause a 'newline.'

Finally, a bit of wisdom (confusion):

Assume only two things - everything, and nothing.

Assume everything means that you should expect users to try anything possible (such as null strings when you want a disk number). Some people (like me) go out of their way to challenge a program. Program for every event possible (given limitations of the language).

Assume nothing means that you should not expect users to know what's going on. Prompt for everything, and include a list of allowable entries if they aren't obvious. Nothing irritates me more than to boot up a program and have it start with a question mark and a beep - but no prompt for what it wants. I remember seeing a cartoon somewhere which said it all. A confused user was scanning the keyboard muttering, "Where's the 'ANY' key?..."

SURVEY!

In this newsletter you will find a survey form. Please fill it out and bring it to the club meeting or mail it to the club PO box. After we compile the results, we will forward them to the requesting individual. Thanks!

PLEASE USE A DARK COLORED FELT PEN, THANK-YOU
YOU MUST SELECT ONLY 1 ANSWER, NO EXCEPTIONS.

- A1(2) WHAT IS YOUR SEX? M ___ F ___
- A2(5) WHAT IS YOUR AGE GROUP? 17 OR UNDER ___ 18-24 ___ 25-34 ___ 35-44 ___ 45 AND OVER ___
- A3(5) HOW MANY YEARS OF EDUCATION? 11 OR LESS ___ 12 ___ 13-15 ___ 16 ___ 17 AND OVER ___
- A4(5) YOUR OCCUPATION? STUDENT ___ BLUE COLLAR ___ WHITE COLLAR ___ PROFESSIONAL ___ RETIRED ___
- A5(2) DO YOU USE A COMPUTER AT WORK? Y ___ N ___
- A6(8) WHICH BRAND? N/A ___ IBM ___ APPLE ___ DEC ___ SPERRY ___ NEC ___ DONT KNOW ___ OTHER ___
- A7(3) HOW MANY TI-99/4 OR 4As DO YOU OWN? 1 ___ 2 ___ 3 OR MORE ___
- A8(4) HOW MANY PEsystems DO YOU OWN? 0 ___ 1 ___ 2 ___ 3 OR MORE ___
- A9(7) WHICH MEMORY EXPANSION DO YOU HAVE? NONE ___ TI ___ CORCOMP ___ FOUNDATION ___ MYARC ___ MECHATRONIC ___ OTHER ___
- A10(6) WHAT SIZE? N/A ___ 32K ___ 128K ___ 256K ___ 512K ___ 1024K ___
- A11(6) WHICH DISK CONTROLLER CARD DO YOU OWN? NONE ___ TI ___ FOUNDATION ___ MYARC ___ CORCOMP ___ OTHER ___
- A12(4) HOW MANY 5-1/4" DISK DRIVES DO YOU OWN? NONE ___ 1 ___ 2 ___ 3 OR MORE ___
- A13(5) CONFIGURATION? N/A ___ SS/SD ___ DS/SD ___ DS/DD ___ DS/OD ___
- A14(2) DO YOU OWN A HARD DISK SYSTEM? Y ___ N ___
- A15(4) WHATS THE SIZE? N/A ___ 10 OR LESS MEG ___ 20 MEG ___ 30 OR MORE MEG ___
- A16(2) DO YOU OWN A MODEM? Y ___ N ___
- A17(4) INDICATE HIGHEST BAUD RATE? N/A ___ 300 ___ 1200 ___ 2400 ___
- A18(10) WHICH PRINTER DO YOU OWN? NONE ___ TI ___ EPSON ___ PERIFITER/NEC ___ OKIDATA/CITOH ___
STAR MICRONICS ___ COMPEL/TOSHIBA ___ BROTHER/CANNON ___ JUKI/CITIZEN ___ OTHER ___
- A19(2) DO YOU OWN A MONITOR? Y ___ N ___
- A20(2) ARE YOU USING A TV? Y ___ N ___
- A21(10) WHICH MONITOR BRAND? N/A ___ TI ___ AMDEK ___ SANYO/TAXAN ___ NEC ___ TATUNG/SAMSUNG ___
MAGNAVOX/SONY ___ EPSON/PRINCETON ___ HITACHI ___ OTHER ___
- A22(4) IS YOUR MONITOR? N/A ___ RGB ___ RGB/COMPOSITE ___ MONOCHROME ___
- A23(2) DO YOU HAVE THE GRAM KRACKER? Y ___ N ___
- A24(3) HOW MANY SOFTWARE CARTRIDGES (MODULES) DO YOU OWN (INCLUDE CASSETTE)? 9 OR LESS ___ 10-24 ___ 25 OR MORE ___
- A25(3) HOW MANY SOFTWARE DISKS DO YOU OWN? 9 OR LESS ___ 10-24 ___ 25 OR MORE ___
- A26(4) HOW DO YOU USE YOUR TI? ENTERTAINMENT ___ BUSINESS ___ EDUCATION ___ PROGRAMMING ___
- A27(7) PROGRAMS, WHAT DO YOU PROGRAM IN? N/A ___ BASIC ___ XBASIC ___ ASSEMBLY ___ FORTH ___ C ___ OTHER ___
- A28(2) EVER WRITE A COMMERCIAL PROGRAM FOR TI (INCLUDE FREEWARE)? Y ___ N ___
- A29(7) IN WHAT LANGUAGE? N/A ___ BASIC ___ XBASIC ___ ASSEMBLY ___ FORTH ___ C ___ OTHER ___
- A30(2) DO OTHERS USE YOUR TI? Y ___ N ___
- A31(4) HOW MANY OTHERS? N/A ___ 1 ___ 2 ___ 3 OR MORE ___
- A32(2) DO YOU OWN ANY OTHER BRAND OF COMPUTER? Y ___ N ___
- A33(6) IF SO WHICH BRAND? N/A ___ IBM ___ APPLE ___ COMMODORE ___ ATARI ___ OTHER ___
- A34(4) APPROXIMATELY HOW MANY HOURS PER WEEK DO YOU USE YOUR TI? 4 OR LESS ___ 5-9 ___ 10-14 ___ 15 OR MORE ___
- A35(2) ARE YOU A MEMBER OF A USERS GROUP? Y ___ N ___
- A36(8) HOW MANY MEMBERS? N/A ___ UNDER 33 ___ 34-49 ___ 50-74 ___ 75-99 ___ 100-150 ___ 151-199 ___ OVER 200 ___
- A37(2) ARE YOU MEMBER OF A COMMERCIAL NETWORK? Y ___ N ___
- A38(5) WHICH ONE? N/A ___ COMPUSE/IE ___ SOURCE ___ GENIE ___ OTHER ___
- A39(6) HOW MUCH IN DOLLARS DO YOU USE IT PER MONTH? N/A ___ \$29 OR LESS ___ 30-49 ___ 50-74 ___ 75-99 ___ 100 OR MORE ___
- A40(2) DO YOU PLAN TO PURCHASE (OR HAVE) THE MYARC 9640? Y ___ N ___
- A41(9) WHAT SOFTWARE AREA YOU WOULD LIKE FOR THE 9640? N/A ___ CAD/GRAPHICS ___ DESK-TOP PUBL ___ DATABASE ___
WORD/PROC/MULTIPLAN ___ TRUE BASIC ___ ASSEMBLY ___ C-LANG ___ C++ LANG ___
- A42(8) WHAT ABOUT HARDWARE FOR THE 9640? N/A ___ APPLE COMPATIBILITY ___ IBM COMPATIBILITY ___ RGB MONITOR ___ 3.5" MICRO
DISKETTE ___ CD ROM ___ SPEECH RECOGNITION ___ INTELLIGENT MODEM ___
- A43(2) DO YOU PLAN TO PURCHASE (OR HAVE) TRITONS TURBO XT? Y ___ N ___
- A44(8) HOW MANY EXTRAS DID YOU USE WITH THE TURBO XT? N/A ___ 1 ___ 2 ___ 3 ___ 4 ___ 5 ___ 6 ___ 7 ___
- A45(2) WOULD YOU LIKE AN AUTO UPDATE FOR THE TURBO XT? Y ___ N ___
- A46(3) HAVE YOU PLANS TO PURCHASE CARDS BY OTHER VENDORS? Y ___ N ___
- A47(2) DO YOU PLAN TO PURCHASE (OR HAVE) RAJES KEYBOARD? Y ___ N ___
- A48(2) DO YOU PLAN TO PURCHASE (OR HAVE) A MOUSE? Y ___ N ___
- A49(2) DO YOU SUBSCRIBE TO: MICROBENDUM Y ___ N ___
- A50(2) DO YOU SUBSCRIBE TO: SOFTWARE PROGRAMMER Y ___ N ___
- A51(2) DO YOU SUBSCRIBE TO: COMPUTER SHOPPER Y ___ N ___
- A52(2) DO YOU SUBSCRIBE TO: GENERAL TRAVELER Y ___ N ___
- A53(2) DO YOU SUBSCRIBE TO: UG PUBLICATIONS Y ___ N ___
- A54(5) WHAT IS YOUR OPINION OF THIS SURVEY? VERY POOR ___ POOR ___ OK ___ GOOD ___ VERY GOOD ___

AC*(3) THE NEXT 2 QUESTIONS ARE DEMOGRAPHIC. IF YOU ARE IN USA OR CANADA WHAT IS YOUR TELEPHONE AREA CODE. ALL OTHERS ENTER CITY: _____

ZC*(3) IF YOU ARE IN USA OR CANADA PLEASE ENTER YOUR ZIP CODE. ALL OTHERS ENTER COUNTRY: _____

FOR COMMENTS, PLEASE WRITE A BRIEF LETTER & ENCLOSE IT WITH THE SURVEY.
IF YOU WANT: SEND YOUR NAME & ADDRESS ON THE OTHER SIDE OF THIS FORM.

MAIL TO: ALI ULGEN ATTN: SURVEY 952 E PARKHAVEN DR SEVEN HILLS OH 44131-3918 [On; SURVEY F#; S/TI].

THE PARENT COMES THROUGH

By Jim Mekeel
Northcoast 99ers
November 15, 1986

The 99/4A may be an orphan, but Texas Instruments has not disinherited the users groups yet. After several months of waiting, we received the Software Testing System that TI announced it would release. This release consists of two disks and approximately 24 pages of documentation. One disk is used with Extended Basic and the other is used with the Mini Memory module. Per TI's cover letter, the functions of the two disks are the same. This month we shall review the XB version.

Cataloging reveals a LOAD program with the following menu appearing:

- 0...P/CODE TEST
- 1...EXPANSION BOX TEST
- 2...IMPACT SERIAL TEST
- 3...IMPACT PARALLEL TEST
- 4...SPEECH TEST
- 5...THERMAL PRINTER TEST
- 6...DISK EXERCISER
- 7...RS232 TEST
- 8...MODEM TEST
- 9...CATALOG TEST
- 10...RS232/1&2 TEST
- 11...RS232/3&4 TEST

P/CODE TEST Tests the two ROM's and eight GROM's of the P-Code card individually. Since I do not have this card, I cannot tell you more about this test.

EXPANSION BOX TEST

Simply states good or bad unit.

IMPACT SERIAL TEST

Transmitting only at 300 baud, this program sends all the ASCII characters, type sizes, type densities, sounds the bell, horizontal tab, vertical tab and follows with a graphics test. This is useful in testing printers (TI, Epson, Star, and compatibles) and the first RS232 port RTX function. Note - the test does not send out all the available characters that are non-ASCII. If you want to test for these, use a program from the Northcoast library called GEMINI DEMO which can be found on disk 66.

IMPACT PARALLEL PRINT TEST

Same as above, except uses the parallel port.

SPEECH TEST

This one speaks the entire vocabulary contained in the speech synthesizer and prints the words to the screen. Takes about 4 minutes to speak all the test.

THERMAL PRINTER TEST

Prints rows of characters to test the printer.

DISK EXERCISER

The documentation is not very good on this one. The screen comes up with:

```
step in <
step out
seek 16
drive sel 1
Restore
Adjust 00
write xx
side select 0
Track Reg xx
write protect x
index pulse
track 00 x
read data
```

then PRESS ANY KEY TO BEGIN

Pressing any key starts the test (better use a blank disk until we know more!) Drive #1 turns on and the read data numbers start counting up.

I left this on for about four minutes with no other action occurring. Pressing different key combinations does not change anything. Quit is disabled - you must turn off the console to get out of this one. Using Disk Helper I, I cannot see that anything has been written to the disk. The program is in assembly, and I see that there is a KEY SCAN routine but no documentation. Perhaps one of the smart assembly programmers in our group can help us out?

It could be that this program would be useful in head cleaning since the drive rotates constantly.

RS232 TEST

This test requires an adapter to be built and will report errors in the buss signals, ROM, CRU registers 1302 through 130E, DTR inputs at the UART's and the buffers.

MODEM TEST

Requires a modem with a test switch. Most modems do not ave this. All the test switch does is to loop back to the signal. This test is most commonly used with acoustic coupler type modems.

CATALOG TEST

Simply catalogs a disk in drive #1.

RS232/1&2 TEST

Again, requires an adapter cable like the previous RS232 test. Without the cable, the machine tells you "BAD ROM".

RS232/34 TEST

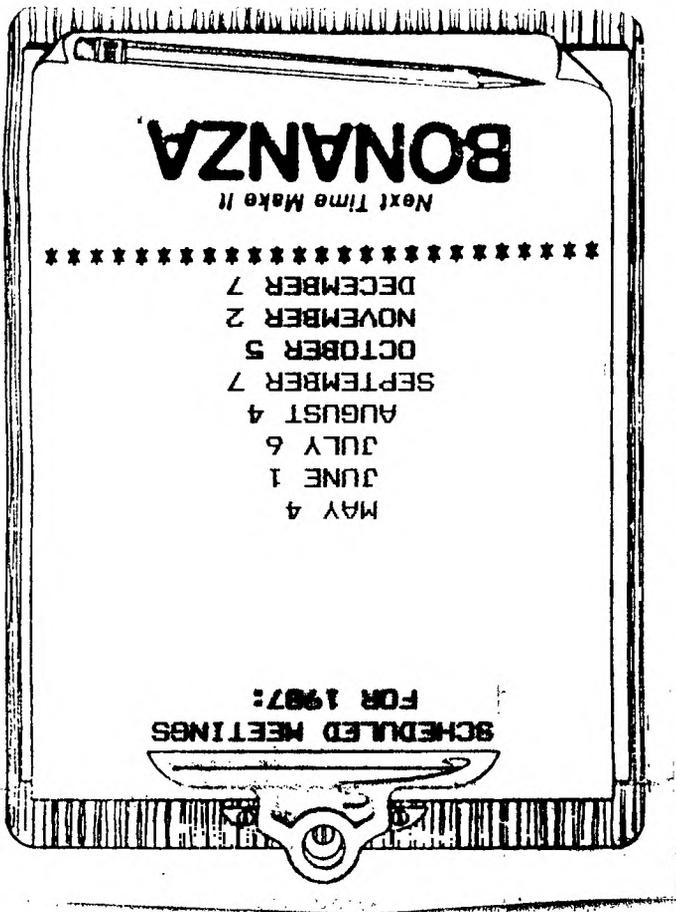
Same as above.

For the most part, this disk provides some useful tests in trouble shooting your hardware. However, in many areas, the documentation leaves a lot to be desired. Perhaps TI will see fit to distribute an update to the current documentation to make these test programs more usable.

BONANZA
Next Time Make It

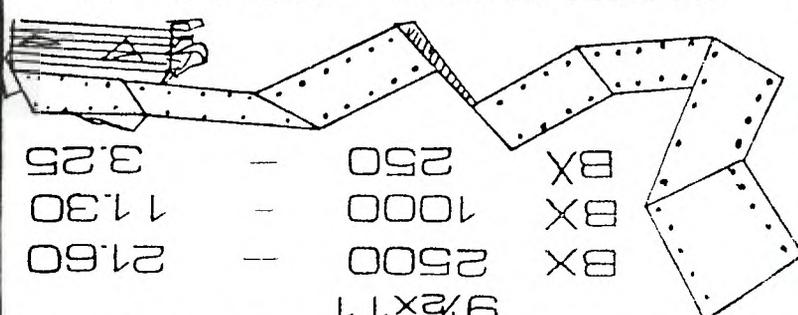
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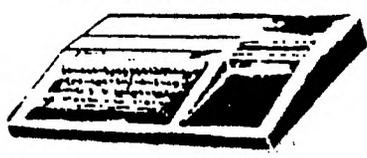
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