ROCKY MOUNTAIN 99'ers

TIC TALK

VOL II, NO 9 DENVER, COLORADO USA MAY 1984
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LET'S PLAY BALL

After waiting for what seems eternity the MBX System finally arrived just in time for the baseball season. With a little anxiousness and admittedly a little fear the whole thing would'nt work, I opened the box and started hooking up all the gadgets. First the Command Center, hook up the power supply and then the cables to the joystick port and on to the cassette port, hmmmm. Now hook up the Headset(which is the key to this whole thing) and next the special joystick which has several buttons on it for specific games. I turned on the MBX box and it said "READY". The Box spoke not the TV. I followed the simple instructions and recorded my voice commands for the control of the nine players on the field. When i say "CENTERFIELD" whoever has the ball throws it to centerfielder; neat!

I think i'm ready to play a game of baseball, but I need a partner. My secretary looks like she needs a break. She records her commands for when her team takes the field. It really is working fine. You can hit, bunt, steal bases, slide into home, WATCH-OUT! she just threw the ball to the shortstop and is trying to tag out my runner who was trying to steal third. Whew! I made it back to second with a good slide. I'm really starting to get into the game now; score 6 to 1. That doggone phone is ringing. We can't be interested in business now, don't these people know we have the big game on.....

Would you beleive my secretary and myself spent three hours playing baseball that day. Now she wants to play some more, we'll never get any work done. I have the newsletter to get out. Let's see is'nt this the person who never plays games talking. You wouldn't believe it....I'm hooked on this one.....everyone who comes into my office has to play at least one inning(unless I'm behind).

Milton Bradley what have you done? In my estimation someone has finally created a fun game that anyone can enjoy and they only made a few before all production was stopped. My advice to you'al is to grab one while they are available, as they are in very short supply. My next question is how can we program other games for this!

MAY MEETING

MAY 8

Jefferson County Fargrounds

Auditorium 7:00 PM

6th Ave West to Indiana Ave.

MAY
1984

S	M	T	W	T	F	S
			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		

TI FORTH

by Ted Michelsen

For those who have gotten a copy of TI FORTH from the library and found that as written, the only printer option supported is serial at 9600 baud, take heart. The change for other printer options is not hard. Enter an edit mode and call up SCREEN number 72. Then "arrow" down to line number 4, change the string after F-D" to the printer option you need. Such as PIO for parallel or change the baud rate from 9600 to what you need for your printer. The same "names" are used as are used by TI BASIC. Delete any unused parts of the old name, but leave the quote (") at the end. While you have SCREEN number 72 on your screen and in the edit mode, look at line number 5. The copy I have has a typo in it and the "SWCH" did not work. All that you have to do is change the following:

```
old
PAB_ADDR VSBW

to
PAB-ADDR VSBW
```

With the above change all it takes to send text or data to the printer is the word SWCH.

I tried a few simple TI FORTH programs to see if TI FORTH was faster than TI BASIC or TI EXTENDED BASIC. It is! The following simple program will print out the ASCII character number and the character on the monitor.

```
: LETTER 100 32 DO CR I DUP .  EMIT LOOP ;
```

I have timed it and it takes about one third the time to do the same thing in BASIC or about two third the time to do the same thing in EXTENDED BASIC. This is not as fast as one would expect from the press one heard about FORTH. I attribute this to the time it takes to transfer the data between the CPU and the display processor. When I designed a assembler program to do the same thing I noticed a very large number (about 35) program steps to do what TI BASIC does in 3 steps. This could also be a factor in the slower than expected speed of TI FORTH, since TI FORTH is advertised as being half as fast as assembler. From my own tests I found that assembler was at least 200 times faster than TI BASIC or TI EXTENDED BASIC.

Overall I have found TI FORTH to be fun to play with and as of yet have not written any useful programs using TI FORTH, but one of these days when I get a chance I will.

WEIGHT CONTROL NUTRITION

by Brian Wrenshall

The WEIGHT CONTROL AND NUTRITION Command Module will work with your dot-matrix parallel printer. Contrary to what club members have been told by everyone from TI on down, all that is needed is a little deception and this handy module will print its heart out to any parallel printer.

When you start up the program, one of the first inputs requested is whether you will be using a printer. If you answer "YES" at this point, the only printer name that is accepted is "TP.U" for "Thermal Printer". All attempts to input "PIO", which indentifies a printer conected to the parallel output port of your RS-232 card, are rejected. However, if you answer "NO" to the "using a printer" question, or enter "TP.U" as the printer name, you may proceed with the generation of your menus, etc. When you are ready to print the results, select the "PRINT RECORDS" command. The Computer responds with a "DEVICE NAME?" prompt and a flashing "DEVICE NOT FOUND" message. Don't PANIC!!!! At this point the program will accept the "PIO" device name, and will proceed to print menus/or personal information, as you stipulate.

COMPUTER LANGUAGE 'POTPOURRI'

by Bob Grossart

We all know about BASIC or Beginers All-purpose Symbolic Instruction Code , but have you ever wondered what some of those other strange computer language names came from or what they represented? Here are a few examples:

FORTRAN	FORmula TRANslator
RATFOR	RATional FORtran
COBOL	COmmon Business Orientated Language
APL	A Programming Language
LIST	LISt Processing language
PILOT	Programmed Inquiry Learning Or Teaching
LOGO	(a learning language for computer aided instruction)
Pascal	(named for French mathmatician who invented one of the first mechanical computers)
UCSD Pascal	University of California,San Diego-Pascal
C Language	(special Bell Labs design)
Ada	(named for Lady Ada Augusta Byron, a mathmetician. This language is being pushed by the Department of Defense as THE language to use)
FORTH	(the language inventor,C.H.Moore,explains the fourth generation computer language he developed on an IBM 1130 permitted only five character identifiers so FOURTH became FORTH)
Smalltalk-80	(result of 10 years of research by the Xerox Learning Research Group located in California)

This is a very small sample of the large number of computer languages that are in existance. For example, a list of 167 major computer languages were compiled by Jean Sammet of IBM (Communications of the ACM,December 1976,page 655). My encyclopedia states there are 2,796 spoken languages. Computers have a long way to go! Well, so much for trivial pursuit

ANNOUNCEMENT

MEMBERSHIP ROSTER PRINT-OUT

I just knew I had written an article notifying you'al that we are going to publish a roster of all members. Upon rereading the last couple of issues I will have to admit that I was mistaken. Somehow the article never made the paper.

There have been many requests for a list so one might find out who is a neighbor with a TI. Perhaps the list will develop in new friendships, create car pools, or assist in forming local interest groups. The list will be an insert which will be sent to other members only and not to other Users Groups or non-members. We want it clear, that it is forbidden to use the list for any commercial or non-club purposes

If any of you should not like to be included, it will be necessary for you to let us know. Call KEN MONSON 233-1788 to have your name stricken from the roster and you will remain anonymous, for whatever reason you desire. It will be necessary to act promply as we plan to publish the list with the June Newsleter and will go to press about May 20th.

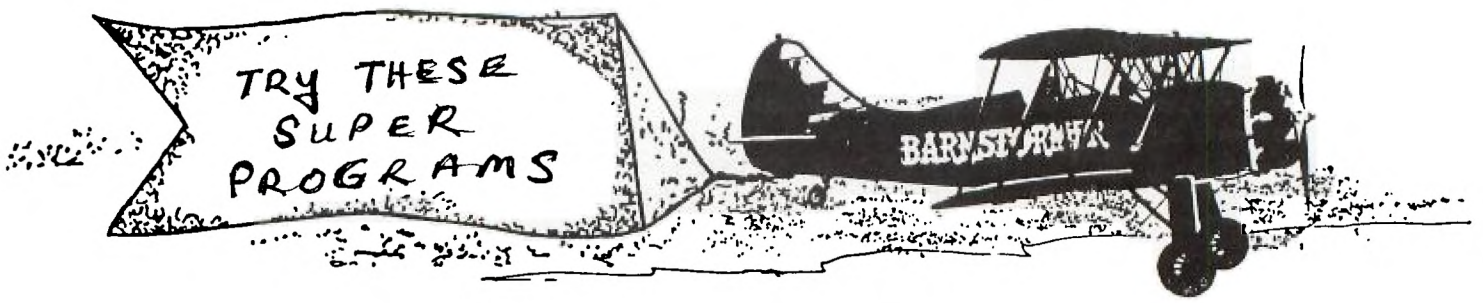
ELECTRONIC BILLBOARDS

submitted by Robt. Wegener

The following utility programs can add a little spice to your program. Give them a try. The first which is #2 is in BASIC while the next which is #1 is written in EXTENDED BASIC.

```
100 REM **ELECTRONIC BILLBOARD #2** BY R. WEGENER
110 REM **MESSAGE APPEARS FROM RIGHT**
115 REM **ONE LETTER AT A TIME**
120 REM **MAXIMUM LENGTH =30 CHARACTERS, INCLUDING SPACES**
130 M$="DON'T LEAVE HOME WITHOUT IT !"
140 CALL CLEAR
150 L=LEN(M$)
160 LTR=INT(32-L)/2
170 FOR I=1 TO L
180 FOR J=31 TO LTR+1 STEP -1
190 CALL HCHAR(22,J,ASC(SEG$(M$,I,1)))
200 CALL HCHAR(22,J+1,32)
210 NEXT J
220 LTR=LTR+1
230 NEXT I
240 CALL KEY(0,K,D)
250 IF D<1 THEN 240
260 END
```

```
100 REM **ELECTRONIC BILLBOARD #1** BY R. WEGENER
105 REM ** X-BASIC **
107 REM **28 SPACES BETWEEN QUOTES IN LINE 110**
110 A$="                            "
120 B$="FOUR SCORE AND SEVEN YEARS AGO, OUR FOREFATHERS BROUGHT FORTH ON THI
NTINENT***ETC. YOU GET THE IDEA !"
130 C$=A$&B$&A$ :: D=LEN(B$)+28
135 CALL CLEAR
140 FOR I=1 TO D+1
150 DISPLAY AT(23,1):SEG$(C$,I,28)
160 NEXT I
170 CALL KEY(0,K,R)
180 IF R<1 THEN 170
190 END
```



FROM THE GRAPEVINE

FREE PROGRAMS:by Ed York (Cin-Day User Group Newsletter)

1. The program listed below demonstrates the power of illusion as you see shades of colors that you thought never existed. The original idea came from our friends in Sydney, Australia. The author is, at the present, unknown!

```
100 REM COLOR BONANZA
110 REM WRITTEN BY:
120 REM ED YORK
130 CALL CLEAR
140 FOR A=40 TO 136 STEP 8
150 CALL CHAR(A,"55AA55AA55AA55AA")
160 NEXT A
170 FOR B=2 TO 14
180 CALL COLOR(B,1,1)
190 CALL VCHAR(1,2*B,24+8*B,22)
200 CALL VCHAR(1,2*B+1,24+8*B,22)
210 NEXT B
220 FOR C=2 TO 14
230 CALL SCREEN(INT(16*RND)+1)
240 FOR D=2 TO 14
250 CALL COLOR(D,D,C)
260 NEXT D
270 CALL KEY(0,E,F)
280 IF F<1 THEN 270
290 NEXT C
300 GOTO 220
```

EDITORS NOTE:To change colors depress space bar or any other alphanumeric key. Note program lines 270-280.

2. The program listed below was specifically written to allow the user to peeK into each memory location, return the particular ASCII vaule stored at each location and display each ASCII value if that value can be displayed. Note: This program may divulge some rather strange and yet fascinating information! Note: This program requires both the Extended Basic and Memory Expansion!

```
100 !MEMORY PEEKER
110 !WRITTEN BY:
120 !ED YORK
130 CALL CLEAR :: CALL INIT :: A=-32767 :: DISPLAY AT(1,6):"MEMORY ASCII CHR"
140 FOR B=3 TO 22 :: CALL PEEK(A,C) :: DISPLAY AT(B,6):A;"=" :: DISPLAY
AT(B,15)SIZE(-3):USING "###":C ::GOSUB 170
150 DISPLAY AT(B,19):"=" :: DISPLAY AT(B,21):USING "###":CHR$(C) :: A=A+1 :: NEXT B
160 DISPLAY AT(24,2):"PRESS ANY KEY TO CONTINUE." :: CALL KEY(0,C,D) :: IF D=0 THEN 160
ELSE 140
170 IF C<100 AND C>10 THEN DISPLAY AT(B,15)SIZE(-1):"0" :: RETURN
180 IF C<10 THEN DISPLAY AT(B,15)SIZE(-2): "00" :: RETURN
190 RETURN
```

TUNNELS of DOOM

Helpful hints from Charles Watkins(Central Texas Users Group)

Shopping for Weapons

Edged Weapons. Because of the avialability of ranged weapons, the only edged weapon worth buying on the top level is a dagger for the Wizard. The dagger can do four points of damage in close combat, while the ling does only two. Forget the rest and choose ranged weapons so you can shoot at the monsters while they are closing in. (However, if you find yourself at the eighth level store with spare cash, you ought to consider a dwarven axe, which does sixteen points of damage.)

Ranged weapons. Buy crossbows. They do as much damage as swors, but can fire at anything in the room. . Sure, you'll have to buy quarrels, but you can stock up at bargain prices in the top floor store. YOur wizard should take a sling to use from the back row, always hoping for that Honing Stone to improve its two points of damage.

When it comes to the warball (sold at the fourth and eighth floor stores), I tend to vacillate. On one hand, it can dish out twenty points of damage at once, enough to take out an average monster. On the other hand, you can only use it once in each fight (unless you have the Weapon Hoarder wand). Then you have to change to another weapon for the duration. If the second weapon is a crossbow, you can continue your ranged attack with the crossbowe doing eight points of damage. However, if you've obtained a superior edged weapon such as the dwarven axe or eleven blade, you're going to have to fight face-to-face. I usually buy a warball on the fourth floor and throw it away after I get my dwarven axe on eight.

You might be curious about the stone arrows, sold at all three stores, that don't fit your bow or crossbow. They are used with a magic item, the Stone Bow, and do twelve points of damage. Another magic weapon is the Alertness Bow, which does six points of damage but never runs out of arrows.

Book Review: "The Best Of 99'er, Volume 1"

from the Editors of the 99'er Home Computer Magazine.

This book is a compilation of articles selected from the first year issues of the 99'er Home Computer Magazine. It is available from the magazine for $19.95 plus $1.50 postage. The programs listed in the book are available on tape , as is a book/tape package deal(refer to latest issue of magazine for details).The book of 358 pages provides, quoting the Preface, "...stimulating and informative reading for the beginner as well as the experienced programmer." I agree. To those of us which do not have access to the earlier issues of the 99'er magazine (and to others also) this first volume provides in one place a wealth of informative articles, including over 200 program listings, on the capabilities and use of the TI-99/4(A). For example, here is a listing of the book chapter titles:

- Starting Out
- Programming Techniques and Languages
- Inside BASIC and Extended BASIC
- LOGO
- Assembly Language
- Computer-Assisted Instruction
- Computer Gaming
- Applications and Utilities

The progam listings are well presented in a clear and readable manner. The editor has stated that the bugs and ambiguities appearing in the original magazine articles have been corrected. There is enough variety in the articles to interest almost any TI-99/4(A) computer user. Due to the wide range of topics, this first volume is not everything to everyone, but should be a useful addition to your computer reference library. It may also wet your appetite for gaining additional knowledge on the operation and uses of your TI-99/4(A) home computer. I am looking forward to announcement of future volumes .
Bob Grossart

A Review by Robert Mutch

You are the captain of the U.S.S. Recovery and your mission is to capture treasures stolen from Earth. Battle against the mighty Zygonaut and his menacing creatures to save the world's most valuable treasures.

You are the commander of a underground vehicle that has a water cooled laser. You have a crew of five loyal members. Using your laser you try to shoot the monsters that appear by maneuvering your horizontal and vertical lasers. There are ten different monsters that will attack your ship. Some are more difficult to shoot due to the background of the screen, for instance, black on black. At the higher levels the monsters go faster and your laser heats up faster using more water. Each time you run out of water or overheat the lasers or are hit by a monster you lose a crew member, and when all of your crew members are lost the game is over. When you come to one of the treasures or a puddle of water you stop your ship by pressing the space bar then you maneuver your crewmember to the treasure or water and hit the space bar again and your crew member goes back into the ship and you get your bonus points. While you are tring to do this a monster will try to attack your crew member. Your member is equipped with a hand laser with ten shots in it. If the monster is to close you must shoot it before he can return to the ship. As you go along you will meet the mighty Zygonaut and all the action stops. If you have the speech syn. connected the Zygonaut which actually looks like a basketball with eyes and a mouth says "ha ha ha you"ll never get me ". So far I believe him because I have never got him.

The game is fun but very tedious to get to the upper levels. A trick to get into a mode that allows you to increase your level and the number of crew members that you have is after you get to the menu that says T.I. basic, english, espanol etc., you type 2 for English, or at least I do. Then you type *#*. The screen will turn black and it will say Test Mode, level(00-59). You then type what level you want to start on, Then it will say Moon Miners(1-9). After you enter that number the game will start. You can use the keyboard or joysticks to play the game, note that with J/S you must still use the keyboard to get the guy out to pick up stuff. Have fun Moon Mining.

TEXNET & THE SOURCE TELECOMPUTING

By Bill Jones.
Crawfordsville, Indiana

(Reprinted from the Hoosier UG Aug'83)

I have been tying into Texnet telecomputing network for several months now, and I and am getting usable information back for the time and money I invest in the service. Plus I enjoy these sessions.

I use the Signalman Mark III Modem and find it works quite well. After 8 hours or so I finally was able to download the screen displays to my printer, and over-come carriage return problems. I learned the hard way by buying time, and found there was little help from The Source or Texnet that dealt with hardware or software problems.

The Source costs $7.75 an hour between 6 p.m. and 7 a.m. on weekdays and on weekends. It is a local call if you can reach Indy from your phone. I use Ma Bell's Televisit service and get 2 hours of no charge use from Crawfordsville and reduced rates after 2 hours. The Source offers some 1800 services to its subscribers including the Texnet Information Service for TI users. I use Texnet to survey new and free programs from the International Users Group. (I have a list of these programs.) You can also get information on TI's latest offerings on hardware and software plus a description of each.

I use The Source services to get complete list of airline schedules and use it to look for the best flight, time, and rate. You can purchase your tickets with a credit card and your TI. Computer shopping through Compustore may "save you up to 40%" on hundreds of items for your home or auto. With a credit card you can have them shipped directly to you from a local distribution center. This could save you more than your subscription rate if you will be purchasing items for your home. My favorite service is the Printwise banner printer and the calender printer which will print interesting and useful art to your printer.

I also carry on Chats with other TI users in other states and share technical information with these subscribers. You can even send electronic mail to anywhere in the world if you have the need.

To connect your TI-99/4A to the world of telecomputing, you will need a modem, RS 232 Interface, and the TE II Module. A printer and disk drive are useful but not essential to get started. Above all, a credit card is a MUST.

DISK MANAGMENT

by Rev. Keith G. Koch (Washington DC TIHC Users Group NEWSLETTER)

So no more TI home computer products. Too bad, as I firmly believe their problems were not from their product. The 99/4A set a standard that the competition has yet to match. Since we can't cry over spilt milK, we might as will continue to investigate the machine we do have.

Take our Disk Management as an example. Our disK is divided up into 9 sectors (think of a sector as a wedge of pie). Each sector is divided into 40 tracks or concentric circles where data can be written to or read from. 40 tracks times 9 sectors gives us 360 areas in which to store our data. Each of these sector areas ("sectors" for short) can contain up to 256 bytes of information or 2048 small magnetized areas. 256 bytes times 360 sectors give our single sided disK system a total of 92160 bytes of storage area (or 90K for short).

However, when one catalogues an intialized "empty" disK you will see that only 358 sectors are available. What happened to the other 2? 256 Bytes or one sector is used by our Disk Controller for house keeping chores: disK name, information concerning the available and used sectors, number of tracks and a few other items which TI would rather not have us know or write about are located here.

Another 256 bytes or 2nd sector area is used by our Disk Controller to keep a running, up-to-date alphabetical catalog of our programs or data files. This area allows us to catalog a total of 128 file names which are re-alphabetized each time we add or delete our data.

Thus, when I want to use a disK containg 360 sectors, 1 is "lost" to keep the Disk Controller information. Another is "lost" to keep my file names cataloged. Well, then I do have the complete 358 sectors which are left for my data right. Yes and No. Yes they are there, but you will "lose" one or more sectors of 256 bytes for each and every file or program you create. This is so our Disk Controller will know where to find our data, what type of data we have, how many sectors it contains and where it can be found on the disk.

So if I have a program which catalogues out to 9 sectors, then the actual data can be no smaller than 7 sectors plus 1 byte (1792 bytes minimum) or no larger than 8 sectors or 2048 bytes maximum. (Sectors which are only partially filled with our data will be automatically filled by the Disk Controller with zeros.)

Thus, a disK with only one data file containing 2048 bytes (8 sectors) demands a disk area of 2816 bytes or 11 sectors in order to function.

Well, I hope this keeps your minds occupied while you are thinking good thoughts of TI as they let you twist slowly in the wind.

CASSETTE FILES (Reprinted from Wash DC Area UG Newsletter Dec'83 by Rev. Koch)

In this article I am passing along some of TI's info on cassette files. Hope this will help some of you without a Disk Drive.

File Statements & Commands

Commands: SAVE OLD

Statements: OPEN PRINT INPUT CLOSE

General Definitions

Program Files: Uses OLD and SAVE commands. These are not used with line numbers and are only used to store and retrieve programs.

Data Files: Uses OPEN, PRINT, INPUT and CLOSE statements. These statements are actually a part of the program that is storing data.

File: A collection of records pertaining to a common group of data.(i.e. accounts receivable)

Records: A group of items that pertain to a subject of data group. (i.e. data of a specific account)

Item: A single piece of data within a record. (i.e. name of account, ammount)

Statement Definitions

OPEN Opens a communication line with the device specified. Parameters of data type are also provided via this statement.

PRINT Used to send data out to the device named in the OPEN statement.

INPUT Used to load or retrieve data from the device named in the OPEN statement.

CLOSE Closes the line of communications between the console and the device named in the OPEN statement.

Data File Parameters

File # Entered as a # followed by a number between 1 and 255. You can store data using a file number and retrieve the date with a different file number. The file number only tells the computer which channel is being used.

SEQUENTIAL Must be used with cassette files. Computer assumes SEQUENTIAL.

FIXED Specifies the maximum length of each record. The different record lengths which may be specified are 64 (default value), 128 and 192. FIXED must be specified in the OPEN statement parameters. The number refers to the number of bytes per record. (note: In a program, each PRINT or INPUT statement is the equivalent of a record if there are no trailing commas.)

INTERNAL Refers to the format of data transfer which is in binary. This is the most efficient method of sending data. When using INTERNAL data records, numeric variables equal 9 bytes each and string variables are 1 byte per character plus 1 length byte. (i.e. 1000=9 bytes; Texas=6 bytes)

DISPLAY Specifies an ASCII data transfer format. DISPLAY files can only utilize FIXED records of 64 and 128. If neither INTERNAL nor DISPLAY is specified in the OPEN statement, then DISPLAY is the defaut.

INPUT Allows for data to be loaded into the console from the device named in the OPEN statement.

note: INPUT or OUTPUT and FIXED must be specified in the OPEN statement. If nothing else is specified then the computer will assume SEQUENTIAL and DISPLAY

note on DISPLAY type records

DISPLAY type files require a special type of output record. Each element in the PRINT field must be spearated by a comma.

example : 120 PRINT #1:A;",";B;",";C;",";...

The commas serve as field separators in the file. The omission of these commas will cause an I/O ERROR 25 to be issued. When attempting to read a file configured without the comma, the computer reads the entire file as one element. It also issues the error when it attempts to read the second element which no longer exists.

A file output using the special format required for DISPLAY type records does not require a special INPUT statement and may be read using a conventional format. example : 330 INPUT #1:A,B,C,...

Rev. Keith G. Koch

BASIC TIPS BY AMLIST
A REVIEW

(Reprinted from the Tri State UG Feb'84)

The BASIC tips book by Amlist, is an instructional course in console basic published by Amlist Inc. of Decatur, GA. The book is designed to help you get the most out of console basic. All you need is a 99/4A console and a compatable cassette recorder.

The book is divided into 12 instructional sections and comes with 16 complete programs, ready to be entered. I have had the opportunity to take a close look at chapter 3 in the book, it's on debugging. It contains 8 pages of tips to help you debug programs, but it goes beyond that in that it attempts to make you think, and by thinking you can logically solve many programming bugs. It also contains a program ready to be typed into the 99/4A, called KAMAKAZE RUN, the program is well documented including a description on just how the programmer made the game KAMAKAZE RUN.

Perhaps the most important part of the book is a toll free number for programming questions 1-800-241-6083. I was a bit skeptical about a toll free number for programming questions (especially considering that they encourage non-subscribers to call) so I invented a programming problem and called the number. Much to my surprise the phone was answered and my question as well. The phone was answered by Terrance K. Castle, the president of Amlist, and author of the BASIC Tips Book. I explained to him that I was doing a review of his book and just wanted to make sure that his toll free number was still up and running. He assured me that it is and that most times someone is avaliable to answer questions. We discussed the remaining parts of the book, and I must say Mr. Castle seems like a very helpful man. This book would be a very good investment for anyone interested in learning to program even if you are fairly good at programming in BASIC you can still learn alot from this book. He invited all club members to call the toll free number for programming questions or for more information on the TIPS book.

The 12 chapters will cover these areas: review of manuals, programming philosophy, debugging and Error Messages, developing graphics, sound effects and music, data files, arrays, alpha/numeric sorting, validity and testing, condensing and refining, algorithms and finally summary and looking ahead.

The cost of the Book is $24.95 To order send your check or money order to Tri-State Users Group, PO Box 457 Lincoln, RI 02865. Please include $1. to cover postage. (UG discount if 20 or more ordered)

<<<<< DISPLAY ADS >>>>>

RATES: 10 in X 7.5 in - $30.00
4.5 in X 7.5 in - $16.00
4.5 in X 3.5 in - $9.00

ALL DISPLAY ADDS must be camera ready and must be received before the 20th of the month and accompanied by a check made out to the ROCKY MOUNTAIN 99ers P.O. Box 3400, Littleton, CO 80161. Since the Club is a non-profit organization all money collected for advertizing goes toward the publishing costs of this newsletter.

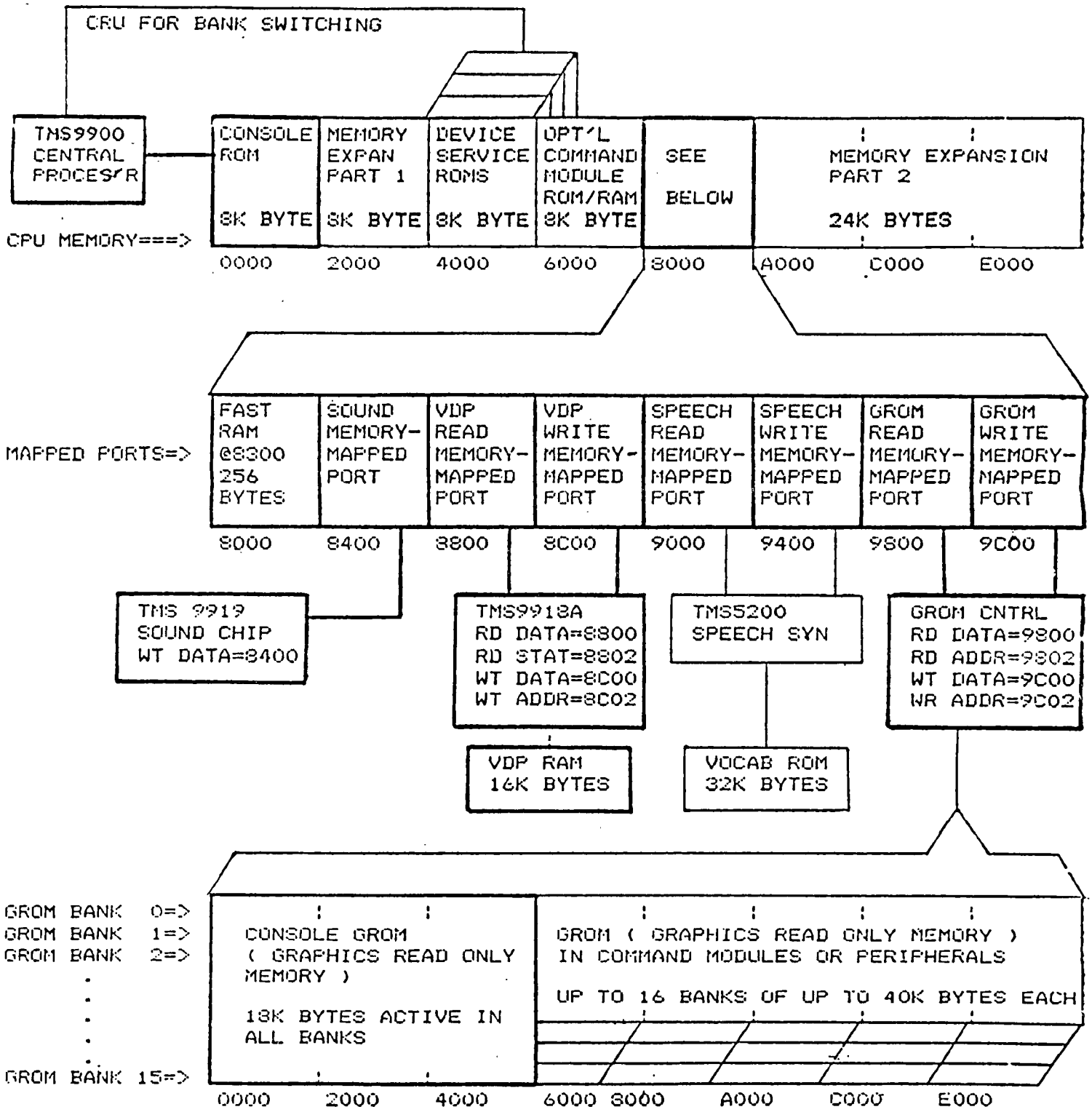
==========

<<<<< WANT AD RATES >>>>>

MEMBERS - FREE (25 word max) We must have your 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 must use DISPLAY ADS!

This block diagram came from TI and may be of general interest- a picture is worth a thousand words!

TI-99/4(A) MEMORY ARCHITECTURE



HEAVY LINES INDICATE FEATURES INCLUDED WITH CONSOLE

TIC TALK

This publication is printed monthly for the benifit of the membership of the Rocky Mountain 99'ers Computer Club. The Club and the paper are not for the benifit nor backed by any commercial enterprize. Both are non-profit in nature and are for the sole purpose of computer education. Any fees collected are used to defray any cost to maintain the organization. Neither the paper nor the Club have any affiliation with Texas Instruments. Any statements published in this paper are not necessarily the opinion of the membership.

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