

PUGET SOUND 99ERS
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NEXT MEETING

DATE: TUESDAY, March 20, 1986 TIME: 7:00 PM
PLACE: Shoreline Public Library, 345 NE 175th, Seattle
PHONE: 362-7550

AGENDA: * TI to Terminal hookup-John Ueland
 * More Extended BASIC lessons
 * Tips and news from Chuck

* Show video of the L.A. Fest West Fair
* SIG group reports
* General discussion session

APRIL MEETING

DATE : TUESDAY, APRIL 24, 1986
TIME : 7:00 PM
PLACE: Kirkland Public Library
 406 Kirkland AVE, Kirkland

MAY MEETING

DATE :
TIME : *NOT*
PLACE: *Scheduled*
 yet

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SOME LOCAL BULLETIN BOARD NUMBERS

<u>TITLE</u>	<u>PHONE NUMBER</u>
PUGET SOUND 99ERS BBS	784-4142
TI88S NW-ED DURFFEE	641-5884
ABERDEEN	533-8951
TELETRAVEL	742-9034
SHUTTLE	885-INFO

FORTH INTEREST GROUP

Tom Wynne

The next Forth Interest group will meet:
 Saturday, March 22 at 4:00PM
 Location:
 Queen Anne Computer Shoppe
 6 1/2 Boston #4 (upstairs)
 Seattle, WA 98109
 Call Tom : 745-3249
 or Barbara: 283-8953

MINUTES

The last meeting was finally successful in allowing us to split up into two distinct groups. We started out with a special talk by Barbara Weiderhold from Queen Anne Computer Shoppe. Most of what she said is in other articles in this news letter. We were fortunate to have Michael Auer there with his hard disk system to show everyone. Tom Wynne then deeded the Gram Kracker to those interested while Rick Lewis showed others tricks and methods in programming in Extended Basic. The turnout was very good considering the date was Wednesday, a day off from the usual.

THE PRESIDENT SAYS

By Chuck Wynne

Well, Tom and I went to the fair in Los Angeles. It was enjoyable to say the least. We didn't get a free ticket like Rita Glickman or Al Lawrence, or did we get invited to the dinner Cor-coap put on for some. We however got to meet some interesting people like Barry Traver who made the first programs I ever typed in from the 99er magazine. We met Paolo Bagnaresi from Italy who wrote BA-Writer. This is the most exciting update to TI-Writer I have ever seen. We stayed in the motel room next to Lou Phillips. You'll have to see our video tape. It was cumbersome to say the least to take it all down there, tripod and all, but it came out very worthwhile. Tom had some long talks with Craig Miller. I was dissappointed with the small number of DSDD drive systems there. We had trouble finding some to show our software. William Warren, the creator of PR-Base was on hand. I paid him in person for his great program and in turn got version 2.2 with many more enhancements. It is available on the freeware market and will be available at the meetings.

Our future looks very bright in the TI world. None of the dedicated seem to be losing interest. I think we can not only compete, but grow at the same time. Those with the basic console need not fear. All of the new is compatible with the old.

A commentary from the TIC-TAC meeting showed one person complaining about the fact of always new and no mention of what can be done with the existing equipment. Well taken. We will, as a group, try to have both. After all, I am using the basic one now to write this. By the way, I measured the distance between keys on the TI, and compared it to the IBM keyboard. Try it! The keys are the same distance apart. They are not closer together!

My modification to the console to put 32K in worked. The advantage is that you can run LOGO from a basic system, (no improvement in speed), and the 32K is on the other side of the connector to eliminate crashing.

The deadline for submissions to the news letter is the 7th of the month. Please make sure you edit it to save us time in spelling correction and format. We are 1200 or 300 Baud now, so there is no problem to duaping it to us by phone. Lets get to it, those people who want to name the NEWSLETTER! Anyone who submits a graphic letter head the members like will have there name in lights, a free module or box of diskettes. Anyone having: articles, name the newsletter entries, programs, new members, or renewals, please send them to:

Puget Sound 99ers
P.O. Box 6073
Lynnwood, WA 98036

We have an offer from the Ryte Data company of Canada to demo their products at the meetings for just the cost of shipping and handling. After 30 days, someone has to purchase it, or ship it back. Sounds fair to me. Any comment? They have a 512K gram card for the box, a 128K stand alone card with

printer port, a TI mouse, Extended Basic II plus, and a Maxima 48K universal module. Due out in the near future is an 80 column card, a quad density disk controller card, a compact PE box design and many more innovations. Their address is 50X 210 Mountain St. Haliburton, Ontario K0M 1S0 Canada.

*** TI99/4A NEWS ***

Los Angeles TI99/4A Fest West Fair

By Barb Wiederhold

As you all know, I traveled South to L.A. to meet users of the 99/4A. What a fun trip that was... I talked to Janie Lawrence all the way from Sea/Tac to L.A. International. I do not like to fly so I managed to distract myself, Janie and the poor soul sitting next to us. I managed to get myself, and the other passengers safely to L.A. Thanks Janie for the "ear." The hotel/motel was the right choice, thanks to Terry Masters. She was a great hostess!!!

Al and Janie Lawrence, Rita Glickman, Chuck Wynne (Pres. P.S. 99'ers) and his son Tom Wynne, were on board our United Airline flight. John Musselman followed close behind, sometimes ahead in an accompanying ALASKA AIRLINES plane. We compared food and seating when we all arrived in L.A. Two cabs were used to get us to the Vagabond Inn. \$29.00 was the average price, one/way. Terry Masters was on hand in a hospitality room to greet us after checking in.

Around 30 people were there. Randy from Aberdeen (Randy's Rumor Rag fame), Scott Darling from Spokane, Chris Bobbitt and his Uncle (CompuServe), from the East Coast. Chris incidentally is ASGARD SOFTWARE, owner of Graphx Companion I and II. He also brought his new revised T.O.D. Editor. He's a delightful 19 year old, extremely busy producing the new software we see in the MICROpendium. Many out-of-State 99/4A users were there.

It's really great to feel immediately welcomed by so many new faces. There was an atmosphere of immediate acceptance by the crowd. We were given registration cards and discount tickets not to mention "liquid refreshments." We were all anxious to begin our nextday trek through the SHRINE AUDITORIUM in the "Heart of L.A." After a good nights rest, we set for breakfast across the parking lot, saw many more 99/4A goers, then walked only 1 block to the Faire.

The Main Floor housed a General Computer Swap. Good advertising prevailed as there were "newspaper coupon customers" lined up down the block as far as you could see. Chuck Wynne captured us on film as we waited in line to enter the auditorium. The coupon did not mention the 99 Fest West, but signs inside did. We were housed on the upstairs balcony. Registration and Dealer info was on hand for all who cared to pick it up. The L.A. 99'ers were super helpful to us all.

Behind long blue and white curtains, hid our many 99/4A vendors. Lou Phillips with Myarc Products, Texasents with TI-Artist. Databiotics with MiniWriter II, Franz from Germany with his new hardware, Super 99 Monthly magazine, many California User Groups booths, of course Craig and Sue Miller of MILLERS GRAPHICS had a booth. Fingerprint demonstrated for the Epson Printer. CorComp provided current and new hardware to Al Lawrence of A and L Dist., of Seattle, Wa.

What a pleasure it was to meet Mr. PAOLO BAGNARESI, from Milanese, Italy. A reporter, he arrived in L.A. to see our SHOW and do an article for the 100,000 plus 99/4A users in Italy. He brought his BA-Writer Word Processing Program, Version 1.1, Feb. 86. IT IS MYARC DS/DD DISK CONTROLLER COMPATIBLE... This disk is in the FREWARE LIBRARY through MICROpendium review and I have it in my Queen Anne Computer Shoppe (283-0953).

BA-Writer has an XBASIC LOADER and can also be used with MINI-MEMORY AND EDITOR ASSEMBLER MODULES. Many new enhancement opportunities, putting TI-Writer and TK-Writer on the shelf. Mr. Bagnaresi well deserves a donation, so do honor him with the remittal. His software effort again reinforces our need to recognize and appreciate truly good utilities for the 99/4A. A pleasure to

have met (and have him at my dinner table during our group meal) with him.

Other vendors included Bits and Chips, Asgard Software(Chris Bobbitt), a new piece of hardware, an RGB Converter. However, Chuck did comment that the RGB Monitor is a special one, currently used by the Amiga. This particular monitor is hard to get.. So, we may have to table the converter for awhile. The MOUSE demonstrations were terrific. The kids attending the show really enjoyed the MOUSE (well-built equipment). We can purchase the MOUSE AND SOFTWARE.

I purchased two IBM compatible KEYBOARDS on the main floor of the Show. One cost \$55. the other \$65.00. You can see them at my Shoppe. I told Craig Miller I bought them to bring back to Seattle to reinforce the arrival of his new P.E.Box card. He assured me that it would be a reality. A programmable IBM Keyboard will surely solve the keyboard problem for those who like the 99/4A but not the keyboard. We are getting serious now!!! I can order Keyboards from L.A. for you.

After having attended the 3rd Annual Chicago TI Faire Nov.2nd, then the 1st Annual L.A.Fest West, I met East Coast and West Coast Vendors, Distributors, and Users Group members. I asked if they would "come to Seattle in Septeaber" and they all seem to think the time is right. If WE ALL, SET TOGETHER AND PLAN AHEAD, we too can present a super weekend Convention. I'm calling on all persons, Users Groups in this State, and Dealers of Computer iteas to HELP!!!!!! Will you help?? Call Barb Wiederhold at the Queen Anne Computer Shoppe in Seattle (206)283-0953 11:00 a.m/5:00 p.m Mon.thru Saturday. Instead of traveling a long distance, this is our chance to have Myarc, CorComp, Asgard, MILLERS GRAPHICS, etc. here in our area. Sea/Tac Airport seems a good location as many will travel here due to the Canada Expo 86 presentation. I need 2 people from each User Group on a steering and planning committee... Please call!!!

LA Fest West Video

By Tom Wynne

As you know by now, my father and I went down to Los Angeles also. We were fortunate to have brought our camera along to charish the occassion. Beside the fact we had to carry it all over, we had alot of fun taping the various demonstrations, speeches, and interviewing various interesting people. The LA 99ers were supposed to have several cameras there of their own, but it ended up that we have the only pictures of the fair! They were fabulous!! Coapared to the Chicago tape, you can actually see and hear the person being taped! The tape is going to be edited and titled by our own Dave Miller. Thanks Dave! The pre-edited version of the video is about an hour in length and includes the following:

Lectures:

Craig Miller (Millers Graphics IBM keyboard interface)
Don Kewan?(File manager, GPL interpreter for the new computer)

Personal Interviews:

William Warren (PR BASE enhancements)
Lou Phillips (Myarc Extended BASIC II and the new computer)
Barry Traver (diskazine, HCM)
Sue Miller (Craig's wife (camera shy))

We will be showing the tape at the next Puget Sound 99ers meeting. Don't miss it!!!!

The tape will be available for \$15 to users groups and about \$22 for additional copies or for private use.

THE TI EXCHANGE CENTER CLOSES

By Barbara Wiederhold

With the official closing of the TI Exchange Center, you will have to send your computer and/or peripherals back to LUBBOCK, TX for repair. I have the cost list in my Shoppe or you can call 1-800-TICARES and they will instruct you on prices, etc. I will do as much repair and checking first in my Shoppe (283-8953) as you like BEFORE the trip to Texas. Tell your friends too, because when they fix your computer, they may replace your old circuitry with 1983 circuitry, which in turn will not run 3rd party software. A GROMBUSTER or GRAM KRACKER will be needed then, not necessarily WANTED... CorCoap has developed the GROMBUSTER, Millers Graphics has the GRAM KRACKER.. We sell both on Queen Anne.

SEATTLE TIMES RETRACTION

Richard Buck, if you remember, wrote a harsh article about our TI99/4A and made some incorrect statements in his article in the Seattle Times. Now that he has the full and true story about the TI99/4A, he will try to either make a retraction, or write a book about it. He has met with Barbara Wiederhold and Chuck Wynne to gather more information on the subject.

MILLER'S GRAPHICS GET PROGRAMMER NO LONGER

For those of you wondering what happened to the Smart Programmer, here it is. There are three issues ready to be mailed. After that, the task will be turned over to the Super 99 Monthly where they will continue providing helpful information.

IBM KEYBOARD INTERFACE

Millers Graphics unveiled their newest project at the LA fair. An IBM keyboard interface card that plugs into the Expansion Box. This card will be available for sale in 9 to 11 weeks. This is mostly because of the price of chips and keyboards may be lower at that time. The card will be priced at the low end of \$100 so you can buy a separate IBM style keyboard from \$45 and up and still remain under \$200.

The keyboard card will come in two phases. The first is with pre-programmed keys. This means that keys such as 'ALT C' will print 'CALL CLEAR' on your screen. Phase two will enable you to plug in extra memory chips on the card and program the keys yourself with 32K of storage space. This means you can program any combination of keystrokes to print anything you want to.

The keyboard will be completely transparent in that all software will read the keyboard correctly. The card converts the codes from the IBM keyboard to the codes the TI can understand. The memory will be battery backed and will be able to save to diskette.

DISKAZINE-MAGAZINE ON DISKETTE

Barry Traver of 99er Magazine fame will be offering a new concept of a magazine. The Diskazine is a magazine on diskette which features BASIC programming tips, reviews, Freeware, and much more. You get a diskette packed full of articles and programs. More information to come...

ASSEMBLY LANGUAGE TAG LOADER, USING DEBUG WITH AN INTERRUPT SWITCH

By John Ueland-Librarian

Use an editor such as TI-WRITER or E/A EDITOR to look at compiled file to find the name of the program used to start running a compiled E/A program. I prefer using TI-WRITER because it will handle larger files. I will use the example of DEBUG but any compiled program can be used and if it is a FILED 80 format file you can even edit it (see page 238 of your E/A manual for details). This feature is unique as I have not seen this capability on any other computer I have worked with (this includes IBM CDC CRAY mainframes).

You will see the entry point name or names that program uses plus other external references such as utilities used by the program. The program debug will have

```
5 >DEBUG F.
```

The 5 tells you that that the name is an external definition at an absolute address (see page 240 and 337 in your E/A manual).

To find what address the program is loaded into you can use the debugger. Load the program using E/A option 3 (load and run). You type DSK1.DEBUG Enter Enter DEBUG Enter.

You will have to find the hex character numbers for the name DEBUG in the REF/DEF TABLE. I used the chart in the back of the E/A manual.

```
D = >44  E = >45  B = >42  U = >55  G = >47
```

Note: The '>' means the number is in hexadecimal.

I used the characters 'BU' to search because they are a fairly unique combination of letters filling one 16 bit word. If that combination is not found, then another combination could be tried.

Note that the prompt on the screen is a period. To find the set of characters you type:

```
F3000,3FFF,4255 (search from address >3000 to address >3FFF for >4255='BU')
```

and the screen will display, where 4255 is found as follows:

```
3936=4255 (address = 2 byte value)
```

```
39F8=4255
```

```
3C4A=4255
```

```
3F32=4255
```

I tried the last address to find the complete word DEBUG. The addresses found will depend on what other programs have been run and will vary from time to time.

Type M3F20,3F40 and the display will be:

```
3F2C=7520 7375 4445 u suDE
```

```
3F32=4255 4720 B0BE BUG 0>
```

Note that DEBUG was found. Eight bytes (8 bits per BYTE) are used for each reference in the REF/DEF table. Six bytes for the name and the next 2 is the address the program DEBUG is loaded at. This being at address B0BE.

There is a couple of ways you can load this address in the interrupt location FFFE. When loaded with this address, the program will run even if you turn off the console or load another program or run basic. In fact you can load from console BASIC with E/A module or extended BASIC as follows:

```
CALL INIT ! NEEDED FOR EXTENDED BASIC
```

```
CALL LOAD(-2,176,190)
```

Where -2 is address FFFE and 176 is B0 and 190 is BE. The other way is to use the DEBUG program MFFFF

FFFF=XXXX- Where XXXX is the actual address there now. You type B0BE after the XXXX and changes that value. Note some programs change address so that you must change it after the programs are run.

You can save the effort of using the FIND command in the debugger by typing M3F00,3FFF watching the right hand side of the screen for the name you are looking in the REF/DEF table. When you want

the screen to stop scrolling press any key and press it again to start the scroll.

I have used this technique for running a screen dump program loaded at address 2730 with other options at entry points 2713, 2720, 2733, etc. You just load the entry point address for the option you want in FFFE.

HOOKING UP YOUR STEREO FOR MUSIC

By John Ueland

I discovered that the sound you get out of most television sets is poor compared to most stereo systems. What I found that worked the best was to tap into the audio wire in the modulator.

The modulator just opens with a little prying on the cover. The audio wire is even marked audio in the box, which in my case was yellow. I found that the black wire is ground, which is tied to the case of the modulator. You don't need to splice into either wire. I soldered a wire on the back side of the circuit board where the yellow audio wire was connected and then soldered the ground wire to the case. These two wires will connect directly into the LINE-IN connection on the back of most stereos. The music is GREAT! We have a good selection in the LIBRARY.

MYARC DISK CONTROLLER

By Gene Christiansen

One characteristic that we humans have is to make our tools and other machines do more work and do it faster. This especially true when it comes to computers. Many who have invested time and money into a TI99/4A system have found that the original configuration to be limiting in the amount of files that can be stored and that accessing those files can be quite time-consuming. Constantly switching diskettes adds to the confusion. This can make "up-grading" your system very attractive. The question is usually how.

There are at present two third-party disk-controllers available to TI owners, the MYARC and the CORCOMP systems. Since I recently installed the MYARC card (and know that many other users are doing so, too), I thought a review of this product to be in order. (I will leave it to a CORCOMP owner to tell us of that product.)

The first thing that I did was to replace the TI card and power-up my system. I inserted the "DISK MANAGEMENT SYSTEM" disk and selected Extended BASIC. The auto-loader promptly started and, in moments, I had the title screen up. The next thing was to change the colors of the screen. This is done very easily by first pressing "S" for set-up. Once everything on the set-up screen was to my satisfaction, I saved the whole thing to the system disk.

I then began to play with the other commands. I found that this new card will allow disks to be formatted in TWO different ways. The first is the MYARC 16 sector format (which they recommend) and the second is the 18 sector format. This second method allows the MYARC card to read the disks formatted by the CORCOMP card, thereby ending the incompatibility that had existed between the two systems.

Some of the other features of this product include the ability to load and run Assembly programs, to load FORTH, to look at Display/Variable 80 files, and, wonder of wonders, to catalog a disk from BASIC or Extended BASIC!

I found to my delight that I could even catalog a disk while in the middle of a BASIC program by just pressing Cntl-4, typing CALL DIR(1), and pressing enter. This produced a catalog of disk drive 1. I continued the program by typing CON and it resumed from where I had stopped it!!!

I especially enjoy not having to keep pressing REDO in the disk manager in order to get to a

screen where I can enter commands. All the commands are grouped by type and are accessed by one or two keystrokes from menus. In the case that the command I might select could have a negative effect, I am given a warning asking if I really wish to initiate the command. This is very nice when you don't want to wipe out a disk just to copy a file to it.

Manipulating the files and programs on a disk is also very easy. Files can be copied, deleted, protected, unprotected, or moved (copied to a second disk and deleted from the first) with a minimum of hassles and keystrokes. I can even combine many commands together and then sit back and watch.

I am very impressed with this system and highly recommend it to anyone contemplating a serious up-grade of his or her system.

I might add that the NYARC card will support up to four disk drives and will set them spinning at a 6 milli-second rate that will amaze those who have been working with the TI system.

PERPETUATING THE MYTH?

By Gene Christiansen

The other day while expounding on the virtues of the TI99/4A to a guy at work, he piped up and asked why we "cultists" just didn't get a bigger computer instead of trying to make this "dinosaur" by a PC. Imagine my shock!!! A CULTIST!!! I might add that this fellow is the vice-president of a software retailing company, is NOT a programmer, and, I suspect, is a CYBER-PHOBE (one who has a fear of computers). Oh, sure, he likes what they can do and how fast it can be done. He loves to collect software. The fear comes out when he explains the computers are too confusing and too powerful.

Not having a real understanding of what a TI can do may give someone a feeling that it doesn't "measure up". It constantly amazes me that these "authorities" are willing to impart their meager knowledge without first an investigation of the facts.

If the TI is dead, why is new software coming out for it almost daily?

If the TI is dead, why is DATAK considering writing a new language for it?

If the TI is dead, why can't you find a great number of used ones for sale in the classified ads of any newspaper (with the TRS/80's, Apples, ATARI's, and even IBM-PC's)?

If the TI is dead, why do fairs and shows still continue to draw into the thousands?

The loyalty to the TI99/4A is astounding. I met a man who has owned one for five years and has existed all this time without the benefit of a user group. (I immediately rectified THAT!) He has four children that have practically grown up with the TI! I might add that he is not just a "module plugger" but has an extensive system that he uses in both his full time work and his part-time business.

Where do these people come from? I have met four TI owners recently in the strangest places. Somehow, they did not seem like cultists to me. They appeared, rather, like people who had found a very good system that allowed them to do some wonderful things in their businesses, educate their kids, and, maybe, play a game or two. All this broadening of their horizons could also be had at a fraction of the cost of "better" systems.

Like anyone else, I try to keep on what is new. But, for the life of me, I do not see the rationality of discarding something that works well for something else just because it is bigger or newer. The TI99/4A is unusual also because it covers such a wide spectrum of uses, as well as making the user the master with a better understanding of computers, and what they do. I would rather have this instead of creating ignorant video-junkies who are amazed by the commonplace.

If this makes me a cultist, then so be it!!! As they try to silence me with their clever, know-it-all looks I shall keep perpetuating the "myth": TI LIVES!!!!!!!

SST-COMPILER AND PRE-SST

By Tim Babcock

When TI designed their BASIC languages for its computer system, there was one big problem (like most other BASIC versions) SPEED! This is because BASIC is, by design, an interpreted language and not compiled or assembled. What this means is that each BASIC statement must be "translated" into Machine Code (the computer's language) as the program runs. Though there are many programming tricks to speed up a program's execution, such as using defined functions or sub-routines, you are still dealing with statements that are individually "re-coded" as the program runs.

A majority of the languages used by the TI99/4A are compiled or assembled. Though these other languages offer quicker execution, they are not easily used novice programmer. They are difficult to learn and can be a nightmare to debug. Now you have the SST-COMPILER package.

This utility converts BASIC and Extended BASIC programs into high-speed Machine Language. It uses three separate programs to do this. First are two Editors (one for console BASIC and the other for Extended BASIC) which must be loaded before your program is either created or merged. Next is the compiler itself. These are the programs needed to compile your program. This system also contains two loaders, for running the compiled version and a variety of enhancements to Extended Basic. You will find that many of the usual TI BASIC commands must be modified. The reasons for this are the arcaic form of BASIC required by the compiler and because many of the sub-programs built into the TI have themselves been used for other functions. Because these modifications can become very time-consuming, the authors have created another program, PRE-SST to do much of the work for you.

PRE-SST converts each of your variables into one of three types accepted by the SST-COMPILER: String, Integer, or Floating-Point Decimal variables. It also breaks multiple statement lines used by Extended BASIC into single statements. There are also no string constants used by the SST, so you will end up with a program that is strictly variables.

When the PRE-SST is done, the result may still need some small changes, but basically, you have it so it can be used with the editor. With the editor loaded, you can make additional changes or modifications to your program.

Next, run the editor and then the SST-COMPILER. Be prepared for quite a wait.

The SST-COMPILER does make your BASIC programs run much faster and it can access the high resolution mode for sharper graphic routines. However, this utility becomes a problem in the use of string arrays. First, the dimensioned variables have to be numeric. Next, you must add a sub-program statement that converts the numeric variable to a string using an index pointer to increment. This may sound logical if you have experience with the Assembler but it may become confusing for a new user who only knows the BASIC functions of the computer. Overall the use of the SST programs has great potential for taking existing BASIC programs and turning them into very fast "number-crunchers". This seems to have been the author's primary intention for this package.

If you do not have such experience or knowledge in the operation of the TI, then the SST-COMPILER may be the way to get into high-speed programming.

GRAM KRACKER REVIEW

By Tom Wynne

The Gram Kracker from Millers Graphics is a powerful tool. It allows you to download modules and the TI operating system to diskette. Once they are on diskette, they then will be loaded into the Gram Kracker's GRAM memory. Once anything is loaded into this memory, it can then be changed with a built-in memory editor allowing you to make custom modifications to any TI software.

The Gram Kracker has 32K of memory for module and operating system storage. This memory does not add any memory to BASIC or Extended BASIC for it is separate memory where the actual program in modules exists. Inside most modules, there are chips: A ROM (Read Only Memory) and maybe several GROMs (Graphics Read Only Memory). ROM can only be read from and not written to, so they cannot be changed. With the Gram Kracker however, these ROMs and GROMs can be read and saved to disk then loaded into the GRAM (Graphics Random Access Memory) in the Gram Kracker. When the module is loaded into this memory, it can then be changed to whatever you choose.

Gram Kracker is very easy to use. They provide you with a helpful manual with step-by-step instructions on how to load and save modules, use the memory editor, and it also includes some changes you can make to BASIC and other modules. These changes include:

Changing the screen color of: Editor/Assembler, TI-Writer, Mini Memory, and Extended BASIC.

Modifying the Tax Investment Record Keeping module to print parallel.

Enabling the Terminal Emulator II to go 1200 baud.

Slashing the zero to avoid confusion to an '0'.

The Gram Kracker also comes with a diskette full of utilities. These include:

Explorer modification to enable the Explorer to talk to 2 different types of GRAM.

Editor/Assembler, TI Writer GRAMdisk which enables you to store the Editor and Formatter of TI Writer or the Editor and Assembler into the Gram Kracker for immediate execution. No more waiting!!!

A utility to put both TI-Writer and Editor/Assembler in the Gram Kracker at once!

New Extended BASIC calls:

CALL NEW-use in running program.

CALL BYE-return to title screen from running program.

CALL CLSALL-close all open files.

CALL CLOCK-interrupt driven clock in the corner of the screen.

CALL CAT-catalog your diskette without losing your program!

A new character set.

The Gram Kracker is a relatively new piece of equipment and will require some time for programmers to change modules to do things we before only wished they could do! The Gram Kracker is a very good bargain—not only for its power and the utilities that come with it, but for the not having to buy any modules anymore!! I must note that you have to use the Gram Kracker to run any modules saved to disk. (for now—maybe) Just think...borrowing your friends module for a couple minutes and presto! You have it too! Is it piracy? You may see modules in the future duped to disk, changed, and then sold as software for the Gram Kracker...who knows what will happen next? In the next section, I have shown you some of the changes I have made to Extended BASIC that me and many other people wish it had in the first place.

The Gram Kracker is available only on order for \$189 from our local dealers:

Queen Anne Computer Shoppe

6 1/2 Boston #4 (upstairs)

Seattle, WA 98109

Bits and Chips

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GRAM KRACKER-Extended BASIC Modifications

By Tom Wynne

The following is some changes I have made to my Extended BASIC. You must have your Extended BASIC module loaded into the Gram Kracker and the write protect switch in the bank 1 or 2 position.

Choose option 5-Edit Memory to go into the memory editor. Now hit FCTN = to display hexadecimal memory. Now press 6 to display ROM/GRAM memory. Below are some addresses. These you type in at the top left corner of the screen beside your '6'. When you enter an address, the memory at that address will be displayed in the window. To change that data, press FCTN 9 (back) and then enter the numbers shown below beside the address. Remember, you must have the write protect switch in the up or down position to write. Happy Cracking!!

ROM/GRAM Address

	Extended	Instructions:
BASIC	BASIC	<u>Press FCTN 9 and enter number as below</u>
>2C2D	>6573	The line number you want to start NUM at. (>64 to >8A to start at line 10)
>21DC	>6423	The symbol before your cursor:">" change to any character you want.
>3650	>AB25	CALL CHAR: >20. Change to >1E to enable CALL CHAR to change cursor and edge chars.
>231C	>601C	Eliminate character reset XB-change to:>48DC, BASIC-change to:>4192

More to come in later issues!!

BASIC AND EXTENDED BASIC PROGRAMMING

By Rick Lewis

FOOLPROOFING YOUR TI BASIC PROGRAMS

Foolproofing TI BASIC programs usually involves compensating for erroneous input, controlling graphics, checking for incorrect values for computations, and anticipating I/O errors.

INPUT problems:

Using an INPUT statement is a reasonable and common method of accepting information from a user while a program is running. It has some limitations in that there is no way to control what information is being entered until it is too late. If some incorrect information is entered, a warning will be displayed and any graphics or text on the screen will be scrolled upward, thus producing a tremendous mess. A more tedious, but much more controllable method is to use the CALL KEY statement.

The CALL KEY statement allow the return of only one key at a time. Therefore the program can check to see if the input is acceptable. Here is an example:

```

10 PRINT"Do you want to continue?"
20 CALL SOUND(140,1400,4)
30 CALL KEY(S,N,S)
40 IF S<1 THEN 30
50 IF (N=89)+(N=121) THEN 100
60 IF (N<>78)*(N<>110) THEN 20
70 CALL CLEAR
80 PRINT"Thank you for your time!"
90 STOP
100 PRINT"Now we can continue..."
110 *** the rest of the program ***

```

Line 20 produces the standard beeping tone like an INPUT statement.
 Line 30 scans the whole keyboard (unit 5) and returns the key number in the variable "N" and the keyboard status in the variable "S"
 Line 40 will transfer control back to line 30 if a "new" key is not being pressed (same key as before or no key at all).
 Line 50 checks for the "Y" (key 89) or the "y" (key 121) using a boolean "OR"
 Line 60 checks for the "N" (key 78) and the "n" (key 118) using a boolean "AND"
 Lines 70-90 will be reached if the answer is no.
 Lines 100 to the end of the program will be reached if the answer is yes.

This program will ONLY allow the letters N and Y (upper or lower case) to be entered. All other entries will branch back to the CALL SOUND, indicating the input was ignored.

Using the POS function can allow quick scan for several options.

An example would be:

```

10 A$="ABWGHULNSQTVZ"
20 CALL KEY(S,N,S)
30 IF S=0 THEN 20
40 ON POS(A$,CHR$(N),1)+1 GOTO 20,110,120,130,140,150,160,170,180,190, 200,210,220,230

```

In line 40 the "+1" allows a line number to be assigned for the possibility of a selection not in the list of options. In this case, it nearly loops back to the CALL KEY statement for a (presumably) correct input.

This way, some odd string of possible options can easily be chosen from. The ON GOTO statement is quite useful in this application since the line numbers can be ordered irrespective of the alphabetic or other order the choices might be in.

Checking for out of bounds numbers as relates to computations or graphics is similar to checking for CALL KEY values:

```

10 CALL CLEAR
20 ROW=12
30 COL=16
40 CALL HCHAR(ROW,COL,42)
50 CALL JOYST(1,H,V)
60 CALL HCHAR(ROW,COL,32)
70 ROW=ROW-V/4
80 IF ROW<24 THEN 100
90 ROW=1
100 IF ROW>0 THEN 120
110 ROW=24
120 COL=COL+H/4
130 IF COL<32 THEN 150
140 COL=1
150 IF COL>0 THEN 40
160 COL=32
170 GOTO 40

```

In this example, joysticks are used as input to control an object moving around the screen. The IF THEN statements check for the vertical and horizontal boundaries BEFORE the object actually gets there. This way one cannot accidentally move off the screen. An alternate to resetting the variables to the values at the other ends of the screen would be to reset them at the previous position so the object "stops" at the edge of the screen. In either case, an error has been avoided.

A similar method would be used to check for maxima and minima when using limited mathematical calculations.

When it comes to I/O, things get a little more difficult. One way to avoid trouble is to OPEN files using parameters which virtually all devices may use. Since printers and cassettes are probably the most limited, finding common ground among them should help.

```

10 A$="CS1CS2RS232RS232/1RS232/2PIODSK1DSK2DSK3"
20 INPUT"Device name: ":D$
30 IF POS(D$,".",1)>0 THEN 50
40 C$=D$
50 GOTO 70
60 C$=SEG$(D$,1,POS(D$,".",1)-1)
70 IF POS(A$,C$,1)>0 THEN 100
80 PRINT"Not a valid device.":"Try again."
90 GOTO 20
100 OPEN#1:D$,DISPLAY,OUTPUT,FIXED 80
110 ***use the file now***

```

The string A\$ in line 10 contains a list of allowable device names.

Line 30 finds out whether the name contains other parameters of a file name.

Lines 40 and 50 assign the device name portion of the string.

Line 70 searches A\$ for the device name, and branches if found.

Line 100 opens a file with generally acceptable format to most devices.

FOOLPROOFING OUR EXTENDED BASIC PROGRAMS

Foolproofing TI Extended BASIC programs is somewhat easier than in TI BASIC. A number of statements allow for even the most inept of users to proceed error-free.

One of the most effective ways to foolproof programs is to use the VALIDATE and SIZE clauses in the ACCEPT statement. VALIDATE allows only specified characters to be entered at all. SIZE fixes the width of input and allows a "default value" to appear in the field so one only need press ENTER to use it (as is so common in many cartridges).

The ON BREAK NEXT statement allow the programmer to make the program unstoppable except through normal channels allowed in the program (this excludes QUIT, unfortunately). Also, the ON ERROR statement allows one to either ignore or deal with normally "fatal" errors such as string-number mismatches, I/O errors, bad values, etc., while the ON WARNING statement allows control of too-big numbers and input errors which are not "fatal", but are annoying anyway, and can thus be avoided.

The following program demonstrates many of these features.

```

100 ! CASH REGISTER PROGRAM
110 ! BY RICK LEWIS
120 !

```


Line 290 erases the unused portion of the screen in case there was previous information there.
 Line 340 waits for a "Y", a "N", or an "R" (capitals only). "Y" will clear the workspace and start over on a new problem. "N" will clear the display and stop the program. "R" will allow re-calculation of the problem using the previous values as default values.
 Line 380 is a faster way to clear a portion of the screen than using the CALL HCHAR statement.

```

100 REM ** STEPPING PATTERNS **
110 FOR X=1 TO 14
120 A$=A$&CHR$(X*8+24)
130 B$=B$&CHR$(144-X*8)
140 CALL COLOR(X,X+2,X+2)
150 NEXT X
160 FOR X=1 TO 3
170 A$=A$&A$
180 B$=B$&B$
190 NEXT X
200 CALL CLEAR
210 CALL VCHAR(1,31,31,96)
220 CALL SCREEN(2)
230 FOR X=1 TO 41
240 PRINT SEG$(A$,X,14);SEG$(B$,99-X,14);
250 NEXT X
260 FOR X=1 TO 41
270 PRINT SEG$(A$,99-X,14);SEG$(B$,X,14);
280 NEXT X
290 GOTO 230
  
```

```

100 FEM *** WIERD SPEECH ***
110 P$=CHR$(96)&CHR$(8)
120 ACCEPT A$
130 A$=RPT$(A$,240/LEN(A$))
140 A$=P$&CHR$(LEN(A$))&A$
150 CALL SAY(A$)
160 GOTO 120
  
```

(If you type a "_", random sounds will be heard. I found typing "6" to be the most strange.)

MISCELLANEOUS ITEMS

TI owners and enthusiasts

If you know anyone who has a TI and is not a member of our group, please invite him to our meeting. If he cannot make it to a meeting, he can get an application from one of the officers, or if he has a modem, he can download it off of our BBS or Ed Durffee's BBS. If he cannot do any of these, then he can send \$10 and his name, address, and some additional information about his system to:

Puget Sound 99ers
 P.O. Box 6073
 Lynnwood, WA 98036

Seattle TI99/4A Fair

The Seattle TI Fair is scheduled for September 26,27, and 28 at the Sea-Tac Holiday Inn. There will be all the big names in a cast of thousands of people who will attend. Let's make this the best fair yet! More information will come in the next issue.

This newsletter brought to you by: Tom Wynne, Gene Christiansen, Chuck Wynne, and all the people who contributed with articles. Thank You!