

# CHICAGO TIMES

NEWSLETTER OF THE CHICAGO TI-99/4A USERS GROUP

Chicago Users' Group Picnic July 1  
Tech Talk Galore  
Annual Auction  
Happy Father's Day!

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June 1990

Editor: Bob Demeter

Coming Feature Articles:

CC-40 UPGRADE  
TI-Base Tutorial  
Understanding McCann's TPA

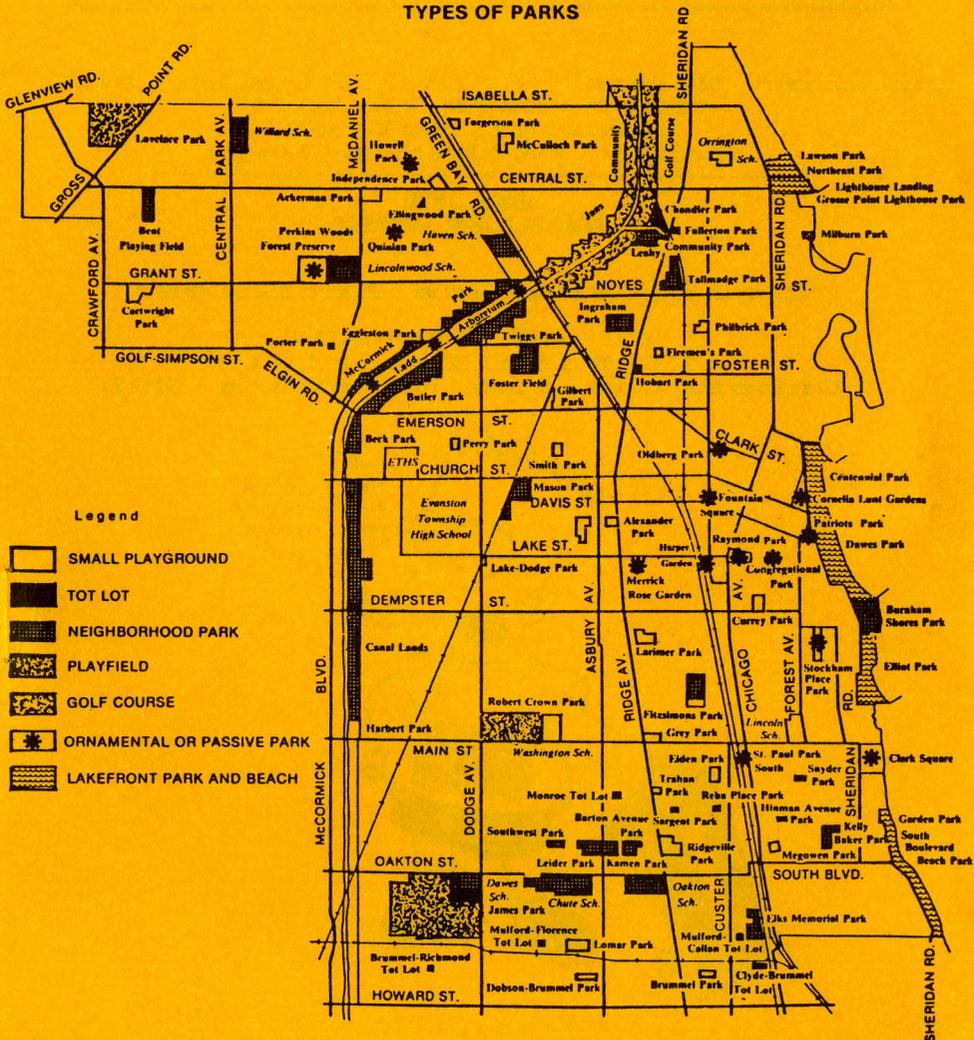


WATCH OUT FOR CHILDREN  
THIS SUMMER

## The June Meeting...

The June 1990 meeting will be Sat. the 2nd. at our new location. This is the St. Nicolai Church 3002 N. Kedzie Ave. Chicago, Ill. Meeting starts at 1pm. This month we'll feature our annual auction. Please donate your no longer used hardware and software. Also, bring plenty of cash. You never know when you'll find a bargain.

# TYPES OF PARKS



## Legend

-  SMALL PLAYGROUND
-  TOT LOT
-  NEIGHBORHOOD PARK
-  PLAYFIELD
-  GOLF COURSE
-  ORNAMENTAL OR PASSIVE PARK
-  LAKEFRONT PARK AND BEACH

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Group's BBS # 708 862-0182

Group's Hot Line 708 869-4304

### Meeting Dates...

This month's meeting will be Saturday June 2nd. BIG AUCTION!

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# Presidential Dialogue



Although Tony Z. has done it several times already, let me say THANKS, to those TIers who entered our 1990 Programming Contest. Not only did the group library end up with some really nice programs, but most were from TIers, whose work has not been previously seen. This is especially gratifying because it indicates a tremendous pool of talent still remaining within the TI community. In the years to come it will be interesting to see what innovative software they develop.

As many of you know June is our group's annual auction. If you have, or know of anyone who has, software, hardware, or other computer related materials, that they would like to donate please bring them to the auction. This is a great way to do some closet cleaning and help the group finances. It's also a neat way to pick up some bargain items for your computer.

The June meeting is also our last official meeting of the summer. The only "unofficial" meeting planned for the summer is the group picnic, scheduled in July. I'm sure Hal has placed instructions, directions, etc., elsewhere in this newsletter. The 2 month break should give everyone a chance to write that special program, or article for September's "Super Summer Issue".

For modem owners, I would like to remind you that the Chicago group has its very own section on DELPHI. DELPHI is one of 3 major telecommunication networks that cater to owners and users of the TI-99/4A and Myarc computers. In addition to having thousands of files available for download, you can ask questions, or leave messages, for a large number of well known TIers. The Sign-on cost is very reasonable, and non-prime time usage is just \$7.20 per hour. If interested leave me E-Mail on the groups BBS, or talk with me at the June meeting.

Till June.. Ernie

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## MEMORABLE MINUTES



Executive Board Meeting of MAY 5, 1990.

The meeting was called to order at 11:20 A.M. Last months minutes were approved and the new agenda for this meeting was approved.

COMMITTEE REPORTS.....

TREASURER'S REPORT (Oscar Bretana) No Report.

MEMBERSHIP REPORT (James Brooks)

The ad in Micropendium has already generated another 10 new members. Ads are paying off. We have around 400 members at this

time. In the May newsletter, membership cut-offs were explained.

#### LIBRARY REPORT (Lionel Bordelon)

There has been a good response to packages. For faster Library service, please send your orders to the Library P.O. Box. 22 Sets of 18 disks each of the program contest entries have been made. They will be available today at a special price of \$20.00. The Library has received a complete hard copy of the TIPS (T I Print Shop) graphics from Don Jones. This way members can view graphics before they purchase disks from Library.

#### EVENTS CHAIRMAN (Don Jones)

Program Contest winners demonstrated today. Don't forget to search your closets for THE AUCTION at the June meeting.

#### EQUIPMENT CHAIRMAN (Dave Connery)

We are continuing to take an inventory of our equipment. The group did purchase an optical scanner and Mike M. is working with it now. If you have anything that belongs to CTIUG, please let Dave know about it.

BULLETIN BOARD (Mike Maksimik) No Report.

PUBLICITY (Marcy Brun) No Report.

#### TI FAIRE COMMITTEE (Hal Shanafield & )

Sandy and Hal are now hard at work on "CHICAGO TI INTERNATIONAL WORLD FAIRE" Please note we are the only international faire in the world. We already have guests planning to attend from Italy, Germany, Canada and possibly Australia. Sandy is preparing to send out letters to vendors. We have already been contacted by a couple new vendors. It looks like we will have a great turn out. The Hospitality Room will be hosted by Sandy & Jon Bartels.

Temporary COMMITTEES.....

#### PROGRAMMING CONTEST (Tony Zlotorzynski)

We have a bunch of great entries. The judges and I will have the winners announced by the meeting time. It was a pleasure to be involved EVERYONE DID A SUPER JOB who entered.

PICNIC (Hal Shanafield) Picnic is set for July 1st. at Lighthouse Landing Park and adjacent Northeast Park. The cost this year will again be \$3.00 a Family and the weather will be great.

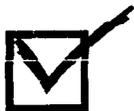
#### DECAL CONTEST (Hal Shanafield)

15 Judges decided among 27 entries and we have a great two color decal designed by Ernie Pergrem. They are now available for \$.75 each or two for \$1.00. Members of the Board contributed most of the entries.

The Board Meeting was closed at 12:45 P.M.



## JULY PICNIC



The annual Chicago TI Users Group picnic will be held this year on Sunday, July 1, at Northeast Park, in Evanston, the same site as last year. This is our annual family event, with activities for the entire family, but no computers! There will be plenty to eat and drink, games for adults and children, tours of the historic Gross Pointe lighthouse, swimming in Lake Michigan, and maybe a few surprises.

Northeast Park is easy to find, especially if you came last year. Some who came are now familiar with the entire North Shore (right, Bob?). The park is located a few feet north of the lighthouse, at the intersection of Sheridan Road and Central Street in Evanston. There is a small parking lot, but it tends to fill up early, as we learned last year. There is plenty of parking on the streets around the park. Plan on coming early if you want to park right next to the picnic.

As last year, we will be grilling hot dogs and bratwurst with all the fixin's. We will provide soft drinks, which is all that is legal in Evanston parks these days. Frances Willard still casts a long shadow in these parts. The cost for all this is just \$3 per family, so bring the whole gang!

There will be plenty for everyone in the family to do. There is a playground for the little kids, and lots of open space for the bigger kids to play softball, frisbee, volleyball, or just running around. Just across the parking lot is the Evanston Art Center, where there is often an exhibition on display. There is no charge for the shows. Just beyond is the Gross Pointe lighthouse, erected in 1873 to warn mariners of the Gross Pointe Shoals, a dangerous spot for the sailing vessels of the day. Tours of the lighthouse are given several times a day for a very nominal fee. The tour includes a climb to the top of the tower for a magnificent view of the surrounding countryside. When I was a volunteer guide there in years past, I always made sure that the group paused at each window in the tower during the spiral ascent, to "admire the view," just so I could catch my breath! It is a fascinating step back in the history of the area, so don't miss the tour.

We have ordered a nice day from the Clerk of the Weather, warm, but with a gentle cooling breeze off the lake. It should be perfect swimming weather. For a small charge you can use the beach, which has all the essential ingredients, namely sand and water. There is also a shower for those who prefer to leave the sand on the beach.

How do I get to all this fun and merriment, I hear you ask? That's easy, you hear me answer. For those coming from any great distance, the easiest way to reach the picnic is to take I-94 to the Old Orchard exit. Go East on Old Orchard Road past the Old Orchard shopping mall, crossing Skokie Boulevard (Route 41) and continuing about three-quarters of a mile until you reach Gross Point Road. At Gross Point Road, turn left and proceed to the first stop light, Central Street. Turn right on Central and continue East until you see the lighthouse. You can't miss it

because the street stops at the base of the lighthouse. The journey on Central is about two miles, and takes you past Dyche Stadium. You also pass under the tracks of the Chicago and Northwestern Railway, and the tracks of the CTA El trains.

If you wish to come by El, get off at the Central Street station in Evanston and walk four blocks East to the lighthouse. The CNW also has a Central Street station, but the walk is few blocks further. Evanston bus route 201 runs close to the picnic site, but the joker is that the buses don't run on Sundays in Evanston! Just thought that information might save you a few hours standing at a bus stop.

This picnic is always a lot of fun, but it takes a little planning to make the numbers come out right. Therefore I am asking for a little help from you. There will be a sign-up sheet at the June meeting. Please put your name on it, and indicate the total number of people you are bringing, including yourself. If you can't make it to the meeting, leave me a message on the Group's BBS. My number is 168. If you can't do that, give me a call at 864-8644, during civilized evening hours and let me know you're coming. I hope to see everyone there, and don't forget to bring the whole family.

--Hal Shanafield

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*THE 1990 TI99/4A & GENEVE/9640 PROGRAMING CONTEST*

It's over now. We got TEN winners !

All of the winners will be listed at the end of this article.

First thing is to say is, THANKS!. To the teacher in PITTSBURGH PA., THANKS for getting the kids to enter the contest . They won! (And so did you.)

NOW, One of the members of our USERS GROUP who did not WIN the contest. Claims that there is some of the disks with errors on them.

I just finished checking them out for errors. THERE GOOD COPIES! And, I have to get them in the mail.

A HINT ; PLEASE USE THE PROGRAM "TOY99/8" TO READ ANY DV/80 FILES ON THE DISKS. It is on disk #18 of 18 . It has no docs on it. It just works to read any file on a disk. It is also one of the craziest and best utility programs that I ever written. DO NOT "R E S" IT. ENOUGH, TRY IT OUT.

No, it was not a winning programing. "LOAD" IS THE WINNING PROGRAMING. MONEY, MONEY, MONEY, AND PROGRAMS. That's what the winners get. \$100. , \$75. , \$50. , & 4 thru 10 gets a COPY OF ALL OF THE ENTRIES TO THE CONTEST.

As you are reading this, All of the prizes are in the winners hands. If your name as a winner is on the list, and you do not have the prizes. THEN LET ME KNOW, NOW . I am mailing out the prizes to the winners who were not at the last meeting. Come to think of it, There was only one winner there. The rest ? From all over! (THAT TEACHER WILL LOVE THIS STUFF!)

So, Here is a brief account of the happenings. The contest ran for six months. I did everything that I could think of to get you playing with your computer. It worked with some of you. Some it did not work on.

One of the TRUE HACKERS said that he did not want to put in a program, Because his programs were so hot that it would make all of the rest of us look bad .

(that was MIKEY.) BULL, HE'S CHICKEN ! But, MIKEY WILL EAT ANYTHING. OK, SO IT WENT ON. Six months later we had over 40 entries to the programing contest. Some were just great. Some were just programs. Some were just files.

All that tried ,were winners. They did try. To many of you didn't. NEXT TIME ! Next time the prizes will be greater. More money and copies. And , If I can get them to agree to it, ONE YEARS MEMBERSHIP EACH TO THE TOP TEN WINNERS .

REMEMBER, IF I CAN GET THEM TO AGREE TO IT. NOT YET ! .

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SO, IT WENT ON AND ON AND ON AND etc.

I even tried to get you-all started programing by telling you that if you didn't get them programs in, That I was going to win the money. I did put some programs in too. (NO, I WAS NOT ONE OF THE JUDGES.) It is true that I was one of the winners.

The judges got all of the entries at the APRIL meeting. They had 4 weeks to get the winners picked. At the MAY meeting. It was still in the judges hands.

SO, They had to go in to a very small room until they had it all down pat. I was watching until they had one of my programs in the top ten. Then, I was kicked out. I did tell them why I had to leave.

They had me over the barrel at that time. They all laughed at me. They told me that it was tuff. They did not know what program that was mine. It would look very funny if I won the contest that I was running. (BIG JOKE!)

Sure, They got a kick out of that. Now how am I looking ?

The big winner is the PROGRAMING CONTEST CHAIRPERSON.

WHAT CAN I SAY ? I DID SAY THAT I WAS GOING TO ENTRY SOME PROGRAMS. I DID !

DID YOU ENTER THE CONTEST ? SHOULD I , OR WE DO IT AGAIN ?

HOW IS TONY GOING TO EXPLAIN IT IF HE WINS ? FUNNY JUDGES I VERY FUNNY.

WELL, I DID WIN THE TOP SPOT. I GOT THE \$100. .. AND I AM GOING TO KEEP IT !

Will I be running the next 1991 TI99/4A & GENEVE/9640 PROGRAMING CONTEST ?

I DON'T KNOW. I DO KNOW THAT I AM GOING TO KEEP ON HACKING ON THEM KEYBOARDS.

I KNOW THAT THERE WAS A MESS OF THE COPIES OF THE CONTEST SOLD AT THE MEETING.

IT WAS A GREAT PROGRAMING CONTEST. THE PRIZES TASTE GREAT! THE PROGRAMS IN THE CONTEST WERE ALL GOOD. shhh, I think that if I was one of the judges,I would have voted for a different program. Don't tell them that. ....

Last months newsletter. I wanted to get a copy of all of the entries to the contest in it. It didn't happen. I am not sure as to why. I am going to up-load the file to BIG BOB again.(ARCHIVED) I GOT TO GET THAT LIST IN THIS TIME. IT'S A HOT LIST..

OK, SO ON & ON & ON !

BOB, PLEASE FIND A WAY TO GET THE LIST IN ... WE ALL NEED IT ! GREAT PROGRAMS

Here is a list of all of the WINNERS :::::;

TONY ZLOTORZYNSKI first place  
GENE HITZ second place  
BILL GASKILL third place  
4th thru 10th (not in any order)

GERAND & DAN VISEL - WINNEBAGO, ILL.  
MARCHAL H. ELLIS - MEPHIS, TENN.  
H.C. HOYT Jr. - SPANISH LAKE, MO.  
JAMES W. WEIGAND - RIDGELEY, W.V.  
JOHN A. HARPER - PITTSBURGS, PA.  
JAN JOEL JANOWSKI - SKOKIE, ILL.

THIS NEXT WINNER IS 4 YOUNG PEOPLE TOGETHER !

DONNA KUDLA , NIKKI BOHN , AMBER MICHEL , & KERRI ULMER from PITTSBURGS, PA.

OK ! Where was your program ? Why didn't you put any in to the contest ?

Do // Let me say it this way. There wasn't any GAMES in the contest. Less then 25 % of all the entries came from the CHICAGO AREA. A man was broken because his entry did not win. He found out that he did not win, And left the meeting. Another found that he won, and said. "WHAT ! YOUR KIDDING !" It takes all kinds. OF PROGRAMS & PROGRAM WRITERS. LIKE I SAID, YA CAN'T TELL WHO OR

WHAT IS GOING TO WIN ! IT'S ALL UP TO THE JUDGES....

SO NOW YOU WANT TO KNOW WHO THE JUDGES WERE . FORGET IT . I'LL NEVER TELL.

THEY DID A GREAT JOB. THEY WENT NUTS FOR 4 WEEKS. There still nuts, COMPUTER-NUTS

SO, LOOK FOR THE LIST OF ALL OF THE ENTRIES TO THE 1990 TI99/4A & GENEVE/9640 PROGRAMING CONTEST IN THIS BOOK. THE LIBRARY HAD 25 COPIES AT THE LAST MEETING. HE WENT HOME WITH THE MAIN COPY ONLY .. THERE HOT, THERE GREAT.

GET THEM WHILE YOU CAN .....

HAVE A GREAT SUMMER . I WILL BE LOOKING FORWARD TO THE NEXT PROGRAMING CONTEST (1991) ..

THANKS ALL,  
TONY #46 (HACKER & PROGRAMER) I HOPE!

P.S. THERE IS A DV/80 FILE CALLED "1990ENTRYS" ON THE CHICAGO TI99/4A USERS GROUP BBS. PHONE NUMBER IS 1-708-862-0162 .

THAT'S JUST IN CASE THAT THE FILE WILL NOT GET IN THIS TIME .

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GENEVE SUPPORT ARTICLE...



Howdy doody there again, sports fan!!!

Well, this will be the last newsletter and Geneve Support article until the next Super Summer Issue, and knowing my good friend, Big Bob Demeter, I am sure that it will be a super one. I will try to finish up on a couple of loose ends with this article, and I will be returning with some more trash next fall. Anyway, let us now sally forth into the land of Geneve...

A PERPLEXING HARD DISK PROBLEM...

This last month, I started experiencing a problem with my hard disk system. The problem was that I was unable to copy certain files in certain directories off my hard drive onto some other storage device ("floppy disk" drive or RAM disk). The "freaky" thing about the whole event was that I could read those files into a program, but I could not copy them. I thought that I had discovered a bad "bug" in John Birdwell's MDMV, because I could not copy any of my Page Pro 99 fonts or any of my TIPS graphics files. I even called up my friend, Hank Ellermann, for advice, but he was not having ANY problems copying ANYTHING off his hard disk. I therefore called up the author of MDMV, John Birdwell, or "Dr. John," as I tend to call him. His first question was, "How many files are in each of the directories that you are unable to copy files from?" When I checked, to my amazement, I found that both directories had exactly 52 files. He then said, "Copy a file, any file, onto either of these two directories."

I did this immediately. He then directed me to now try to copy a file that I was previously unable to copy. I tried, and "VOILAI!!!" It worked!!! What was the problem?

#### THE PROBLEM OF THE "MAGIC NUMBER..."

Why do I call the drive dysfunction a problem related to a "magic number?" The reason is that there is a minor "bug" in MDMV. It appears that when you have exactly 52 (my "magic number") files in a directory, you are unable to copy any of the larger files, but small sized files can be copied without difficulty. If you have a quantity of files that is either lesser or greater than the "magic number," you will have no problem. How can the problem be overcome? You can either delete a file from the directory and place it elsewhere, or you can add a file to that directory. It can be any kind of a file and of any length. (I have since created a 2 sector "dummy" file that will raise a 52 file to a 53 file directory. (There may be another "magic number" or two, but, to date, no one has complained of any other number than 52.) Dr. John is aware of the "bug," and he has rectified this problem in the latest version of MDMV. Unfortunately, Myarc has not yet released this version, and I believe that it will not be released until the next (which will probably be a complete version) release of MDOS. I also think that this latest version will not work with some of the versions of MDOS that are currently in use. Anyway, the problem has been taken care of.

#### JP SOFTWARE

Last month, I discussed two releases from JP Software. They were BROWSE and GRAPHICS EXPANDER. As I have had even more time to use them, I continue to feel that both are fine examples of software. They both do useful tasks, they are both extremely easy to use, and both do exactly what they claim to do; what more could one ask for? Though I continue to use both of these programs, I have a few minor requests to make of JP Software regarding BROWSE, the one that I use the most of the two: a.) How about a larger text buffer that will allow me to store a larger text file into memory. As I am using a Genny for my word processing, I can create a file that is significantly larger than that which can be created by word processors that run on the 4A. How about taking advantage of Genny's greater memory? I guess in order to do that, JP Software would have to consider my second request: b.) How about doing a MDOS version. Here you could take full advantage of Genny's extra memory and speed. Finally, I have one additional, minor "wish": c.) I would like a greater number of screen color combinations available to me. I realize that this last request is quite minor and insignificant, but it would be a nice bit of frosting on the fine cake that is named BROWSE. In spite of my petty carping, I really love this program, as with all of the text files that I can generate in a day, it really helps me to be able to better manage my work. I can therefore fully recommend this program to all users who create text files. Now, go out and buy a copy of BROWSE!!!

#### ANOTHER WORK SAVER

Another fine piece of software that has recently come out of JP Software is program IDENTIFILE. What is IDENTIFILE??? It is a

program that identifies files, silly!!! "Why," you may ask, "do I need a program to do something so basic as this?" The reason, Bunky, is that you only need this program if you have a lot of different kinds of programs. If you only have a few different kinds of programs, then this program would be a waste of money. But suppose you had some Adventure cartridge games on a temporary disk with a Chainlink game, some CSGD graphics, some CSGD fonts, an E/A "Load & Run" (compressed file), some text files, and an Extended BASIC program. How would you easily figure out exactly what you have so that you could put your house in order? The answer is to be found in JP Software's IDENTIFILE. If the above scenario sounds ridiculous to you, I have been in much WORSE situations. This has happened when I have been doing a lot of "downloading" from electronic bulletin boards. I then tend to get a lot of different kinds of files, and I also tend to store those files on a disk or device that is intended for only temporary storage. Then, invariably, I get involved in some other project or with some important responsibility. I then have the problem of trying to figure out exactly what the heck I have, where it's from, and what it's for. SUCH A DRAG!!! Fortunately, IDENTIFILE will allow you to catalog a storage device (hard disk, floppy disk, or RAM disk) and get a listing with a description of all of the files residing there. In fact, IDENTIFILE is capable of recognizing over 50 different kinds of files!!! For this reason, every program collector, archiver, bbs SysOp, users' group's librarian, or hard drive owner should have a copy of this program to use. It is simple to use, and it does exactly what it says that it will do.

I would like to mention one small thing regarding IDENTIFILE: I was unable to load it directly into E/A option #5, but I have no trouble using the XB loader to load the program. I would also like to mention that you can print your listing out, or you can print to a storage device. In this way, you can create a catalog listing file, and you can add other files to this list by appending the latest file to the original one. This is truly a very useful piece of software to have, own and use. In conclusion, if you have a lot of files that you would like to sort out, get this program!!!

#### ANOTHER GRAPHICS PROGRAM

Here is yet another program which I purchased at the last Faire. I purchased it from Comprodine's Roger Merritt. The name of the program is Giant Artist Posters, and it does exactly what the title implies; it prints giant sized posters. The posters are based on any TI Artist picture in "instance" format. It will print posters up to, approximately, 64 X 200 inches. Now, that's BIG!!!^ It also appears to work very well. Obviously, the larger the poster, the longer the printing time. Times can vary from, approximately, 8 minutes, for the smallest sized poster up to a whopping 368, for the largest, two screen poster. I can personally am unable to project when I will need to do a poster that is 5 X 8 feet wide, but it is nice to have the capability. For this reason, I recommend this program.

## ENVY CAN BE A USEFUL THING...

Now why would I say that??? I say that because when I would go over to the houses of friends of mine who own Mac's and "klones," they often have software that we don't have. You have no idea of how envious I was of a good buddy of mine who purchased a Mac and sent me a letter using some of its neat fonts and graphics. Well, it wasn't too long before Asgard came out with Page Pro 99, and I found that I could do the same thing just as well and maybe even more easily. I was highly envious of the ability of the Apple to produce large posters. I found about this when the computer teacher at my place of employment had some students in my class to send me a computer graphic of one of my most dreaded student types. I have given him the appellation of "GORGY GODZILLA." Well, now that I have Giant Artist Posters, I intend on doing my own GODZILLAS, thank you.

I say that envy can be useful if we use it as an impetus to urge the programmers and software companies to create more sophisticated and useful software. I therefore love to have my friends, who are not in our community, show me stuff that they can do and that we can't. For me, it only provides a challenge to be met. Look at what Mike ("Wetsuit Warrior") Maksimik has done with a digital keyboard and his MIDI interface and his serial mouse. He has given us greater utility and possibilities for productivity, and this is true whenever a software firm, programmer, or hardware designer comes up with something new and useful for Genny or for the 4A. No, our machine isn't dead; in fact, it isn't even asleep. No, we just move at our own speed. (Aren't you glad that you stayed in the community??? I sure am.)

## WHY IS KROME DOME GETTING SO HEAVILY INTO GRAPHICS???

This is a good question to ask about me as I am NOT an artist. My son is an artist; "Buzzard Breath" Krantz is an artist; Cynthia Becker is an artist; Ken Gilliland is an artist. I have NO artistic ability, but with the various drawing and graphics programs around, I am often able to generate graphics that aren't half-way bad. The funny thing that I find happening in my life is the need to continue to be able to efficiently generate and edit text. At the same time, I find emerging the need (and desire) to be able to merge text AND graphics. For this reason, I find that I am becoming increasingly interested and involved with drawing and graphics programs. I also find that the concept of desk-top publishing has also increasingly become a more sought after option relative to computer productivity.

## WHAT'S HOT IN COMPUTERLAND???

It is my distinct impression that the hottest thing in the computer world is the ability to combine text and graphics. How has the TI community addressed that need? The need has been addressed by the proliferation of the many kinds of graphics and word processing (manipulation) programs that we now find available to us. We also have two systems which purport to be desk-top publishers; I am speaking of Picasso and The Printer's Apprentice. I have never used Picasso, but I have started to do work with TPA, and as a result of my involvement with this

program and the other necessary ancillary programs, in our community, which are needed to effect true desk-top publishing, I am very much encouraged. I see software that is becoming increasingly sophisticated. I also see intermediate programs, like Page Pro 99, which are not full desk-top publishing programs, but they are able to address less sophisticated and intensive needs. And, it should come as no surprise that for most people, full desk-top publishing is not a necessary option, but for those who do need the service of a full desk-top publisher, I submit that we do have it. In a future article, I shall attempt to explore the world of graphics that are available to the Genny. I also intend on doing some intensive articles on TPA. I am convinced that this is one of the most important programs in our community today.

Well, I had better stop while I am ahead. I will be doing a review of AV Index in my next article. I will also be doing some work with some other software that is also fully compatible with Genny. I look forward to dealing with desk-top publishing in the TI community. Until then, I think that it's time to

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## INTERFACING COMPUTERS WITH DEVICES

(part 1 of ??)

by Guntis Sprenne

This series of articles will cover various aspects of connecting a computer to another device. The other device could be another computer, a printer, MODEM, DIGITIZER, or any other device that has a corresponding interface. The list of possible devices is open-ended; more and more devices are being marketed every month. Some others that I have not had experience with are; MIDI devices (MIDI is a standard for interconnecting musical devices such as electronic pianos, drums, etc. to computers), security systems, home control systems.

The first step in interfacing two devices is to determine if it is possible. For that you will the specifications (specs) for each device. Both devices must use the same 'standard' for direct connection. An RS-232C device has to be connected to another RS-232C device; a parallel port on a computer must be connected to a parallel printer. There are other standards; RS-422 (a balanced version of RS-232C, but NOT interchangeable), telephone company (the familiar telephone connector), SCSI (Small Computer System Interface), ESDI (Enhanced System Digital Interface), ST-506 (Winchester and Floppy disk interface). A digression: for those of you who have wondered what the RS in RS-232 stands for, the answer is (R)ecommended (S)tandard.

Unlike the 'real-world', there are NO exceptions to the rule that only like devices can be connected together. What is possible is to connect a 'protocol converter' between the two unlike devices. If you have a serial port and a parallel printer it is possible to buy a serial/parallel converter. The converter has a serial input port (to match the computer's serial port) and a

parallel output port (to match the printer's parallel port).

After you have the specs for both devices (and they are both the same) the actual design of the cable can start. To design the cable you will need an idea of how the interface works. The next installments of the series will cover the two most widely used interfaces: RS-232 serial and CENTRONICS Parallel.

The rest of this section will deal with electronics basics. Interfaces may be either DIGITAL (LOGIC) or ANALOG. Here I will try to explain the differences. An ANALOG signal is one which can vary continuously. Several familiar examples are: the telephone system, an audio system, a radio receiver, and a VCR. Each of these devices deals with signals that can vary. Each device also has limits on the signals it can handle (on a stereo amplifier you shouldn't take the speaker output and feed it into the microphone input; at best you'd get a VERY distorted signal, at worst you'd damage your equipment). When connecting various devices the output capability of the source must be matched to the input capability of the destination (or load).

DIGITAL signals, on the other hand, can vary only between two known states. The signal is either ON or OFF, a 1 or 0 (under normal operating conditions). The voltage (sometimes current) level that determines a 1 or 0 varies with the interface. The RS-232 standard uses +3 to +25 volts for a 1 condition, and -3 to -25 volts for a 0 condition. The area between +3 and -3 volts is undefined and should be avoided; in other words, the signal should change from greater than +3 volts to less than -3 volts as quickly as possible. Digital Logic uses +5 volts for a 1 and 0 volts for a 0 (although in negative logic systems +5 volts is a 0 value and 0 volts is a 1 value). As in an ANALOG system the DIGITAL signal source should be connected to the appropriate load.

To illustrate the difference between ANALOG and DIGITAL signals, consider the monitor for a computer. A DIGITAL monitor uses the input for Blue to control the electron gun; either on or off. An ANALOG monitor uses the input for Blue to control the intensity of the electron gun from off through the different intensities of blue depending on the voltage applied. Because the intensity of the 3 electron guns can be varied, an ANALOG monitor can display a wider range of colors than a DIGITAL monitor. It also requires a more expensive controller card and software to use those capabilities.

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## INTERFACING COMPUTERS WITH DEVICES

(part 2 of ??)

by Guntis Sprenne

This is part two of the series on connecting your computer to whatever you'd like to connect it to. This time I'll try to explain the RS-232 interface so that you should be able to hook-up a MODEM or serial printer to your computer.

First a few warnings. The RS in RS-232 stands for (R)ecommended

(S)tandard. Which means that in some cases serial devices will have connectors other than the standard DB-25 (a good example is the 99/4A which has two ports sharing one connector and the AT style connector which uses a 9-pin instead of 25-pin connector. In most cases mis-wiring a cable will cause no harm; if you are at all uncertain as to what you are doing, seek help (I assume NO responsibility for any damages resulting from using this information!!).

The RS-232 interface is specified using a DB-25 connector. It has 13 pins on the top row and 12 on the bottom. The connector is shaped so that it can be mated only one way. The standard includes two "designations": DTE (Data Terminal Equipment - usually a computer or other terminal) and DCE (Data Communications Equipment - usually a MODEM). The "designation" of the interface determines how the pins are used. That will (hopefully) become clearer later.

The pins are specified as follows:

- 1 -- frame ground (FG)
- 2 -- transmitted data (TD) ->
- 3 -- received data (RD) <-
- 4 -- request to send (RTS) ->
- 5 -- clear to send (CTS) <-
- 6 -- data set ready (DSR) <-
- 7 -- signal or logic ground (SG)
- 8 -- data carrier detect (DCD) <-
- 9 -- 22 -- ring indicator (RI) <-
- 10 -- 23 -- data rate selector <->
- 11 -- 24 -- external transmitter clock ->
- 12 -- secondary DCD <-
- 13 -- secondary CTS <-
- 14 -- secondary TD ->
- 15 -- transmitter clock <-
- 16 -- secondary RD <-
- 17 -- receiver clock <-
- 18 --
- 19 -- secondary RTS ->
- 20 -- data terminal ready (DTR) ->



to DCD the printer may 'make' DCD high; this can be done with software or hardware (here I assume that everyone knows that all modern printers have a microprocessor and ROM that controls the printer).

This is where the 'magic' starts. The data output of a DTE device is pin 2; the data input to a DCE device is pin 2. If the devices to be connected are dissimilar (one DTE and one DCE) then the cable will have pin 2 wired to pin 2. The same thing holds true for RTS, CTS, DSR, DTR, RI, DCD so the cable is straight through as shown on first page.

If both device are the same (two DTE devices, for example) then pin 2 will be wired to pin 3, pin 3 will be wired to pin 2 (pin 2 [the output of a DTE] to pin 3 [the input of a DTE]). That's the easy part.

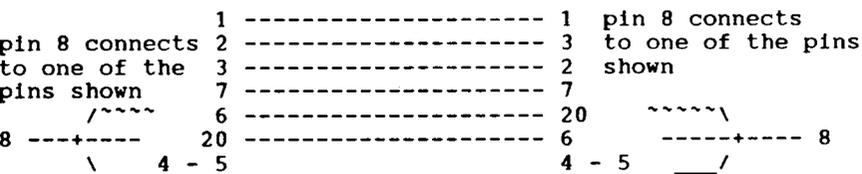
The terminal ready output of one device has to go to the data set ready input of the other device. This would be pin 20 wired to pin 6; and pin 6 wired to pin 20.

The request to send of a device goes to that same device's clear to send. Or, pin 4 would be connected to pin 5 at each end.

Usually, the data carrier detect pin needs to be high for a device to receive data. This can be accomplished by connecting pin 8 to either pin 6 or 20 or 4 or 5. Selection of where to connect pin 8 should be determined by reading the manuals of both devices. If pin 20 is used for a busy indication as well as terminal ready, then pin 8 should be connected to 4 & 5. If one of the devices toggles request to send, the pin 8 should be connected to either 6 or 20. Note that if both devices are the same (DTE & DTE or DCE & DCE) then pin 8 for one device should not be wired to pin 8 of the other.

The signal grounds of both devices are ALWAYS tied together. Frame grounds may or may not be tied together (if there is space I'll discuss the various problems which occur when frame and logic ground are tied together).

From the above, a cable to connect to similar devices (sometimes called a MODEM eliminator) would be wired:



If the basic cable doesn't work, then it's troubleshooting time. I'll describe some common symptoms and how to rewire the cable. For the discussion I'll assume a computer serial port and a serial printer, both DTE devices. The ideas can be extended to other devices.



computers. However, a person has need of this information NOW, so rather than write him a description, and then polish it up for the series, I decided to jump ahead and present this part first.

The CENTRONICS parallel interface was used by a company called CENTRONICS as the input to their printers. Since (I guess) they were a large provider of printers to the computer industry, other companies making printers 'adopted' the interface to make interfacing their printers easier (In the early days of computers there were many interfaces, requiring special boards to connect vendor peripherals to the CPUs. In contrast, today's (more or less) standardized world makes life pretty easy. Almost any printer will work with almost every parallel port; most MODEMS will work with most serial ports; etc.).

The parallel interface transfers data from the computer (or other device) one byte (8 bits) per clock cycle. The clock in this case is NOT necessarily the same as the CPU clock. To do this many wires are needed. In a serial interface there is only one wire for data and the 8 data bits are sent one at a time. The parallel interface is (theoretically) faster; the serial interface is able to operate over longer distances (as a reference, IBM limits parallel interface cables on PCs to 6 feet; the limit for serial cables is 50 feet).

A general description of how the parallel interface operates follows.

When the printer is powered up (and self-tests pass for the newer printers) certain signal lines will be set. Right now we are assuming that paper is loaded. `-DATA_STROBE`, `-ACKNOWLEDGE`, `REMRST` and `-FAULT` will be at a high level. `BUSY` and `PE` will be low. `SELECT` will be high or low, depending on whether the printer is online after power-up (high for online, low for offline).

When the CPU sends data to the printer it does the following: A) sets the appropriate data lines high/low B) toggles the `-DATA_STROBE` line from high to low to high. The line should remain low for .5 microseconds. This tells the printer that the DATA lines have been set. C) when the printer has loaded the DATA lines into its buffer it toggles the `-ACKNOWLEDGE` line from high to low to high. Normally this would happen 2.5 to 10 microseconds after the `-DATA_STROBE` line goes high. However, if the printer is busy, out of paper or offline, then `-ACKNOWLEDGE` will stay high until the condition is corrected. D) when the CPU receives `-ACKNOWLEDGE` from the printer it can send the next character (if there is one) starting back at A).

If any fault condition occurs in the printer the appropriate line will be set by the printer, and no `-ACKNOWLEDGE` will be sent to the CPU.

Basically a simple scheme. Where things can get complicated is in how each manufacturer implements the interface. Two examples come to mind very easily; no doubt there are many others. The first is the parallel interface in the TI 99/4A. It is a 16 pin connector, which is 20 pins less than the 36 pin CENTRONICS standard. The second is the parallel port on IBM type PCs. They

use a 25 pin DB25 connector, which is commonly used for RS-232 (serial) interfaces.

When a subset of the CENTRONICS standard is used by a manufacturer there may be some problems. What problems occur depend on the printer and the CPU. In the most basic form, only 11 wires would be needed for a parallel interface. 8 for data, 1 for data strobe, 1 for acknowledge, 1 for logic ground. The other lines convey more information than the basic 11, but are not needed. If any fault condition occurs (either intentional, such as taking the printer offline; or accidental, such as running out of paper) then the acknowledge sequence will not occur properly and the CPU should stop sending data. Depending on what happened to the printer the last character sent may or may not be lost.

What the other lines do is convey more information to the CPU about the printer conditions. If the printer runs out of paper, it would make sense to let the user insert more paper and continue the printing. If the printer buffer fills up, the software could do some other processing and then return to the printing routine after a set time (this would apply more to large systems rather than personal computers). If the printer breaks (a -FAULT condition) the software could direct the output to another printer (again, more useful for large systems).

The previous paragraph explains why personal computers do not use the full set of parallel signals - if the printer breaks there is not usually another available online; if the printer goes busy, there is nothing for the computer to do but wait. In the busy case, the printer will not send the -ACKNOWLEDGE until the buffer is empty, so the busy signal is not needed.

In the case of a non-standard printer and/or CPU interface a special cable will be needed. In general, the cable will have to do the following:

A) connect the data out of the CPU to the data in of the printer. Bit 1 of the CPU to bit 1 of the printer, etc.

B) connect the 'handshaking' lines (-DATA\_STROBE, -ACKNOWLEDGE,).

C) connect SELECT from the printer to the CPU. This connection may or may not be needed. If it is needed and the printer/cable does not provide a SELECT line, then a jumper could be added on the CPU end between a pin which provides a high signal and the pin which would normally receive the SELECT signal. A drawback is that the CPU would never see the printer go offline. No more data would be sent since the printer would not return an -ACKNOWLEDGE for the last character. The first character sent after the printer was taken offline may be lost.

D) the other status lines would have to be connected as needed.

E) in special cases an active circuit may be needed in the cable, or jumpers/switches will have to be changed in the printer or computer. This would happen if the printer sent a positive ACKNOWLEDGE signal; pin 10 would be low, then go high to acknowledge the data, then go back low again. Some printers have

the polarity of the ACKNOWLEDGE as an option, some don't. A PARALLEL port may expect the reverse; a high going acknowledge, when normal printers have a low going acknowledge. In either case, the printer would print (since the ACKNOWLEDGE line was changing polarity and telling the CPU to send data and toggle the strobe) but the CPU and printer would be 'out of sync' and what got printed would be nonsense; the printer would be reading the data lines while they did NOT contain valid data. In such cases an inverter or some other circuit would be needed on the acknowledge line.

I hope this helps explain how your printer works, and it may help in the future when you buy a new printer and it doesn't quite work properly.

CENTRONICS PARALLEL INTERFACE PIN-OUT (this information is taken from the TI 810 printer user's manual)

pin	source	signal	description
1	CPU	-DATA STROBE	.5 microsecond pulse to clock data
2	CPU	DATA LSB \	These are the 8 data bits. A high is a binary one, low is a binary 0.
3	CPU	DATA	
4	CPU	DATA	
5	CPU	DATA	
6	CPU	DATA	
7	CPU	DATA	
8	CPU	DATA	
9	CPU	DATA MSB /	
10	PRINTER	-ACKNOWLEDGE	low tells CPU printer got the char.
11	PRINTER	BUSY	high = printer is not ready
12	PRINTER	PE	high = printer is out of paper
13	PRINTER	SELECT	high = printer is on-line
14		LOGIC GROUND	return for -FAULT
15			
16	PRINTER	LOGIC GROUND	
17	PRINTER	CHASSIS GROUND	also known as SAFETY GROUND
18	PRINTER	+5 vdc	for test purposes
19		LOGIC GROUND	return for -DATA STROBE
20		LOGIC GROUND	return for DATA LSB
21		LOGIC GROUND	return for DATA
22		LOGIC GROUND	return for DATA
23		LOGIC GROUND	return for DATA
24		LOGIC GROUND	return for DATA
25		LOGIC GROUND	return for DATA
26		LOGIC GROUND	return for DATA
27		LOGIC GROUND	return for DATA MSB
28		LOGIC GROUND	return for -ACKNOWLEDGE
29		LOGIC GROUND	return for BUSY
30		LOGIC GROUND	return for REMRST
31	CPU	REMRST	low terminates FF or vert. tab
32	PRINTER	-FAULT	low indicates a printer fault
33			
34			
35			
36			

NOTES:

A) A signal which has a minus sign (for example, -FAULT) indicates that the signal is normally high, and goes low when the condition becomes true. Using -FAULT, if pin 32 was measured it would be a positive voltage if the printer was ready to print. A failure in the printer should cause pin 32 to drop to 0 (zero) volts.

B) There are many logic grounds listed. Usually they are tied together in each device. In the case of the TI printer, the cable is built using twisted pairs for certain signals.

C) Pins which have no listing are not used.

D) LOGIC and CHASSIS grounds are two different grounds. LOGIC ground is the reference for the DC supply voltages. CHASSIS (SAFETY) ground is a direct connection to the ground conductor in the AC outlet. In some devices there will be a connection between CHASSIS and LOGIC ground. This only becomes a problem if the connection exists in more than one device. If CHASSIS and LOGIC ground are shorted in the CPU then they should be separate in the PRINTER (and the other way around). If strange, intermittent problems occur, remove the cable from the printer; measure the resistance between pins 16 and 17 in the printer and in the cable. Only the cable or only the printer should show a short. If both do, then one of the shorts should be opened, preferably in the printer. If there are no shorts, then LOGIC and CHASSIS ground should be tied together, preferably in the CPU.

E) Read the accompanying text for more information.

|||||

**BACK TO BASICS**  
TI Extended BASIC  
Microsoft GWBasic.

A Discussion by Art Byers

Last year I wrote a four part series extolling the virtues of the Basic language and of TI Extended in particular for use on the 99/4A. Those pieces have been reprinted in many TI user group newsletters, so most 99'ers are well aware that Basic is one of my favorite computer languages.

It is only natural, therefore, that I would investigate Microsoft GW Basic which is most often supplied as a "freebie" when an IBM Compatible PC is purchased. In the small space of a computer club newsletter, I cannot go into depth of detail. After all the GW Basic manual I have is well over 400 pages, and TI-XBasic manual with addendums is over 240 pages. My intent is to give you my own views and let you go further from there, if you so desire.

I have heard many conflicting stories about the origination of Basic for the TI. Here is what I believe is most likely true:

Regular TI-Basic, or Console Basic as it is often called, was written by Microsoft for Texas Instruments. TI Extended Basic, which is obviously based on TI-Basic, was written by a team of TI in-house programmers. It is no surprise, therefore, that GWBasic and TI-XBasic are very much alike. They are so similar that many of the more simple programs can run on both TI and PC systems with only minor syntax modifications.

Here are two examples: (1) XB uses a double colon "::" as a separator for multi statements on the same line. GWB uses a single colon ":". (2) GWB uses a semi colon after text in an INPUT where XB uses a colon. ie: in GWB 100 INPUT "Enter your name";N\$ - in XB 100 INPUT "Enter your name":N\$.

The overwhelming majority of statements, commands and functions are either identical or there is a simple substitution of name such as SEG\$ in TIXB and MID\$ in GWB. Both versions can link to assembly routines. Both can avail the programmer of useful peeks and pokes into varied memory locations, Both have the ease of program debugging generic to interpreted languages. All this is welcome news to a Basic devotee interested in transporting programs from one make of computer to another.

In fact, when reading the rest of this article, keep firmly in mind that MOST of XB and GWB statements, commands and functions are the same right down to the last parenthesis and comma!!!

#### WHICH IS MORE POWERFUL?

Although There are areas where I consider TI-XB to be definitely much superior to GWB, there can be no argument or question that overall GWB has more features, statements, commands and available memory than TI-XB. (As an aside I'll say that the new Advanced Basic for the MYARC 9640 is better than and more powerful than GWB. However, most of us are using the 99/4A and must use XBasic.) Nevertheless, if you supplement TI XB with some assembly graphics routines Extended Basic not only can hold its own very well, but also in two very important respect outstrips GWB. Let's take a quick look.

#### Amount of Memory Available.

First of all, sheer memory space available for Basic programming and required array storage is 60k in GWB as compared to about 37k in XB. Of the 48k memory in the 99/4A, Extended Basic uses either 768 bytes or 960 bytes of VDP RAM just for screen display (32 or 40 column mode). VDP RAM is also used for string variable array storage, DSR buffers, line number tables, and color and screen tables, etc. Effectively, if you have opened a line to a printer and opened a couple of disk files (at 512 bytes each) you can safely figure at least 13k available for string storage in VDP RAM. XB uses 24k high memory for programming as well as storage of numerical arrays and constants. The lower 8k is there for assembly support linked to basic programs but not for Basic programming. Even if we make the usual assumption that XB has the full 48k of RAM available one way or another for use by XB programming, GWB has 25% more. You may laugh that a 640k RAM PC has so much overhead that only 10 percent is available for Basic programing. That is not really the point. GWB simply has more

memory available, period! (Actually the TI has more than 90k total memory with various ROM chips, but let's not get into that right now as no way does it have 640k of cpu addressable RAM).

The above is much mitigated by the fact that the 99 was designed as a HOME computer. Very few programs written for home use should require 60k of memory. In six years of programing, I have NEVER run out of memory on the 99/4A for an XB program - though at times I had to do memory squeezing tricks and be very efficient with my code. If the amount of digging you have to do will be handled by a garden spade, is not a diesel powered back hoe overkill?

#### WHERE GWB SHINES?

Many many more features make it an easy and convenient programming language Let me give you just a few examples:

(1)GWB simply has more goodies for the programmer such as statements and functions to use the PC's built in clock including retrieval of time and date, elapsed time, as well as the ability to set the clock. Another useful statement is SWAP, which facilitates sorting data. There are may more examples I could list here.

(2) a GWB program can use Shell commands to temporarily leave the Basic program and use a batch file, or use the many MSDOS commands such as reading directories, rename files or disks, etc and return to the execution of the Basic program when the outside task has been completed.

(3) The 99/4A has excellent file handling. So does GWB but XB lacks GWB's ability to LOCK and UNLOCK files. Even woefully deficient Apple II Basic has that feature. Why Microsoft left it out of TI Basic, I do not know. Another omission from XB is the RESET statement to close all open files and update the disk directory. That is an important adjunct to any error trap routine or any program that requires swapping of disks.

(4) A whole host of graphic commands such as CIRCLE, DRAW, PAINT etc are part of GWB. To use these in TI XB we must link to assembly routines such as Quality Soft's Draw and Plot or Mechtronics Expanded Graphics which contains many links to Basic. The latter uses so much overhead, however, that the memory remaining for XB programming is severely restricted. An fine alternative is the Super Extended Basic Module which automatically dumps graphic routines into lo-memory and has other enhancements.

(5) Another real plus for GWB is the ability to use a few simple Basic statements and commands to save a whole screen onto disk, to recall the screen, text or graphics make no difference.

(6) There are many more features made possible because GWB is a larger version of Basic. These include additional looping commands such as WHILE/WEND. All I can advise is that you take a look at a manual in a bookstore if you want to investigate further.

(7) What may well be GWB's strongest point is that it is tied to a very powerful MS-DOS. It is this DOS connection that may be, for a majority of Basic programmers, the deciding factor in favor of GWB.

(8) GWB is substantially faster in execution than TI XB. I have written articles before on "Apparent Speed". I won't repeat them here more than to say I consider TI XB sufficiently fast for almost every home use except Telecommunications. A Telecom program can be written in GWB that will handle up to 2400 baud, (though probably best only up to 1200 baud as you must program in stop/start [Ctrl S and Ctrl Q] transmissions to the remote to allow GWB to catch up with itself at 2400 baud). Above that a compiled language program is required. XB could handle 110 baud or 300 baud.

#### A LIMITATION OF GWBASIC

Much to my surprise, GWB limits you to a maximum of 255 dimensions in an array, [DIM A\$(255)], This applies to both string and numeric variables. To those of us in XBasic used to making DIMension statements much larger than this, either single [DIM A\$(400)] or multi dimensional [DIM A\$(100,4)] this is a potentially disabling choke collar on a very fast greyhound.

I am inclined to believe this is deliberate. If the TI with its limited RAM can dimension huge arrays, certainly Microsoft could have done the same with anywhere from 256k to 640k in the standard XT clone. Why?? Perhaps because they contemptuously don't think of the home user as writing sophisticated programs that would require large arrays. Perhaps they want to be sure that for sophisticated programs, users must go out and BUY software written in other languages, for it is a truism that the average user will program in Basic, IF they program at all.

There are ways of programming around this restriction but they sure make things unnecessarily complicated and difficult.

#### WHERE XB SHINES

TI-XB has several areas where even after all these years, it still outstrips GWB.:

(1) The 99/4A, although a design of the 70's, was far ahead of its time in graphics and graphic definition. Even without the high number of pixels that the latest PC's have on their monitor screens, the TI can hold its own. What is more, the 99/4A's use of and ability to control Sprites is the equal or superior, even today, of many new computers. The normal IBM clone does not yet have sprites!!! What is more, all this graphic and sprite capability (such as the MAGNIFY command) is part of XB. GWB does not have sprites.

(2) XB statements and commands for screen display and input are superior on the TI. I consider TI's DISPLAY AT(row,column)SIZE() very much better than GWB's LOCATE(row, column,cursor,raster,raster). I think the ACCEPT at(row,column)SIZE ()VALIDATE() to be more logical and easier to use than GWB's methods. I even like the TI's CALL KEY much

better than GWB's INKEY\$. It gives more information and is more powerful.

(3) Here is the number one unequalled way that TI XB has it all over GWB: The ability to write truly structured programming by writing your own subprograms that you can CALL by the name you give them. For Example: CALL INTERESTCALC (PRINAMOUNT,RATE,PERIOD) is tons more meaningful than GOSUB 1300. This alone weighs so very heavily in favor of XB, That for many 99/4A (and 9640) users it may well be the deciding factor in making their judgement of which version of Basic is the better.

So I suggest, again, that some time when you are near one of the very large book stores that have an extensive computer section, (B Dalton on Central Avenue Yonkers is the best in our area) you peruse any GWBasic manual. I suspect you may just come away feeling much better about TI's Extended Basic.

#####

EXTENDED BASIC DRAWING PROGRAM  
by Bob August  
(BUG NEWS-Brea Users Group)

```
100 | DRAWING PROGRAM
110 | IN TI EXTENDED BASIC
120 | BY R.W.^AUGUST
130 DISPLAY AT(4,5)ERASE ALL
:"<< DRAWING PROGRAM >>": :
: : " C - Clear the screen":
: " D - Drawing mode": : " E -
Erase mode"
140 DISPLAY AT(13,6):"Also F
ire button": : " R - Recall f
rom disk": : " S - Save drawi
ng to disk": : : " RELEASE
THE ALPHA LOCK KEY"
150 DISPLAY AT(22,1):" AND P
RESS ANY KEY TO START"
160 CALL KEY(O,K,S):: IF S=0
THEN 160
170 CALL CLEAR :: CALL SCREE
N(16):: CALL COLOR(2,7,16)::
CALL CHAR(46,"FFFFFFFFFFFF
FF"):: C=16 :: R=12 :: CHR=4
6
180 CALL HCHAR(R,C,CHR)
190 CALL KEY(1,K,S):: IF K=-
1 THEN 240
200 IF K=2 THEN 340
210 IF K=6 THEN 390
220 IF K=14 THEN CALL CLEAR
230 IF K=5 OR K=18 THEN CHR=
32 ELSE CHR=46
240 CALL JOYST(1,X,Y):: IF X
=-4 THEN C=C-1
250 IF X=4 THEN C=C+1
260 IF Y=-4 THEN R=R+1
270 IF Y=4 THEN R=R-1
280 IF R>24 THEN R=1
290 IF R<1 THEN R=24
300 IF C>32 THEN C=1
310 IF C<1 THEN C=32
320 GOTO 180
330 | SAVE DRAWING TO DISK
340 CALL SOUND(150,1400,0)::
OPEN #1:"DSK1.PICTURE",OUTPU
T
350 FOR ROW=1 TO 24 :: FOR C
OL=1 TO 32
360 CALL GCHAR(ROW,COL,D)::
PRINT #1:D
370 NEXT COL :: NEXT ROW ::
CLOSE #1 :: CALL SOUND(500,1
400,0):: GOTO 190
380 | RECALL FROM DISK
390 CALL CLEAR :: CALL SOUND
(150,1400,0):: OPEN #1:"DSK1
.PICTURE",INPUT
400 FOR ROW=1 TO 24 :: FOR C
OL=1 TO 32
410 INPUT #1:D :: CALL HCHAR
(ROW,COL,D)
420 NEXT COL :: NEXT ROW ::
CLOSE #1 :: CALL SOUND(500,1
400,0):: GOTO 190 :: END
```

FROM MELBOURNE TIMES, (T.I.M.U.G.)  
WITH THANKS TO ATICC AND COLIN CARTWRIGHT.

## KALIEDAWRITER DATA BANK NOV 1988

My next subject may help to satisfy some curiosity and create a lot of disbelief. Once again, problem, where do I begin?. What I am currently working on is a device that I call Kaleidawriter Data-Bank, which with a bit of luck is only the beginning of the Kaleidawriter family.

It all began about 9 years ago when I designed a device which would let me draw all over my TV screen, and due to lack of finance and many other problems I made one and then decided to shelve the project. Well since then it has been dragged out from time to time and modified and shelved again. Well to cut a short story short it was a year ago when it raised its ugly head again. I say ugly because it had undergone so many changes that I had more bugs in it than a light bulb gets around it on a hot summers night.

Well once again it was seen by a few more people, Fred being one of them. I am not going to tell you all the things that it did or all the things that it would not do anymore, because part one of it didn't work, But never the less I showed the little bit that it could do and the photographic record of some of the things that it could do.

Interest bloomed again! I am now sure that I must be totally MAD!. Anyone that sits up until 2am. nearly every morning working on the damn thing must be. Well that's how I felt for quite a while but now things are starting to come together.

Let me step back one step for a moment. I am not sure how it happened but someone had the bright idea that the device would be easier to get off the ground if it was adapted to aid a computer, well being an ex-employee of TEXAS Instruments in their so called electronics department and being in possession (<hasn't that word got a lot of s/s?) of a 99/4A, It became the obvious choice, and after many sleepless nights I now know what it will do and won't do for the 4/A.

Mind you when I started this project I think that I may have used my TI maybe three for four times only. It was then that I came to the conclusion that the 99/4A needed all the help that it could get. For example, all the other current computers that are on the market had so much more back up and appeared to be better graphics and programs.

At first I figured that maybe I should be designing the DATA-BANK around a Commodore (sorry about this bad language?) but due to the fact that all my spare money was going into renovation of my home, I had to settle for a 99/4A.

NOW that I have you in suspense long enough I will get to the punch line. What will DATA-BANK do for YOU?

"It is an intelligent life form" that will allow you to run all those fancy programmes that you see on computers that have cost

their owners a small fortune.

The reason that FRED has not given very much information out about DATA-BANK prior to this is that I was not prepared to make any claims about DATA-BANK until I had proven its bug free operation to myself. I did not want to be in a position making claims only in theory.

From my last statement you can work out for yourself why it has taken so long.

I have proven that it is better to have something that you can receive straight after you have paid out for it. There is nothing worse than waiting on a delayed order due to a bug in a system that wasn't thought out thoroughly prior to sale.

KALEIDAWRITER DATA-BANK is not yet available, but it won't be much longer, hopefully early next year. Now that I have finished most of the design, proven and tested it I now have the task of trying to work out which functions to make standard and what to offer as optional extras.

For example, it will be able, if you had every option, to run IBM, AMSTRAD, COMMODORE, AMIGA, and MSX software via the 99/4A console.

It will also have a direct monitor interface for Forty or Eighty columns. It will be able to do all the things that GRAMCRACKER did PLUS.

Most common TI software will be resident, no more waiting to Load.

It will give the TI 99/4A massive speed increase without loss of useability of any software. There will also be a wide selection of KALEIDAWRITER software for your enjoyment. Each KALEIDAWRITER Module will allow memory expansion up to 5 MEG.

When I say each Module, I am letting you know that there is a lot more on the drawing board. Don't say I did not warn you about disbelief, but there is more!. Getting harder to believe yet?. THE PRICE!!!

At this point of time that has not been totally settled. As I said before, it depends on what is resident and what is optional, but I can say it will be much less than then buying even one of the other computers mentioned. Every so often I read back to myself what I have written so far and I sound like a Mid-Dawn TV commercial. You will have to excuse me but I tend to get a bit excited as I get closer to completion. There is more that I could tell you but I don't want to give away all my cards at this point of time. Hoping that this has whet your appetite.

Well I hope all of you 99ers out there are faithful to your machines as KALEIDAWRITER DATA-BANK will compliment any computer that I choose to configure. What I am trying to explain is that without your support in quantity DATA-BANK is not a viable proposition. That's all about DATA-BANK for now and I will keep you up to date. COLIN CARTWRIGHT.

These two programs -- one is written in BASIC, the other in EXTENDED BASIC -- can be used by all program authors to format their programs for the Times editor. When the programs are in a column that is 28 characters wide, the entry of data from the keyboard is much easier. Just copy and match the screen to the formatted listing and the programs work the first time. (That is if you do not make any typing errors.) Try this program out and put some of your programs into the CHICAGO Times. Happy Hacking.

#### EXTENDED BASIC (Error trapping)

```

1 !CHANGETO28
2 !Rich Blandin #143
3 !Version 2.21.88-3XB
5 ON ERROR 15 :: DISPLAY AT(
4,1)ERASE ALL:"This program
changes a prog-":ram that h
as been listed to disk to a
format that is 28 characters
long."
6 DISPLAY AT(9,1):"Input the
disk drive? 1" :: ACCEPT AT
(9,23)BEEP VALIDATE("1234")S
IZE(-1):DRIVE$ :: DRIVE$="DS
K"&DRIVE$&". "
7 DISPLAY AT(11,1):"Name of
file? "" "" "" :: ACCEP
T AT(11,16)BEEP SIZE(-8):NAM
E$ :: NAME$=DRIVE$&NAME$ ::
OPEN #1:NAME$,INPUT :: OPEN
#2:NAME$&"28",OUTPUT,VARIABLE
28
8 IF EOF(1)THEN CLOSE #1 ::
CLOSE #2 :: GOTO 10
9 LINPUT #1:C$ :: PRINT #2:C
$ :: GOTO 8
10 OPEN #1:NAME$,OUTPUT :: O
PEN #2:NAME$&"28",INPUT,VAR
IABLE 28
11 IF EOF(2)THEN CLOSE #1 ::
CLOSE #2 :: GOTO 13
12 LINPUT #2:C$ :: PRINT #1:
C$ :: GOTO 11
13 DELETE NAME$&"28" :: DISP
LAY AT(19,1)BEEP ERASE ALL:"
Use your editor to ensure":
that the maximum number of":
"28 characters are used and"
:"spaced like a program list
ed to the screen."
14 END
15 DISPLAY AT(11,1)ERASE ALL
BEEP:"Can not open ";NAME$

```

#### BASIC (No error trapping)

```

1 REM ** CHANGE28 **
2 REM * Rich Blandin #143 *
3 REM * Version 2.21.88-3 *
4 CALL CLEAR
5 PRINT "This program change
s a prog-":ram that has bee
n listed to disk to a format
that is 28 characters long.
"::
6 INPUT "Please input the di
sk drive (1-4) ":D$
7 D$="DSK"&D$&". "
8 PRINT ::"Name of file? (No
more than"
9 INPUT "8 characters) ":E$
10 E$=D$&E$
11 OPEN #1:E$,INPUT
12 OPEN #2:E$&"28",VARIABLE
28
13 IF EOF(1)THEN 17
14 INPUT #1:B$
15 PRINT #2:B$
16 GOTO 13
17 CLOSE #1
18 CLOSE #2
19 OPEN #1:E$
20 OPEN #2:E$&"28",VARIABLE
28
21 IF EOF(2)THEN 25
22 INPUT #2:B$
23 PRINT #1:B$
24 GOTO 21
25 CLOSE #1
26 CLOSE #2
27 DELETE E$&"28"
28 CALL CLEAR
29 PRINT "Check that this ne
w 28 LIST":file is the same
as a screen":LIST.":REME
MBER that in a TI basic"
30 PRINT "INPUT #n, comma's
strip off":the input line,
including":the comma."
31 REM LN 11, 12 & 30- have
been retyped to include
stripped data. ROblandin 143

```

## HORIZON CHANGE NOTICE - Copyright 1988 Bud Mills Services

These changes are recommended for ALL HORIZON RAMdisks and are compatible for use with the TI99/4a or Geneve.

### 1. RESET on power-up

This change allows the computer to reset the HORIZON during the CPU power up cycle. The reset feature, as TI designed it, does provide a reliable method to hold the HORIZON in the shut-off state until the PE-Box voltage has been on long enough to stabilize.

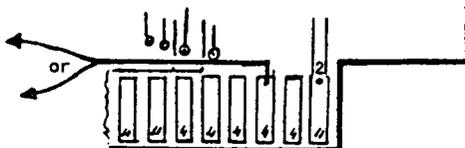
The modification consists of the removal of one diode, one resistor and one capacitor. These parts are replaced by one wire from pin 6 of the card-edge connector (bottom edge of ramdisk card) to the positive side of the capacitor location.

#### HORIZON serial numbers below 100:

Remove C8, CR2 and R2. Connect wire to front (or left) hole of C8 location.

#### HORIZON serial numbers above 100:

Remove C1, CR3 and R5. Connect wire to + (positive) side of C1 location.



Connect other end of wire to pin 6 of card-edge, .i.e., the 3rd lead from the right on the COMPONENT side of the PC board.

### 2. DISABLE SWITCH

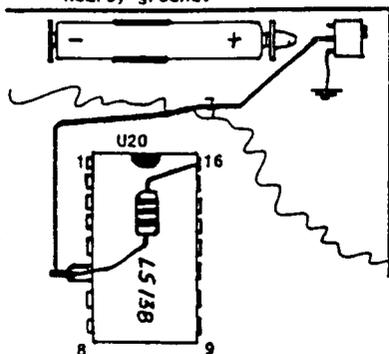
This modification provides a method to turn off (or hide) the HORIZON from the rest of the system. This switch allows you to turn off the ramdisk in the event of a system crash when the computer locks up. With the card turned off, you can power up the console and PE-Box, turn the card back on and proceed to re-load the operating system. No need to remove the batteries to erase the contents and in most cases the files may be recoverable. Other reasons for "hiding" the card could be a conflict between the ramdisk and a program you want to run - or you may wish to keep the kids out of it.

The mod is simple: We remove the voltage from pin 6 of U20 (serial 1999 and below) or U20A (HRD+, 2000 and up) and reconnect it via a resistor (1K-10K will do) thru a SPST switch to ground. Closing the switch pulls the pin low and shuts off the CRU access at U20.

Bend pin 6 of the chip out, attach enough wire to reach the switch and connect the resistor from this pin to pin 16 of the same chip. Run the other end of the wire to the switch.

NOTE: The HRD+ circuit board on cards with a serial number below 1999 required stacking of U20. Attach the wire and resistor to the top chip's pin 6 and cut off the bottom end.

Mount a miniature SPST at the top back edge. Run a lead from one pole to a nearby ground.



TIPS for PRINTERS with the TI 99/4A Computer.

RS232C INTERFACE: One undocumented feature of the TI serial port is that the default settings for LISTING a program through this port are different (or at least the timing is different) from using the port in a program to drive a printer.

A typical problem is that two stop bits seem to be the default during LISTING, but only one during normal program operation.

SOLUTION: Include the ".TV" option during LISTING and program printing, and set the printer dip-switches to suit 2 stop bits. It is also a good idea to include ".PA=N" to cancel parity even though this is supposed to be the default. This seems to give more reliable results.

RS232C PRINTER CABLE CONNECTIONS:(TYPICAL)

COMPUTER	PIN 1	.....	PIN 1	PRINTER
	PIN 2	.....	PIN 2	
	PIN 3	.....	PIN 3	
	PIN 6	.....	PIN 6	
	PIN 20	.....	PIN 20	

USING THE PIO (parallel input/output) PORT:

This is normally easier from a software point of view, but is more expensive and untidy to organise a parallel cable due to the unusual parallel connector on the RS232C card.

PARALLEL CABLE:(TYPICAL)

COMPUTER	PIN 1	.....	PIN 1	PRINTER
	PIN 2	.....	PIN 2	
	PIN 3	.....	PIN 3	
	PIN 4	.....	PIN 4	
	PIN 5	.....	PIN 5	
	PIN 6	.....	PIN 6	
	PIN 7	.....	PIN 7	
	PIN 8	.....	PIN 8	
	PIN 9	.....	PIN 9	
	PIN 10	.....	PIN 11	
	PIN 11 & 16	.....	PIN 19	To 30

NOTE: The parallel port will not work on some printers (notably daisy-wheel types), presumably because instead of sending a 10 ms STROBE negative-going signal, the PIO port drives this line LOW until it receives the ACK or BUSY signal from the printer, which will never come if the printer is triggered by the rising edge of the STROBE waveform instead of the falling edge.

I hope this information may save someone some  
heartache- I've had plenty getting it!

Brenton Wright,

*Brenton Wright*  
TALKING COMPUTERS

BLIND MANS BLUFF  
By John Luck of  
TI.S.H.U.C.

In this program you have to find an invisible sprite and catch it. At the top left of the screen you will find 4 sets of numbers. The first set displays coinic with a tolerance of 10. The second is the column and row number of the invisible sprite. The third is the return from the joystick(4,0 etc). The fourth set is the column and row of the sprite that you control with the joystick. All you have to do is match up your sprite with the other and "bingo", you got him. Sound easy? just try it. LOTS A LUCK.

```

100 REM*****
110 REM* BLIND MANS BLUFF *
120 REM* BY *
130 REM* JOHN LUCK *
140 REM* 17/8/84 *
150 REM* *
160 REM* EXIT BASIC *
180 REM*REQUIRES JOYSTICKS*
190 REM*****
200 CALL CLEAR :: CALL SCREE
N(1)
210 CALL SPRITE(1.63,2.96,1
24)
220 CALL SPRITE(12.35,11.50,
124)
230 CALL JOYST(1,X,Y)
240 CALL MOTION(1,-Y,X)
250 CALL MOTION(12,2,2)
260 CALL POSITION(12,R,C)::
CALL POSITION(11,J,L)
270 CALL COINC(1,12,10,AA)
280 DISPLAY AT(1,1):AA
290 DISPLAY AT(2,1):R.C

```

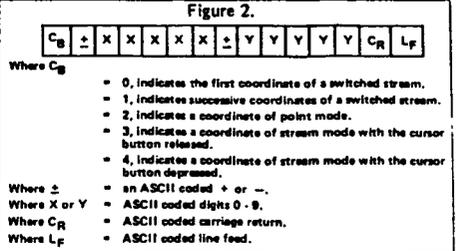
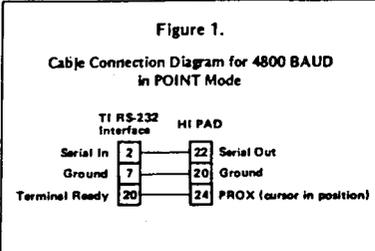
```

300 DISPLAY AT(3,1):X,Y
310 DISPLAY AT(4,1):J,L
320 REM
330 CALL KEY(1,X,S)
340 IF S=0 THEN 230
350 IF K=18 THEN 360
360 IF AA=-1 THEN 370 ELSE 2
30
370 FOR S=1 TO 30 :: CALL 50
UND(-1000,-7.5):: NEXT S ::
DISPLAY AT(10,8):"OUCH!
GOT ME"
380 DISPLAY AT(16,7):"PLAY A
GAK (Y/N)"
390 CALL KEY(0,K,S)
400 IF S=0 THEN 390
410 IF K=89 THEN 200
420 IF K=78 THEN 430 ELSE 39
0
430 CALL DELSPRITE(ALL)
440 CALL CLEAR
450 END

```

ADD A DIGITIZING PAD TO YOUR TI BY WAY OF THE RS232..... JOHN F. WILLFORTH

The 99'ER MAGAZINE JULY/AUGUST 1981 ISSUE (ISSUE NO. 2) HAD AN ARTICLE THAT HAS BEEN LONG FORGOTTEN AND LOST IN THE DUST. IT DEALT WITH THE INSTALLATION OF A HI PAD™ DIGITIZER TO THE 99/4 AND 4A RS232 PORT. I BELIEVE THAT THE CALCOMP 2000 AND OTHER SIMILAR BUT ALSO INTELLIGENT DATA TABLET/DIGITIZERS CAN BE USED, AND MOSTLY NO CHANGES BEING MADE TO THE PROGRAM LISTED BELOW. THE DIGITIZING TABLET IS AN INPUT DEVICE THAT CONVERTS GRAPHIC, TABULAR, OR MENU TYPE INFORMATION INTO DIGITAL VALUES USEABLE BY THE COMPUTER. BY TOUCHING A PEN-LIKE STYLUS TO ANY POSITION ON A MAP, DIAGRAM, CHART, MENU, OR OTHER GRAPHIC PRESENTATION RESTING ON THE TABLETS SURFACE, THE COORDINATES OF THAT POSITION ARE TRANSFORMED INTO THEIR DIGITAL EQUIVALENTS, AND SENT BACK TO THE COMPUTER, WHERE THE APPROPRIATE SOFTWARE CONVERTS THE DATA INTO MEANINGFUL INFORMATION INPUT. A CROSS-HAIR SIGHT WITH A FIRE BUTTON CAN ALSO BE USED FOR MORE ACCURATE POSITIONING ON THE TABLET'S SURFACE. FOR THOSE OF YOU WHO MAY HAVE ACCESS TO AN RS232 PORTED DIGITIZER, TRY THE FOLLOWING, AND I'LL TRY TO HAVE MORE FOR YOU SHORTLY. M.L. BE SURE TO SET CHARACTERISTICS IN DIGITIZING TABLET! WP99



```

100 REM *****
110 REM # HI PAD DECODER #
120 REM *****
130 REM 99'ER VERSION 7.01.1XB
140 REM BY W.K. BALTHROP
150 REM
160 REM
170 OPEN #1:"RS232/2.0A=4800.0A=B*
    FIXED 15
180 INPUT #1:IC1
190 DISPLAY AT(5,2):"DIGITIZED
    CODE:"
200 FOR I=1 TO 15
210 DISPLAY AT(16,5):SIIZE(I):
    CHR$(ASC(SEEK(C19,X,1))-128)
220 NEXT I
230 GOTO 180
    
```

```

120 REM 99'ER VERSION 7.01.1XB
140 REM BY HOUSTON INSTRUMENT
150 REM
160 REM
170 OPEN #1:"RS232/2.0A=4800.0
    DA=9:FIXED 15
180 UPI=1:VS=INCHES"
190 CALL CLEAR
200 DISPLAY AT(5,3):"MENU: SELECT
    ONE OF THE
    PROGRAMS."
210 DISPLAY AT(7,3):"1. CALIBRATE."
220 DISPLAY AT(9,3):"2. DISTANCE."
230 DISPLAY AT(11,3):"3. TOTAL
    AREA."
240 DISPLAY AT(24,6):"YOUR CHOICE"
250 ACCEPT AT(24,18)BEEP:IC 1 IF
    C=0 OR C15 THEN 250
260 CALL CLEAR
270 ON C GOTO 290,410,520
280 GOTO 250
290 DISPLAY AT(5,3):"PLACE
    DIGITIZER AT BEGINNING OF
    CALIBRATION LINE
    AND DIGITIZE."
300 GOSUB 730
310 GOSUB 680:IC 2=X:Y2=Y
320 DISPLAY AT(8,3):"NOW PLACE THE
    CURSOR AT THE END OF THE LINE
    AND DIGITIZE"
330 GOSUB 730
340 GOSUB 680
350 I1=X2:Y1=Y2:GOSUB 650
360 IPU=D
370 DISPLAY AT(12,3)BEEP:"WHAT TYPE
    OF UNIT IS THIS CALIBRATION
    BASED UPON?"::ACCEPT
    AT(15,3)I#S
380 DISPLAY AT(17,3)BEEP:
    "HOW MANY "I#S" DOES THE"
    "CALIBRATION LINE REPRESENT"
    :ACCEPT AT(20,3)IA
390 UPI=A/D
400 BOTO 190
410 DISPLAY AT(2,3):"NOW DIGITIZE
    THE BEGINNING OF THE LINE."
420 GOSUB 730:IC 0GOSUB 680:
    I1=X:Y1=Y
430 DISPLAY AT(5,3):"BEGIN USING
    THE CURSOR TO DIGITIZE
    THE LINE."
440 DISPLAY AT(8,3):"TOTAL
    DISTANCE."
450 DISPLAY AT(12,3):"WHEN
    FINISHED SELECT """" TO
    RETURN TO MENU."
    
```

```

460 GOSUB 720:IC 0GOSUB 680:
    GOSUB 650
470 CALL KEY(10,K,S):
    IF K=ASC("M")THEN 190
480 I1=X:Y1=Y
490 TD=TD+DIUP#
500 DISPLAY AT(8,18)ABS(TD)I#S
510 BOTO 460
520 DISPLAY AT(5,3):"DIGITIZING
    ALONG OUTER LINE OF
    AREA TO BE COMPUTED."
570 DISPLAY AT(8,3):"HIT THE """"
    KEY WHEN FINISHED."
580 GOSUB 720:IC 0GOSUB 680:
    I1=X:Y1=Y:Y2=Y:Y#X#
590 GOSUB 730:IC 0GOSUB 680:
    I1=X:Y1=Y#Y
360 A=(Y#Y#)/2(I1X-XP)
570 TA=TA+A
580 Y#Y# I1#X#
590 GOTO 550
600 TA=TA+(Y#Y#)/2(I1X-XP)
610 DISPLAY AT(16,3):"TOTAL AREA="
    ABS(TA#I#2):"SQUARE" I#S
620 DISPLAY AT(20,3):"HIT THE """"
    KEY TO SELECT THE MENU."
630 ACCEPT AT(22,12)I#S:IF
    I#X# THEN 430 ELSE CALL
    CLEAR:IC BOTO 200
640 END
650 REM SUBROUTINE TO COMPUTE
    DISTANCE BETWEEN POINTS
    (X1,Y1) & (X2,Y2)
660 D=#OR((X1-I1)-2)+((Y1-Y1)-2)
670 RETURN
680 REM SUBROUTINE TO DEFINE X,Y
    COORDINATES
690 I#VAL(SEEK(I#S,5))/1000
700 Y#VAL(SEEK(I#S,9,3))/1000
710 RETURN
720 REM SUBROUTINE TO ASSEMBLE
    STRING
730 BOTO
740 INPUT #1:IC#
750 CALL KEY(10,K,S)
760 IF K=ASC("M")THEN 190
770 IF K=ASC("A")THEN 600
780 GOSUB 800
790 RETURN
800 FOR I=1 TO 15
810 D=#D#CHR$(ASC(SEEK(C19,I,
    1))-128)
820 NEXT I
830 RETURN
    
```

**EXPLANATION OF THE PROGRAM**  
**HI PAD DEMO**

Line Nos.

170 OPEN RS-232 port.

180 Set up variables.

190-250 Display option page & INPUT choice.

260-280 Branch to routine specified.

290-310 Instruction and control.

320-380 Instruction and control for digitizing end of line.

370 What type of linear unit will be used?

380 How many of the units are there in the calibration line you plotted?

390-400 Calculate units per inch; GOTO title page.

410-420 Instruction & control for digitizing beginning of line.

430-510 Print instructions to digitize the line. Update line length and print on screen.

520-590 Instruction and control to calculate total area.

600-640 Calculate total area and display.

650-670 Calculate distance between two points.

680-710 Define X, Y coordinates.

720-790 Input data from digitizer pad.

800-830 Assemble data from pad into proper ASCII characters. (subtract 128 ASCII).

100 REM \*\*\*\*\*

110 REM # HI PAD DEMO #

120 REM \*\*\*\*\*

5/10/90

PAGE 1

DSK1 - DISKNAME= 1990CONTES  
 AVAILABLE= 54 USED= 304

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
*READ**ME*	13	DIS/VAR 80	Y	1000*STARS	49	INT/VAR254	Y
BIRTHDAY	28	PROGRAM		CALENDAR	10	PROGRAM	
CHARSET	14	DIS/FIX 80	Y	COLORES	45	PROGRAM	
DAMN/DOCS	5	DIS/VAR 80		DAMN/PGM	18	PROGRAM	
DATA	4	DIS/VAR 80		HELP	4	PROGRAM	
KARZY	4	PROGRAM		KARZYSTICK	4	PROGRAM	
LISTII/DOC	5	DIS/VAR 80		LISTII/PGM	22	PROGRAM	
SCI-CALC	18	PROGRAM	Y	SP	4	PROGRAM	
TAB3	8	PROGRAM		TOY99/8	31	PROGRAM	
TOYPIANO99	18	PROGRAM					

DSK1 - DISKNAME= 1990CtNTES  
 AVAILABLE= 46 USED= 312

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
CALENDAR	33	PROGRAM	Y	CRYPTO	26	PROGRAM	Y
DOCS	2	PROGRAM		FILEIO	21	PROGRAM	Y
FILEIO-M	30	PROGRAM	Y	FOG1	27	PROGRAM	Y
FOG2/P	33	PROGRAM	Y	FOG2/Q	4	PROGRAM	Y
HELP	2	PROGRAM		SCRAM-D	25	PROGRAM	Y
SCRAM-P	19	PROGRAM	Y	SCRAMBLE	15	PROGRAM	Y
SEARCH	20	PROGRAM	Y	SIMEQ	26	PROGRAM	Y
SORT250	29	PROGRAM	Y				

DSK1 - DISKNAME= APRIL,1990  
 AVAILABLE= 591 USED= 127

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
ALABELS	14	PROGRAM		INVOICE	37	PROGRAM	
MORSE/CODE	41	PROGRAM		T-WRITER+	30	PROGRAM	
TONY	5	PROGRAM					

DSK1 - DISKNAME= Bud  
 AVAILABLE= 599 USED= 119

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
*README2	3	DIS/VAR 80		GRAB2	33	PROGRAM	
GRABBER2	32	INT/FIX128		G_LAB2	11	PROGRAM	
G_LAB2_P	25	PROGRAM		LABEL2	4	PROGRAM	
PTU	11	PROGRAM					

DSK1 - DISKNAME= C1  
 AVAILABLE= 3 USED= 355

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
A	36	PROGRAM		DECK	37	PROGRAM	
FN	55	INT/VAR254		GR	52	INT/VAR254	
I	45	PROGRAM		LOAD	32	PROGRAM	
MC	11	PROGRAM		OCOME	46	PROGRAM	
S	41	PROGRAM					

DSK1 - DISKNAME= CONTEST\_90  
 AVAILABLE= 186 USED= 172

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
LC1	65	INT/VAR254		LC2	55	INT/VAR254	
LCDATA	2	INT/FIX255		LIGHTCALC	9	PROGRAM	
LIGHTDOC	33	DIS/VAR 80		LOAD	5	PROGRAM	
READ_ME	3	DIS/VAR 80					

DSK1 - DISKNAME= DKUDLA  
 AVAILABLE= 137 USED= 221

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
CATER	8	PROGRAM		FUNNEL	10	PROGRAM	
HERB	12	PROGRAM		HORIZONTAL	4	PROGRAM	
HYENA	15	PROGRAM		JAGUAR	13	PROGRAM	
KUDLA	34	PROGRAM		LOAD	10	PROGRAM	
MELON	8	PROGRAM		MONARCH	16	PROGRAM	
PARACHUTE	7	PROGRAM		PARENTH	5	PROGRAM	
PYTHON	5	PROGRAM		SHEARS	9	PROGRAM	
SLEIGH	11	PROGRAM		TERRACE	13	PROGRAM	
TRADE	10	PROGRAM		TURNSTILE	11	PROGRAM	
UNICORN	13	PROGRAM		WHITECAP	7	PROGRAM	

DSK1 - DISKNAME= H HOYT2/90  
 AVAILABLE= 227 USED= 131

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
C2	3	DIS/VAR 80		C3	4	DIS/VAR 80	
CHICG2/90	17	DIS/VAR 80		HCLOCK	10	PROGRAM	
HCLOCK/O	7	DIS/FIX 80		HCLOCK/S	32	DIS/VAR 80	
VCR	8	PROGRAM		VCR1	10	PROGRAM	
VCR1/DOC	26	DIS/VAR 80		VCR1/L	14	DIS/VAR 80	

DSK1 - DISKNAME= JOHN-MISC  
 AVAILABLE= 213 USED= 145

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
BUNN	7	PROGRAM		BUNNY	25	PROGRAM	
DINO	6	PROGRAM		DINOQUIZ	15	PROGRAM	
DOC	9	DIS/VAR 80		EGG	22	PROGRAM	
END	4	PROGRAM		INTERIM	3	PROGRAM	
LOAD	4	PROGRAM		MATH	9	PROGRAM	
MUSIC	11	PROGRAM		SCIENCE	9	PROGRAM	
STARTREK	11	PROGRAM		TREK	10	PROGRAM	

DSK1 - DISKNAME= LEARNSTYLE  
 AVAILABLE= 161 USED= 197

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
*PRINT*ME1	54	DIS/VAR 80		*PRINT*ME2	42	DIS/VAR 80	
*READ*ME*	25	DIS/VAR 80			25	PROGRAM	
LERNSTYL_T	26	DIS/VAR 80		LERNSTYL_X	25	PROGRAM	

DSK1 - DISKNAME= MIXED  
 AVAILABLE= 70 USED= 288

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
ALABELS	14	PROGRAM		CHANG_DV80	5	PROGRAM	
CONT/203	18	PROGRAM		DAILY-A/D	7	INT/FIX 9	
DOWJONES	7	INT/FIX 9		DOX-GRAPH	11	DIS/VAR 80	
GRAPH	13	PROGRAM		HELP	3	PROGRAM	
INVOICE	37	PROGRAM		LOAD	7	PROGRAM	
LOADER	5	PROGRAM		MORSE/CODE	41	PROGRAM	
T-WRITER+	30	PROGRAM		TIPSEX	86	INT/VAR254	
TIPSEX/DOC	4	DIS/VAR 80					

DSK1 - DISKNAME= MORSE-CODE  
 AVAILABLE= 57 USED= 301

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
C2	3	DIS/VAR 80		C3	4	DIS/VAR 80	
LISTING	20	DIS/VAR 80		LOAD	25	PROGRAM	
LTR	9	DIS/VAR 80		M/L	79	DIS/VAR 80	
M/O	15	DIS/FIX 80		M/S	40	DIS/VAR 80	
MORS8/O	7	DIS/FIX 80		MORS8/S	34	DIS/VAR 80	
MORSE/B	25	PROGRAM		MORSE/XB	25	PROGRAM	
MORSEDOC	15	DIS/VAR 80					

DSK1 - DISKNAME= NEF  
 AVAILABLE= 147 USED= 211

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
HELP1	16	DIS/VAR	80	HELP1*	2	DIS/VAR	80
HELP2	16	DIS/VAR	80	HELP2*	2	DIS/VAR	80
HELP3	16	DIS/VAR	80	HELP3*	2	DIS/VAR	80
HELP4	18	DIS/VAR	80	HELP4*	2	DIS/VAR	80
LOAD	28	PROGRAM		LOOKBACK1	17	DIS/VAR	80
LOOKBACK1*	2	DIS/VAR	80	LOOKBACK2	18	DIS/VAR	80
LOOKBACK2*	2	DIS/VAR	80	LOOKBACK3	16	DIS/VAR	80
LOOKBACK3*	2	DIS/VAR	80	NEF	36	PROGRAM	
TEXTFILE	16	DIS/VAR	80				

DSK1 - DISKNAME= TYRO#1  
 AVAILABLE= 51 USED= 307

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
-READ*ME-	15	DIS/VAR	80	CHPT1	62	DIS/VAR	80
CHPT1B	77	DIS/VAR	80	CHPT2	72	DIS/VAR	80
CHPT2B	35	DIS/VAR	80	CONTENTS	5	DIS/VAR	80
COPYRIGHT	4	DIS/VAR	80	CYCLE	6	DIS/VAR	80
DEDICATE	2	DIS/VAR	80	PART1	4	DIS/VAR	80
TITLE_P	25	PROGRAM					

DSK1 - DISKNAME= TYRO#2  
 AVAILABLE= 7 USED= 351

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
-READ*ME-	3	DIS/VAR	80	CHPT3	72	DIS/VAR	80
CHPT3B	46	DIS/VAR	80	CHPT4	45	DIS/VAR	80
CHPT5	67	DIS/VAR	80	CHPT5B	7	DIS/VAR	80
CHPT6	24	DIS/VAR	80	CHPT7	75	DIS/VAR	80
PART2	4	DIS/VAR	80	PART3	4	DIS/VAR	80
PART4	4	DIS/VAR	80				

DSK1 - DISKNAME= TYRO#3  
 AVAILABLE= 78 USED= 280

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
-READ*ME-	2	DIS/VAR	80	CHPT10	16	DIS/VAR	80
CHPT11	14	DIS/VAR	80	CHPT12	36	DIS/VAR	80
CHPT13	30	DIS/VAR	80	CHPT14	30	DIS/VAR	80
CHPT15	25	DIS/VAR	80	CHPT8	39	DIS/VAR	80
CHPT9	55	DIS/VAR	80	CHPT9B	25	DIS/VAR	80
PART5	4	DIS/VAR	80	PART6	4	DIS/VAR	80

DSK1 - DISKNAME= TYRO#4  
AVAILABLE= 111 USED= 247

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
-READ*ME-	2	DIS/VAR	80 Y	CHPT16	73	DIS/VAR	80 Y
CHPT16B	8	DIS/VAR	80 Y	CHPT17	43	DIS/VAR	80 Y
CHPT18	28	DIS/VAR	80 Y	CHPT19	74	DIS/VAR	80 Y
CHPT19B	15	DIS/VAR	80 Y	PART7	4	DIS/VAR	80 Y

DSK1 - DISKNAME= TYRO#5  
AVAILABLE= 138 USED= 220

FILENAME	SIZE	TYPE	P	FILENAME	SIZE	TYPE	P
-READ*ME-	4	DIS/VAR	80 Y	CART8	4	DIS/VAR	80 Y
CHPT20	25	DIS/VAR	80 Y	CHPT21	70	DIS/VAR	80 Y
CHPT21B	33	DIS/VAR	80 Y	CHPT22	51	DIS/VAR	80 Y
CHPT23	33	DIS/VAR	80 Y				

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### Editor's Notes...

AH YES, 2 whole months of rest. Well, from the newsletter anyway. It is now time for us all to sit back and enjoy the approaching summer months. They'll be here. Trust me.

Before I get carried away, let me get a few things said. This is information I think you should be aware of. So, without any further delay, LET GET ON WITH IT.

### NEW MAGAZINE FEATURING THE 99/4A.

A new magazine called Computer Buyers Guide is now featuring antique computers such as the TI 99/4A, Commodore, Atari, Adam, TRS-80, Sanyo and others. The magazine also has what it calls the "Classic News Section". The May issue even contains an article by Barry Traver. This magazine is published by Vulcan Publishing, Inc. I understand it's run by former employees of Computer Shopper. Frankly, it looks almost the same. The issue price was only \$1.95. A very fair price to pay for a good looking magazine.

Our own George Bowman of Midwest Engineering has come out with a new product. It's called the WHOPPER. (Have it your way) The WHOPPER is a 64K cartridge that loads up to 8 - 8K modules. Just think of it. Simply plug in a cartridge and have up to 8 modules at your fingertips. I understand the selling price is \$60.00. Midwest Engineering 203 Arcadia Dr. Vernon Hills, Il. 60061. 708-362-9034

Once again I wish to thanks the authors that have contributed to our newsletter. Many thanks to those that have formatted their articles to 63 CPL. I hope the rest will do so soon. Just hit FCTN-9, Edit Tabs. Left Margin 0, Right Margin 63. You're all set. Don't forget the group's picnic 7-1-90. Hal promises plenty of sun shine and fun. Till Sept..... -bd