



THE PUG PERIPHERAL



8904

THE MONTHLY NEWSLETTER OF THE PITTSBURGH USER'S GROUP APRIL, 1989

CLUB NEWS BY GARY TAYLOR

OUR ANNUAL ELECTIONS WERE HELD AT THE LAST MEETING AND WE ELECTED A NEW VICE PRESIDENT, MIKE SEALY. CONGRATULATIONS, MIKE! MIKE WILL BE FILLING THE SPOT PREVIOUSLY HELD BY JIM ALEXANDER. ALL OTHER OFFICERS WERE RUNNING UNOPPOSED AND WILL SERVE ANOTHER YEAR. I GUESS YOU KNOW WHEN YOU HAVE A GOOD THING GOING. I WOULD LIKE TO THANK JIM FOR THE TIME HE HAS GIVEN THE CLUB AND IN PARTICULAR FOR STEPPING IN FOR ME WHEN I WAS UNAVAILABLE.

I WOULD LIKE TO THANK BUD MILLS OF BUD MILLS SERVICES FOR COMING TO OUR LAST MEETING AND DEMONSTRATING THE NEW P-GRAM CARD. HE WAS SUPPOSED TO STOP OFF IN PITTSBURGH ON HIS WAY HOME FROM THE TICOFF SHOW IN NEW JERSEY. HE LIVES IN TOLEDO, OHIO. HE DID NOT ATTEND THE SHOW IN N.J., HOWEVER, BECAUSE OF PERSONAL REASONS BUT, GOOD TO HIS WORD, HE DROVE FROM TOLEDO, OHIO TO PITTSBURGH, PA. TO BE WITH US. THAT'S AN 8 HOUR + ROUND TRIP RIDE! THE ANNALS OF TI HISTORY ARE FILLED WITH SUCH EFFORTS BY BUD TO PROVIDE HONEST AND RELIABLE HARDWARE THAT IS SUPPORTED 100% BY HIM FOR OUR COMPUTER. BUD ALSO SELLS AND SERVICES THE "HORIZON 3000 RAMDISK" IN BOTH KIT AND "ALREADY ASSEMBLED" FORM IN SIZES FROM 96K TO 1.5MEG. BUD MENTIONED THAT HE WILL BE MARKETING THE RAMDISK WITH THE NEW 128x8 STATIC RAMS IN THE NEAR FUTURE. BUD ADVERTIZES IN MICROPENDIUM AND LISTS HIS ADDRESS AS BUD MILLS SERVICES, 166 DARTMOUTH DRIVE, TOLEDO OHIO 43614. PRICES VARY DEPENDING ON THE AVAILABILITY OF STATIC RAM CHIPS. YOU CAN CALL HIM AT 419-385-5946.

MY CLASS ON BASIC BASIC IS STILL IN PROGRESS AND IS BEING TAUGHT AT A VERY ELEMENTARY LEVEL. YOU WILL BE ABLE TO JUMP INTO THE CLASS WITHOUT FEAR OF BEING BEHIND. THIS MONTH I WILL BE DISCUSSING THE ASCII CODES. THIS MATERIAL WILL GIVE YOU A SOUND FOUNDATION FOR UNDERSTANDING THE WAY THE COMPUTER DOES WHAT IT DOES AND HAS PRACTICAL APPLICATION THROUGHOUT ALL COMPUTERS.

THE COMING OF SPRING BRINGS RAIN AND THUNDERSTORMS. LIGHTNING CAN HAVE A DEVASTATING EFFECT ON COMPUTER EQUIPMENT. SO CAN POWER SURGES AND BROWNOUT CAUSED BY AIR-CONDITIONING REQUIREMENTS IN THE SUMMER. THIS MONTH WE WILL HAVE A GUEST SPEAKER FROM DUQUESNE LIGHT WHO WILL TALK ABOUT SPRING ELECTRICAL STORMS AND HOW THEY CAN AFFECT YOUR ELECTRICAL SERVICE AND YOUR COMPUTER EQUIPMENT. INFORMATION ON SURGE SUPPRESSORS AND OTHER PROTECTIVE DEVICES WILL BE DISCUSSED. THERE WILL BE A QUESTION AND ANSWER PERIOD AFTERWARDS. THE SPEAKER IS BEING PROVIDED THROUGH THE GUEST SPEAKER PROGRAM OFFERED BY DUQUESNE LIGHT AT NO CHARGE.

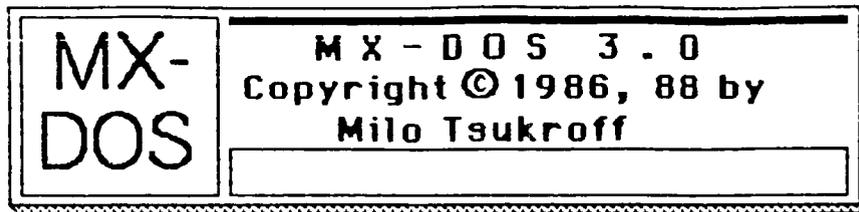
LOOK FOR ANOTHER GUEST SPEAKER TO DISCUSS MODEMS AND TELEPHONE LINES IN THE FUTURE.

OTHER NEWS

IN THE FEBRUARY NEWSLETTER I MENTIONED THAT YOU COULD GET A NEW EPROM FOR YOUR NX-1000 PRINTER BY CONTACTING STAR MICRONICS AND TELLING THEM THAT YOU HAVE A TI-99/4A. I HAVE SINCE FOUND THE 800 NUMBER AND OFFER IT NOW --> 800-537-8270. THE VERSION YOU SHOULD BE LOOKING FOR IS 1.5 LPTI.

OUR "OUT OF THE CLOSET" PROJECT IS BEGINNING TO TAKE HOLD. WE HAVE RECEIVED OUR FIRST DONATION OF A BASIC TI COMPUTER. THERE WILL MORE ABOUT THIS AT OUR NEXT MEETING.

SEVERAL OF US WENT TO THE TICOFF COMPUTER FAIRE IN ROSELLE PARK, N.J. THE MOST IMPRESSIVE ANNOUNCEMENT WAS THE RELEASE OF A FORTRAM COMPILER FOR THE GENEVE 9640! I SAW PETER HOODIE CARRYING ONE OF THE \$49.95 PACKAGES OFF TO BOSTON WITH HIM, SO WE SHOULD SEE SOME NEW THINGS WRITTEN IN FORTRAN BY GENIAL SOFTWARE IN THE FUTURE. LOU PHILLIPS WAS THERE TOO, DEMONSTRATING A BETA TEST COPY OF ADVANCED BASIC. I GOT A COPY OF IT FROM HIM AND I WILL MAKE COPIES FOR THOSE OF YOU WHO CALL ME.



MX-DOS 3.0 For TI-99/4A Disk Systems Released

At the January '89 Nutmeg TI-99ers Users Group meeting, Milo Tsukroff released his MX-DOS 3.0 for TI-99/4A disk systems. The MX-DOS 3.0 system is a utility which combines features of a disk manager and an auto-loader.

The MX-DOS 3.0 system allows the average TI-99/4A user to see files on a disk. The user can then run programs, view or print text, and even delete files. MX-DOS 3.0 uses a "MacIntosh"-style graphical interface. The user can use just a joystick to perform nearly all MX-DOS operations. The keyboard is also fully supported.

The MX-DOS 3.0 system is distributed on one single-sided/single-density diskette. Demonstration programs and full documentation are included.

At the Users Group meeting, MX-DOS 3.0 was given out as the 'Disk of the Month'. Milo is distributing it on the 'Fair-Ware' concept, with a fee of \$8.00 suggested. This fee includes registration, support, and one free copy of the next major update.

Minimum requirements for MX-DOS 3.0 are a TI-99/4A console; TI Extended BASIC; a single disk drive; and a 32K memory expansion. Additional peripherals supported are joysticks, printer, color monitor, and more than one disk drive.

Additional features for MX-DOS, and speed improvements, will come when version 3.1 is released. Milo is waiting to see what the Fair-Ware registration response is before continuing to improve his product. Even in its current condition, which includes long loading times and sluggish response, MX-DOS 3.0 represents an enormously easier operating environment to work on disk systems with.



HIGH RES GRAPHICS AND THE 99/4A

by Anne Ober

Our Heritage

Introduction

There was a time when TI-99/4A owners felt abandoned. In place of the promising machine that had been purchased with such high hopes they had been left with an orphan. These users lived with the knowledge that they had a superb graphics system at their finger-tips, but unless they were good programmers, no way to conveniently access the graphics. Commercial graphics software was just not available. Now, a few short years later things have changed drastically. We are left on the other side of the fence wondering in amazement how we are ever going to figure out which of all that great-sounding graphics software is really worth investing in. What, actually, can be expected of a drawing program? Is there one perfect program out there, waiting for me to discover it? Or will I need several programs to meet all my needs? These are the topics that will be explored in this series. Part one takes a look at what graphics programs do, and what's on the market. Then a definition of a good, basic drawing program can be given.

Part two will compare the main programs. Parts three and beyond will examine support and companion packages, including the newer programs which allow text and graphics to be intermingled. Finally, the various drawing packages and companions will be analyzed to see how they can be used together. With this knowledge you should be able to select the packages that best suit your needs, whether you have a particular application in mind or are just looking for a good general drawing program for the personal enrichment of yourself and your family.

Your Own Electronic Billboard

For graphics purposes, the 99/4A screen is simply a grid of blocks. Imagine a piece of graph paper and mentally mark off 32 little squares across the top row. Right underneath mark a second row of 32 blocks; then a third, and a fourth, until you have 24 rows, each with 32 squares marked off. Now you have a nice facsimile of your TV or monitor screen as it is partitioned off in the standard graphics mode that we are most used to seeing. If you were to count all those marked-off squares, you would find you had 768 individual blocks (32x24=768). Each block is just the right size to hold one character that can be typed in from the keyboard. These are the normal, everyday letters, numbers and punctuation that you use all the time, but in computer terminology they are given a special name: "ASCII" characters. A programmer can effectively "erase" these ASCII characters and define a new pattern of his own choosing. This is done in Basic and Extended Basic with the Call Character subroutines. The programmer assigns each character block two colors (a foreground and a background) from the 16 colors that the TI

computer has available.

In Extended Basic built-in sprites may be used as well. Sprites are character-sized graphics that have the capability of moving around the screen independently of the background. They can be defined to any shape, then colored and magnified. Such things as location, speed and distance can be easily manipulated. (They can also be present in high resolution graphics, but in this case can no longer move.)

An assembly language programmer also has access to the multicolor mode. Here, the display is divided into 48 rows, each containing 64 "boxes", or blocks. The blocks are not able to be defined in the manner of the larger, pattern mode blocks, but each of the 3072 blocks can be a separate color, chosen from any of the 16 colors available. Sprites can also be used in multicolor mode, but not text. The multicolor mode cannot be used in Basic except with assembly language software that uses a special module such as the Editor/Assembler, Mini Memory or Extended Basic.

Text mode is familiar to us through the use of such cartridges as TI Writer and Multiplan. Each of these programs employs a display that is 24 lines long, but the character blocks have been increased to 40 across which gives us 960 screen positions instead of 768. Although sprites cannot be used and only two colors (foreground and background) are allowed at one time, the text mode can be used for graphics. Still, text mode is most suited for just that - text.

In all three of these modes - pattern, text and multicolor - each block is composed of a number of dots. In the multicolor mode each block is 16 dots; 4 dots high and 4 dots wide. In text mode the character blocks are 8 dots high by 6 dots wide - 48 dots in each character. Pattern mode, with only 32 blocks across the screen, consists of 64 dots for each block - 8 across and 8 high. This means that there can be 64 times 768 dots on the screen at one time in pattern mode - 49,152 in all. Text mode has 46,080 of these dots (48 x 960=46,080), and either way you look at it, that's a lot of dots! In computer jargon these dots are called "pixels" (for PICTURE ELEMENT) and are the smallest individual units on the screen. It is the 49,152 pixels from pattern mode that we are going to focus on, because in the high resolution (or "bit map") mode, each of these 49,152 pixels is able to be turned on and off individually. The whole idea of a drawing program is to let you do this quickly and easily.

With the high resolution in the bit map mode, the screen is considered to be a grid 192 pixels high and 256 pixels wide. That's still only 32 character blocks across and 24 blocks high, but now each pixel can be turned on or off (that is, drawn or erased) independently of any other pixel. For color the computer divides each pixel-row into 32 groups of 8

pixels. The computer can assign a background color and a foreground color to each 8-pixel group. This is what our electronic drawing board consists of in all the popular art packages we have today, and it is on these drawing programs that our interest will now focus.

In the Beginning...

When Texas Instruments first unveiled the TI-99/4 computer in June, 1979, there were only a handful of applications of any kind available - and all were in module format. One of these was Video Graphs which was billed as "an easy-to-use Graphics System which lets you draw in 14 colors on the screen with a whole new electronic paintbrush concept". This drawing can be done in high resolution with a single pixel line width; or in the multicolor mode by placing 16-pixel colored dots anywhere on the screen. The user could also command the computer to create graphic images by using the Building Blocks section. Here, many graphic characters of various geometric shapes are located along the bottom of the screen. Select one, pick all or part of it up with the keyboard or joystick and place it where you want it in your picture.

Video Graph's demonstrations were impressive when the module was new, and although the bright, mosaic-like patterns may seem archaic by today's standards, the module actually contains the rudiments of the more sophisticated graphics systems we now have. High resolution drawing was there, as was the computer's less familiar multicolor mode. Even the concept of icons which is so popular in today's graphics software made its appearance here, in the Building Block section. This module was intended purely for personal enrichment, not as a tool. There is no way to use the graphics you create in your own programs, and no way to print them out. In fact, the only way drawings can be saved at all is on tape.

If you have Video Graphs you have probably seen for yourself the fascination it holds for children, even small ones. Children love to draw and this module provides a medium for creative expression unhampered by long lists of functions that must be remembered. Indeed, anyone with an unexpanded system will find that it can still provide hours of enjoyment and satisfaction.

No other drawing programs were ever released by Texas Instruments, but users themselves soon began circulating a number of very good programs made available through local user's groups and through the International Users' Group in Bethany, Oklahoma; or Annon Helpline in Bakersfield, California. These first user-written programs were in Basic; mainly graphics screens but also a couple of entertaining drawing programs such as Color Crayon which let you draw with colorful character-size blocks using the keyboard or a joystick. There were also utilities for designing graphics characters to be used in Basic (and later Extended Basic) programs. There was even a program or two for printing out banners if you were lucky enough to have a printer. When the Editor/Assembler package was finally released, program quality rose. Like 3rd party software, these user written programs have tended to become more and more sophisticated with time, and today some very good graphics programs are available for only a fraction of their worth.

The first high resolution graphics program to be put out by a 3rd party that I know of was introduced by Norton Software of Ontario, Canada. It was called, appropriately enough, Graphics Package. It was originally written in Basic, but that was soon dropped in favor of the faster, more easily used new Extended Basic version. With it, anything could be drawn anywhere on the screen in 3 levels of resolution, corresponding to the standard (or pattern) mode of 768 character blocks, multicolor mode, and high resolution, which has 49,152 accessible pixels. Circles, parabolas, boxes and lines could be drawn automatically. All the information making up the graphics could be saved on tape or disk to be incorporated into your own program. However, it wasn't easy. This program was not intended as entertainment but as a serious tool for Extended Basic programmers. For a long time, the Graphics Package was about the *only* way for the average programmer to access high resolution graphics. The package was disappointing to some, who would have liked to use it for drawing pleasure. The program was also excruciatingly slow, even in Extended Basic. But, it did everything it promised and is still the best graphics tool available for anyone with an unexpanded system.

In 1982, with the advent of the Editor/Assembler package, a new kind of program hit the market. Draw-A-Bit by Data Force of Illinois was an assembly language program which booted through Extended Basic. It allowed the user 100% keyboard access to the bit-map graphics mode. Using either the keyboard arrow keys or a joystick the user could draw on the screen in any of the colors with a line that was only one pixel wide. Colorful circles, lines and rays could be drawn automatically. Shapes could be filled with color with the press of a function key. Pictures could be added to by means of "palettes" created by the user and stored on disk. Using the Draw-A-Bit environment, advanced users could create and display complex plots in Extended Basic. Drawings too tedious to be drawn by hand could be coded in Draw-A-Bit format and displayed on the screen. Pictures could be saved on disk and reentered into the program, and they could also be transferred to Extended Basic programs. It is not only an extremely powerful tool for the more advanced programmer, but can provide hours and hours of entertainment to anyone who likes to draw and is willing to learn how to use the program's more than 80 functions. One entertaining and unique characteristic of this program is the ability to redraw a picture right before your eyes. The demo on the disk is positively addictive, as you watch each picture being rapidly built, line by line, color by color. I know of no other program that does this.

The original Draw-A-Bit was strictly for screen graphics but a companion disk, Print-A-Bit, was introduced to provide printer support. Data Force also released a Draw-A-Bit II but I never saw the second version. Print-A-Bit works with both versions.

Draw-A-Bit filled a real need for a graphics application which users could enjoy and yet get some use out of too. It is now recognized as the granddaddy of a new generation of graphics programs. Unfortunately, this excellent program never got the popularity it deserved. Perhaps it was ahead of its time - when it came out the vast majority of users still

didn't have disk systems. At first glance the manual looks technical and hard to read; actually, the program is easy enough to begin using for pleasure almost immediately. Just don't try to learn all 80 functions at once!

One of the first commercial screen dump programs was introduced in 1983 by Extended Software. It was available on either tape or disk. The screen dump routine could be added to your Extended Basic program at the point where you wanted the screen to be saved. You would get a modest-sized 4 1/4 inches wide X 2 5/8 inches high duplicate of the screen, except that it wouldn't print sprites. This is still an excellent choice of software for those with unexpanded systems.

Late in 1983 TI made their now-famous announcement that the 99/4A was being discontinued. Nevertheless, 1984 was a good year for 3rd party suppliers, and the graphics void began to fill. Some good, and some not-so-good programs were introduced that year; many of them improvements of older programs like Video Graphs, Draw-A-Bit and Screen Dump. Some were unique. Personal Peripherals came out with Super Sketch which can be likened to a vastly improved Video Graphs. Along with the cartridge came a tablet-like controller pad, complete with stylus. As the stylus is moved across the pad, an image is created on your computer video screen. Four push buttons at the top of the controller pad control the color selection and graphic functions of the stylus. Graphics may be drawn free-hand or traced from drawings clipped to the pad. Drawing with Super Sketch can be so simple that with a little instruction a six year old can use it. On the other hand, using the advanced features provided, an adult can also have hours of creative fun. Graphics are saved on tape, as Super Sketch is made to be used on an unexpanded system.

A companion disk, called Sketchmate, was introduced by Amerisoft International soon after Super Sketch came out. This software allowed the user to save Graphics to disk as well as tape, and to print them out on an Epson or compatible printer. A unique feature of the printout is that each color is represented by a different shading, which gives the printout a very nice look. Navarone's Cartridge Expander (better known as the Widget) is a requirement of this program. The Super Sketch Cartridge is put into the cartridge expander with Extended Basic right beside it. When Sketchmate is loaded (via Extended Basic or Editor Assembler) you are then asked to switch to the Super Sketch cartridge. When you do, you are instantly ready to go, with never a sign of Sketchmate until you want to save or print a picture! Unfortunately, if you don't already have this fine software your chances of getting it are slim. Neither it nor Super Sketch are readily available any more.

F-TIDBIT #1 : THE LOWER CASE FOR FORTH

Your favorite CHARA1 file from TI-WRITER (several versions exist) can be installed on your Forth disk for true lower case. Screen 19 of the system disk is only partially used by the Forth kernel, leaving sufficient space for the chardefs of ASCII 32 through 127. The parameters given below assume a two-drive SS/SD system. For other configurations it will be necessary to adjust them accordingly. In case you

prefer the 64-column editor, the following does not affect the display of its tiny characters. (There's no way to improve them.)

Step 1: Copy the CHARA1 file to a clean, initialized disk. Any disk manager can be used.

Step 2: Boot Forth and place the disk with the CHARA1 file in drive 2. The file will be found on screens 98 and 99. That is, the sectors which are needed are on these screens, the rest can be ignored.

Step 3: The file could be transferred now, but it is easier to combine it first onto one screen (#100) before the transfer is made. The CHARA1 file starts on line B (addr = 512) but the first 6 bytes (0 to 5) constitute the file header, so the address must be incremented by 6 (=518). This is followed by 256 bytes (the chardefs for ASCII 0 to 31) which we don't need. Therefore, the starting address for the transfer is 98 BLOCK 774 +, destination is 100 BLOCK and we want to move the remaining 250 bytes of that screen:

```
98 BLOCK 774 + 100 BLOCK 250 CMOVE UPDATE FLUSH
```

The rest of the chardefs are found on screen 99 and 506 bytes have to be moved. They must follow what has already been put on screen 100:

```
99 BLOCK 100 BLOCK 250 + 506 CMOVE UPDATE FLUSH
```

Scr #100 now contains the entire set of definitions for displayable ASCII characters.

Step 4: Once again it is time to issue that old warning of "Do it on a backup disk!". With the Forth 80 disk in drive 1 and the chardefs on screen #100 in drive 2, the transfer is easily accomplished by:

```
100 BLOCK 19 BLOCK 256 + 768 CMOVE UPDATE FLUSH
```

Provided no errors were made and scr #33 (SYSTEM CALLS) is booted, the new chardefs are written to the PDT (pattern descriptor table) with

```
HEX 13 BLOCK 100 + 900 300 VMBW
```

For a quick check, it can be entered from the keyboard and some lower case characters typed. If everything works as expected, i.e., the display does not go haywire and lower case letters are properly shown, then the above statement should be placed on scr #3 (the welcome screen) to autoboot the new charset along with whatever other autobooting features may already have been installed there by the user.

While it is not necessary to put the entire charset into the PDT (the upper cases are there already) I use the whole range (32 to 127) because I have redefined the characters of my file. They are not only bigger but I have slashed the 0 and improved the lower cases. Also, I can easily put the same charset into the upper end of the PDT for conversion to inverse video. More about that in F-TIDBIT #2.

The procedure I have described makes use of space on the disk which is wasted otherwise. It does not require any mods of other screens to accommodate the character definitions. A VMBW of >300 bytes does not add any noticeable delay when booting Forth. EDF/Lutz Winkler

THE KIDDIE CORNER

by Sue Harper

For kids of all ages - a series of articles on how to get started making your own programs.

First of all, did you find the mistake in the last article? In the program at the end one line is typed as follows:

```
40 CALL COLOR(7,12,5) 50 PRINT "THE PUG IS
GREAT":.....:
```

This is the way it should look:

```
40 CALL COLOR(7,12,5)
50 PRINT "THE PUG IS GREAT":.....:
```

I hope you all found that!

This month, I want to show you what a loop is. A loop in computers is about the same as a loop of string. Moreally, a computer looks at the line numbers, and does what the lowest number line says to do first. Then the computer looks for the next lowest number. This process continues until the computer reaches the highest number and stops.

One kind of loop that we have already worked with is the eternal loop - the GOTO statement. This loop tells the computer to keep going back to the same place and repeat what the lines tell it to do.

To show you how the computer puts things in order, type in this program. Notice that the line numbers are NOT in order:

```
500 END
400 PRINT "GOODBYE"
200 PRINT "HELLO"
300 PRINT "I AM A COMPUTER"
100 CALL CLEAR
```

Now, when you ask the computer to print a list of the program with the command LIST, you will see this:

```
LIST
100 CALL CLEAR
200 PRINT "HELLO"
300 PRINT "I AM A COMPUTER"
400 PRINT "GOODBYE"
500 END
```

As you can see, the lowest numbers are on top, and the highest numbers are on the bottom. This is how the computer reads a program unless you tell it to read in a different way. Try this:

```
100 GOTO 500
200 PRINT "THIS IS A SPAGHETTI PROGRAM"
300 GOTO 700
400 STOP
500 CALL CLEAR
600 GOTO 200
```

```
700 PRINT "IT FOLLOWS A STRANGE PATTERN"
800 GOTO 400
```

Lines are followed: 100, 500, 600, 200, 300, 700, 800, 400.
Not quite in order.

Program:

```
NEW
100 CALL CLEAR
200 GOTO 300
300 PRINT "T"
400 GOTO 700
500 PRINT "A";
600 GOTO 900
700 PRINT "E":
800 GOTO 500
900 END
```

This program will print TEA.

What numbers should go in those lines to print EAT? How about ATE?

Obviously, there are easier ways to print words, but understanding loops is important. Answers to EAT and ATE, and a new kind of loop next month.

NEED MORE SPACE?

Several weeks ago, I was making a back up of a new program I had purchased and when I went to put it away in my back up file, there was just no room to fit even one more disk. I thought about a program I've had for quite a while but had never used...Archiver by Barry Boone. I had always thought of this program as something I might use to send many files over the modes in an archived form, but I never had occasion to do this. Reading through the Docs, I realized that I could even extract only one file if I needed it at any time, so I thought why not archive all my backups. I proceeded to do this and to my surprise, I freed up twenty six disks. Now my back up file case is only half full. I was amazed at how many programs I was able to put on one DSDD disk in an archived form. One disk has PRBase, TIBase and CFS on it. Another has Superdisk plus three terminal emulator programs. I was so happy, I immediately sat down and wrote a check to Barry Boone for this great program.

Space was beginning to be a problem for me as I have accumulated quite a few disks full of newsletter articles in addition to my own programs. Next project will be to archive all the old newsletter articles. Just thought I would share this little tip with you because if you are taking advantage of all the neat programs we have in our library, I'm sure you could use some extra storage space also.

Happy archiving.....Audrey Butcher



From the Front Ranger. If you are a TI-Base owner who has a slew of data on PR Base diskettes, you probably would like to know how the files can be transferred. Read on.

-First, the maximum record size that you can transfer is 132 bytes. Anything greater than that will be lost. The reason is because the transfer is done by printing PR Base data to disk via the REPORT feature.

When you want to transfer the data simply design a tabular report in PR Base that will print all data in one line on a page of paper. Whatever the length of that line is the file format that the disk file will be saved in. For example, if you design a 132 column report the file that is printed to disk will come out as DV/132. This file is readable and convertible by TI-Base V2.0, using the CONVERT feature. The manual for TI-Base will tell you that the record to be read must be in FIXED format. That is not exactly correct. What it means is that the data in each record must be in the same place. Usually, you must have a fixed record format to get this, but printing a data file to disk does this too, so you don't need to worry.

When designing the report print out your screens so that you know later on exactly where each field ends on the printed page. Part of the CONVERT process is to design the record format for the new file. When you do so, remember to build in enough spaces in each field to include both the data for that field and the blank spaces that follow it on the printed report. For example, if the report printed field 1 at column 1 and then continued for 28 characters with a 1 character separator between it and field 2, then make field 1 a total of 29 characters long so that the blank space is attached to the first field. That will allow TI-Base to properly assign characters 30 through the end of field 2 to the proper field in your new data file. All remaining fields are done in the same way, including the last one.

EDITOR'S NOTE: When I was converting my files, I found it was easier to work with only a small portion of the file, 5 or 6 records. Then when I was sure everything was in the correct place in the new file, I converted the entire file.

WELCOME

The PUG would like to extend a warm welcome to our newest member Dr. Stephen Justham from Kutztown, whose name I misspelled last month. Sorry Steve. We would also like to convey our continued welcome to Steve Rethage, Richard Heil, Frank Lagler, Dean King, Blaine Stone, Michael Shayne, Tom Modell and John Viscusi who have recently renewed their memberships.

RECAP MINUTES OF PUG MEETING 3/19/89

News Editor Bucher explained why the Newsletter was late in getting to the Members. Corrective action will be taken.

Librarian Harper gave her Report. she informed us that certain special order discs were not picked-up. This makes for unnecessary work by the Librarian. Among the additions to the Library were a St. Valentines Day Woodstock disc, a TI Base Tutorial, an Easter graphics program, discs which Pres. Taylor brought back from the Roselle Fair and System 3 of Checkbook Manager (a 4-disc set).

SYSOP Kelly reported that the BBS is running smoothly. It has had 1000 callers.

Pres. Taylor gave his Report:

A modification letter for program called TI-tax has been issued by the Author. Also, member Audrey Bucher explained other corrections which are necessary.

Pres. Taylor reviewed the dates of the up-coming computer Faires including one in Coraopolis on 4/22/89. It, however, is not a TI Fair.

Member George Dick has prepared new labels for discs and offered them to the membership for sale.

OLD BUSINESS:

Herb Reich gave a report on the the program to get un-used TI computers into the hands of Libraries and Literacy groups for their use. It is underway. Two Boy Scout Troops are interested in making this program one of their projects.

Election of Officers was held. Results are as follows:

Pres.--Gary Taylor
 Vice Pres.--Mike Sealy
 Treas.--Frank Shoemaker
 Secretary--Herb Reich
 Corresponding Secy.--Audrey Bucher
 Librarian--Susan Harper

NEW BUSINESS:

There was no new business.

The Bingo prize, Macflix, was won by Nick Gramatikos. Since he already had the program, he very graciously suggested that the game be continued for another winner. The next winner was new member Ray Wallis.

Mr. Bud Mills was our distinguished guest of the evening. He discussed in considerable detail his P-gram Card and his Horizon Ram disc--both notable additions to the TI computer. Respectfully Submitted H. Reich, Rec. Sec.

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.

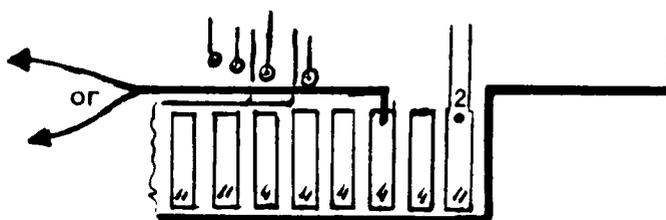
The modification consists of the removal of one diode, one resistor and one capacitor. These parts are replaced by one wire from pin 6 of the card-edge connector (bottom edge of ramdisk card) to the positive side of the capacitor location.

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

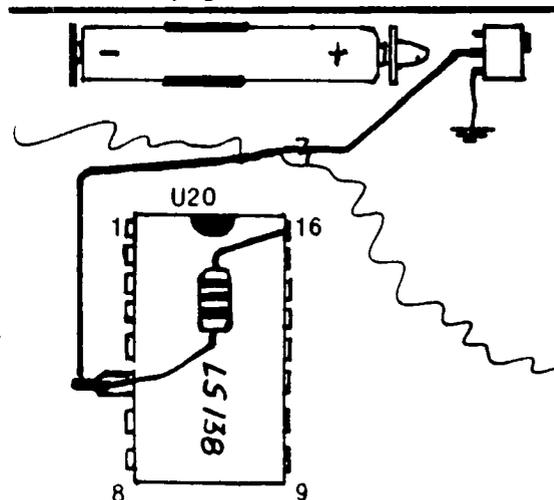
This modification provides a method to turn off (or hide) the HORIZON from the rest of the system. This switch allows you to turn off the ramdisk in the event of a system crash when the computer locks up. With the card turned off, you can power up the console and PE-Box, turn the card back on and proceed 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.



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Updated 3-15-89

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by John Guion and Robert Jones

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849

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programming. No. 4 contains Tips newsletters Nos. 46-52. These were prepared for user group newsletter editors but are available to anyone else for \$5 each postpaid.

Another one for the teachers and their students -

```
100 DIM K$(17):: DIM B$(185)
:: DIM C$(18,2)
110 GOTO 150
120 SET,CH,K,S,K$( ),J,B$( ),C
$(J,1),Z$,Y$,X$,B,X,Y,W$,PL$,
A,Q$
130 CALL CLEAR :: CALL COLOR
:: CALL SCREEN :: CALL CHAR
:: CALL KEY :: CALL PLURAL
:: CALL SOUND
140 !@P-
150 CALL CLEAR :: FOR SET=0
TO 14 :: CALL COLOR(SET,2,B)
:: NEXT SET :: CALL SCREEN(5
):: FOR CH=127 TO 129 :: CAL
L CHAR(CH,"0"):: NEXT CH
160 CALL CHAR(64,"3C4299A1A1
99423C"):: DISPLAY AT(3,2):"
PLURAL ENDINGS Version 1.1"
:: GOSUB 250
170 DISPLAY AT(5,1):"@ Tiger
cub Software for free distri
bution. No price or copying
fee may be charged." !writt
en by Jim Peterson 20 Nov. 8
7
180 DISPLAY AT(12,1):"DO YOU
WANT TO:" (1)TAKE A TEST"
:" (2)FIND PLURALS":": TY
PE 1 OR 2"
190 ACCEPT AT(16,15)VALIDATE
("12"):B :: IF B=1 THEN DISP
LAY AT(12,1):":":":":":":":
:: GOTO 240
200 DISPLAY AT(3,1)ERASE ALL
:"This program has been pro-
grammed with all the rules
for forming plurals, but
there are quite a few irre
g-"
210 DISPLAY AT(7,1):"ular pl
ural forms in Englishso the
answer it gives may not alw
ays be right."
220 DISPLAY AT(15,1):"Your w
ord?" :: ACCEPT AT(15,12)VAL
IDATE(UALPHA):W$ :: CALL PLU
RAL(W$,PL$,A)
230 DISPLAY AT(17,1):"The re
gular plural form is";PL$ ::
```

```
DISPLAY AT(20,1):" I"&S
E6$(K$(A),6,255)&RPT$(" ",28
):: GOTO 220
240 DISPLAY AT(12,8):"GETTIN
G READY..." :: GOTO 440
250 CALL KEY(5,K,S)
260 K$(1)="No, if the word d
oes not end in E,F,H,N,S,X,Y
or Z just add S"
270 K$(2)="No, if the word e
nds in IFE, change it to IVE
B (FIFE is an exception!)"
280 K$(3)="No, if a word end
s in E but not FE, just add
S"
290 K$(4)="No, if a word end
s in F, (except EF or FF)
change it to VES"
300 K$(5)="No, if a word end
s in CH or SH, add ES"
310 K$(6)="No, if a word end
s in H but not CH or SH, jus
t add S"
320 K$(7)="No, if a word end
s in S, X or Z, add ES"
330 K$(8)="No, if a word end
s in AY, EY, OY or UY, jus
t add S"
340 K$(9)="No, if a word end
s in Y not preceded by a vow
el, change the Y to IES"
350 K$(10)="No, if a word en
ds in N but not in MAN, just
add S"
360 K$(11)="No, if a word en
ds in MAN, change it to MEN"
370 K$(12)="No, if a word of
Latin origin ends in U
S, change it to I"
380 K$(13)="No, the plural o
f this word is the same as t
he singular"
390 K$(14)="No, some words e
nding in UM change the UM to
A"
400 K$(15)="No, if a word end
s in EF or FF, just add S"
410 K$(17)="No, many kinds o
f fish have the plural the s
ame as the singular"
420 RETURN
430 !@P+
440 DATA CAT,DOG,COW,MONKEY,
PARROT,WHALE,PLATE,CUP,FORK,
SPOOD,DISH,WATCH,HOCK,PEA,AP
PLE
450 !@P-
460 DATA CUFF,CLIFF,SKIFF,RU
FF,CLEF,CHEF,CHIEF,DONKEY,CD
```

```

MIC
470 DATA LIMB,HAND,SOLO,SEA,
CLOUD,ROAD,BOY,GIRL,CORNCOB,
ARC,TREE,PIG,TANK,BALL,DRUM,
GUN,HARP,CAR,BOOT,SHOE
480 DATA MOTH,SLOTH,MYTH,LAT
H,DEATH
490 !in the next line, key i
n CTRL B before each word
500 DATA CARP, MACKEREL, SU
MFISH, PIKE, SALMON
510 DATA SAW,WINDOW,HOUSE,BA
Y,GUY,TOY,GOAT,CAN,AUTO,TRUC
K,BRA
520 DATA WIFE,LIFE,KNIFE,LOA
F,CALF,HALF,SCARF,ELF,LEAF,W
DLF,PELF,SELF,WHARF,HOOF
530 DATA GAS,MISS,KISS,LASS,
TRUSS,BOSS,GLASS,CLASS,IRIS
540 DATA LATCH,WITCH,BATCH,R
DACH,LEECH,PEACH,ARCH,BRANCH
,BIRCH,MULCH,BROOCH,POUCH
550 DATA SASH,CRASH,FLASH,VA
RNISH,WISH,FETISH,RADISH,BUS
H,RUSH
560 DATA BAY,BOY,DAY,RAY,TRA
Y,HIGHWAY,GUY,ALLOY,BUOY,KEY
,MONKEY,TURKEY
570 !in the next line, key F
CTN V before each word
580 DATA RADIUS, FUNGUS, CA
CTUS, GLADIOLUS, OCTOPUS
590 DATA MAN,WOMAN,FIREMAN,P
OLICEMAN,FOREMAN,CHAIRMAN,PO
STMAN,CHARWOMAN,MIDWIFE
600 DATA LADY,CANDY,BUDDY,BA
BY,DRGY,DOILY,POMY,PUPPY,STO
RY,POSY,PARTY,COVY
610 DATA TALLY,ARMY,NAVY,FOL
LY,PANSY,ARRAY
620 DATA BOX,FOX,TAX,WAX,SEX
630 DATA SPA,GURU,POTATO,TOM
ATO,ZEBRA,SKI,OPERA,CIRCUS,P
LUS,MINUS,BUS
640 !in the next line, key C
TRL , before each word
650 DATA PANTS, SCAISSORS, S
QUID, DEER, SHEEP, SWINE, MO
OSE, BISON, GROUSE, SERIES,
STAIRS
660 !in the next line, key C
TRL A before each word
670 DATA DATUM, MEDIUM, CUR
RICULUM, PLANETARIUM, SOLARI
UM
680 DATA I,WE,HE,THEY,SHE,TH
EY,THIS,THESE,THAT,THOSE,CHI
LD,CHILDREN,TOOTH,TEETH
690 DATA MOUSE,MICE,LOUSE,LI
CE,GOOSE,GEESE,OX,OXEN,FOOT,

```

```

FEET,CRISIS,CRISES,APPENDIX,
APPENDICES
700 DATA ROOF,ROOFS,FIFE,FIF
ES,PROOF,PROOFS,THIEF,THIEVE
S
710 FOR J=1 TO 185 :: READ B
$(J):: NEXT J
720 RESTORE 680 :: FOR J=1 T
O 18 :: READ C$(J,1),C$(J,2)
:: NEXT J
730 FOR J=1 TO 185 :: Z$=Z$$
CHR$(J):: NEXT J :: Y$=Z$ ::
X$=SEG$(Z$,1,18):: DISPLAY
AT(12,1):""
740 RANDOMIZE :: Q=INT(203*R
ND+1):: IF Q<186 THEN 770
750 X=INT(RND*LEN(X$))+1 ::
Y=ASC(SEG$(X$,X,1)):: X$=SEG
$(X$,1,X-1)&SEG$(X$,X+1,255)
:: IF LEN(X$)=0 THEN X$=SEG$
(Z$,1,18)
760 M$=C$(Y,1):: PL$=C$(Y,2)
:: A=16 :: K$(16)="No, this
word has an irregular
plural form. It is "&PL$ ::
GOTO 790
770 RANDOMIZE :: X=INT(RND*LE
N(Y$))+1 :: Y=ASC(SEG$(Y$,X
,1)):: Y$=SEG$(Y$,1,X-1)&SEG
$(Y$,X+1,255) :: IF LEN(Y$)=0
THEN Y$=Z$
780 M$=B$(Y):: CALL PLURAL(M
$,PL$,A)
790 DISPLAY AT(12,14-LEN(M$)
/2):M$ :: DISPLAY AT(15,1):"
Type the plural form" :: DIS
PLAY AT(18,1):"" :: ACCEPT A
T(18,14-LEN(M$)/2):Q$
800 IF Q$=PL$ THEN CALL SOUN
D(50,523,5):: DISPLAY AT(20
,1):""::"" :: DISPLAY AT(20
,1):"CORRECT!" :: DISPLAY A
T(12,1):"" :: GOTO 740
810 CALL SOUND(200,110,5,-4,
5):: DISPLAY AT(20,1):""::""
" :: DISPLAY AT(20,1):K$(A)
:: GOTO 790
820 PRINT K$(A):: GOTO 780
830 !@P+
840 SUB PLURAL(M$,PL$,A)
850 GOTO 880
860 Y$,M$,PL$,A
870 !@P-
880 Y$=SEG$(M$,LEN(M$)-1,2):
: IF ASC(M$)=127 THEN PL$=SE
G$(M$,2,LEN(M$)-3)&"I" :: A=
12 :: SUBEXIT
890 IF ASC(M$)=128 THEN PL$=
SEG$(M$,2,255):: A=13 :: SUB
EXIT

```

```

900 IF ASC(M$)=129 THEN PL$=
SEG$(M$,2,LEN(M$)-3)&"A" ::
A=14 :: SUBEXIT
910 IF ASC(M$)=130 THEN PL$=
SEG$(M$,2,255):: A=17 :: SUB
EXIT
920 ON POS("EFHSXYZM",SEG$(M
$,LEN(M$),1),1)+1 GOTO 930,9
40,960,970,980,980,990,980,1
000
930 PL$=M$&"S" :: A=1 :: SUB
EXIT
940 IF SEG$(M$,LEN(M$)-2,3)=
"IFE" THEN PL$=SEG$(M$,1,LEN
(M$)-2)&"VES" :: A=2 :: SUBE
XIT
950 PL$=M$&"S" :: A=3 :: SUB
EXIT
960 IF Y$="EF" DR Y$="FF" TH
EN PL$=M$&"S" :: A=15 :: SUB
EXIT ELSE PL$=SEG$(M$,1,LEN(
M$)-1)&"VES" :: A=4 :: SUBEX
IT
970 IF (Y$="CH")+(Y$="SH")TH
EN PL$=M$&"ES" :: A=5 :: SUB
EXIT ELSE A=6 :: GOTO 950
980 PL$=M$&"ES" :: A=7 :: SU
BEXIT
990 IF (Y$="AY")+(Y$="EY")+
(Y$="OY")+(Y$="UY")THEN PL$=M
$&"S" :: A=8 :: SUBEXIT ELSE
PL$=SEG$(M$,1,LEN(M$)-1)&"I
ES" :: A=9 :: SUBEXIT
1000 IF SEG$(M$,LEN(M$)-2,3)
<>"MAN" THEN A=10 :: GOTO 93
0 ELSE PL$=SEG$(M$,1,LEN(M$)
-3)&"MEN" :: A=11 :: SUBEXIT
1010 !@P+
1020 SUBEND

```

Here's another tinvgram -

```

100 CALL CLEAR :: CALL CHAR(
47,"000000007C"):: DISPLAY A
T(2,1):"TIGERCUB ONE-FINGER
FIGURER"
110 DISPLAY AT(4,1):" Add an
d subtract with one":&finger
while the other hand keeps
track in a column - you ca
n type the minus sign withou
t the shift key!"
120 ACCEPT AT(12,10)VALIDATE
(NUMERIC,"/"):A$ :: ON ERROR
130 :: A=VAL(A$):: GOTO 150
130 ON ERROR 140 :: A=-VAL(S
EG$(A$,2,255)): RETURN 150
140 CALL SOUND(100,110,5,-4,
5):: DISPLAY AT(18,1):"ERROR
EOUS INPUT" :: RETURN 120

```

```

150 T=T+A :: DISPLAY AT(18,1
):"Total is";T :: GOTO 120
160 DISPLAY AT(18,1):"Total
is";T

```

The new Super Extended Basic offers CALL KEY input with validation. Now you can have it too. This subprogram will accept only one of the characters listed, ABCD in this case, and the value returned in K will be the position of the input in the validation string.

```

100 CALL KEYVAL(K,"ABCD")::
PRINT SEG$("ABCD",K,1):: GOT
D 100
10000 SUB KEYVAL(K,V$)
10001 CALL KEY(0,K,S):: IF S
=0 THEN 10001 :: K=POS(V$,CH
R$(K,1)): IF K=0 THEN CALL
SOUND(200,110,5,-4,5):: GOTO
10001
10002 SUBEND

```

CALL FLASH(L,R,C,T,K)where L is the number of DATA items, R and C are DISPLAY row and column, T is the flashing speed and J is the number of the item selected, will display options alternately until a key is pressed.

```

100 DATA FCTN 7=AID,FCTN 8=S
TART OVER,FCTN 4=QUIT
110 CALL CLEAR :: CALL FLASH
(3,1,8,15,J):: ON J GOTO 120
,130,140
120 PRINT "AID" :: STOP
130 PRINT "START OVER"::STOP
140 PRINT "QUIT"
10000 SUB FLASH(L,R,C,T,J)::
FOR J=1 TO L :: READ M$(J):
: NEXT J :: J=1
10001 DISPLAY AT(R,C):M$(J):
: FOR A=1 TO T :: CALL KEY(0
,K,S)
10002 IF S<>0 THEN SUBEXIT
10003 NEXT A :: J=J+1+(J=L)$
L :: GOTO 10001
10004 SUBEND

```

MEMORY FULL.....

THE PUG MEETS
ON THE 3RD SUNDAY OF THE MONTH
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APRIL 1989	
S M T W T F S	
2	
9	
16	MEETING
23	
30	

CLASSES BEGIN AT 3 PM
GENERAL MEETING BEGINS PROMPTLY AT 6PM

MAY 1989	
S M T W T F S	
7	
14	
21	MEETING
28	

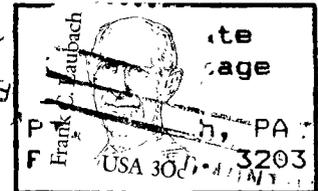
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SCHEDULE	
3-4:30 Basic Basic with Gary.....	Rm. 482
4:30-6 TI Base Sig with Audrey & Lynn.....	Rm. 482
4:30-6 Hardware Class with John Wilforth.....	Rm. 475
6:00-7 General Meeting	
SEE YOU THERE	



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Club News.....	1
MX-DOS.....	2
Hi Resolution Graphics Part 1..	3
Forth Tidbits No.1.....	5
Kiddie Korner	6
Need More Space?.....	6
Minutes.....	7
From the Mailbox..TIB Tip.....	7
Horizon Change Notice.....	8
Tigercub Tips #49.....	10

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