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OCTOBER AND NOVEMBER 1992 NEWSLETTER

TI SLAVES

OUR NEXT MEETING IS NOV. 21 1992 AT 9:00 pm. WE MEET IN THE DISABLED AMERICAN VETERANS HALL AT 273 E. 800 S. PLEASE BE THERE PROMPTLY.!!

OGDEN TI USERS GROUP

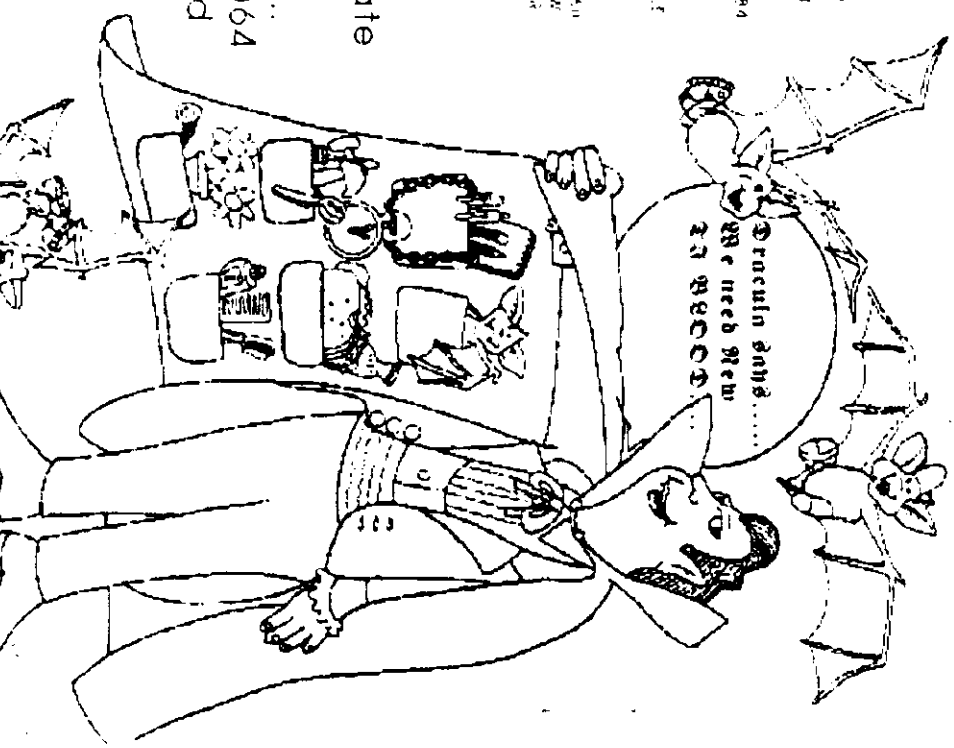
OUR NEXT MEETING IS NOV 7TH AT 9:00 pm AND OCT 17TH AT 7:00 pm.

WE MEET AT THE OGDEN MUNICIPAL AIRPORT IN THE FIRST BUILDING JUST EAST OF THE NEW TOWER.

FESTWEST "NORTH" 93 DOOR REGISTRATION IS $5.00 FOR BOTH DAYS. IF YOU WOULD LIKE TO PRE REGISTER YOU CAN SEND YOUR $5.00 ENTRANCE FEE TO THE FESTWEST "NORTH" 93 COMMITTEE 1396 LINCOLN APT B OGDEN,UT 84404. THEN YOUR BADGE WILL BE MADE UP AND WAITING FOR YOU WHEN YOU ARRIVE..

Slaves & Otiug
1396 Lincoln APT B
Ogden, Utah 84404

SLAVES AND OTIUG
NEWSLETTER
OCTOBER 1992



For up to date information Call our BBS.. (801) 394-0064 3-12-24 Baud

What's Happenin'

by
Joseph T Masarone
SLaVe's President

I wish I didn't have anything "new" to report. But I'm afraid I do. In fact, it's a very "old" subject which all of us have dealt with before or will some day.

I and many who read this have lost a dear friend, Warren G. Young. Warren died of a heart attack on September 30, 1992. His Obituary read as follows:

Warren G. Young, age 56, passed away suddenly, September 30, 1992.

Born April 21, 1936 in Kanab, Utah to George Elmer and Grace Cooper Young. Grew up in Panguitch, Utah. Married Wanda Wright, December 2, 1960 in the Logan LDS Temple...He was an excellant photographer. He enjoyed fishing and cooking and was always happy in front of his computer. He will be deeply missed by all who knew and loved him...

I left out a part about his work for the Government because I don't think he would want that preprinted. He didn't care much for his work and was looking forward to his retirement, I believe this December.

I also left out the parts about his family and his funeral services but, for different reasons.

I personnally will miss the ol' boy. Warren once told me, after I complained about how hard it was to write this column, to use larger fonts. "So you don't have to wirte so much." It's a good Idea. Warren used to kid me constantly about this and that, this and that. Any mistake I may have made or any mistake He thought I may have made.He was a nag! In fact, at his funeral, one of the eulogist remarked that one year during Christmas; The eulogist was responsible for the Christmas program, they did not sing "Silent Night" (one of Warren's favorite songs). He told the preacher, "How could you have a Christmas program without Silent Night." Later, the same evening he said to the same guy, "I don't believe you didn't have Silent Night".

Bottom line he stated several time that night that he couldn't believe "Silent Night" wasn't sung. The preacher never again left out "Silnet Night".

That was my friend. He kidded me constantly and I loved him. He was that type of guy. I may have been the last User Group member to see him. I talked with him on Monday night, he died Wednesday afternoon. He had made me a graphic for another newsletter I write for. I simplly asked and he did it. All the time. Oh, he complained all the time but he did it.Warren, you finally found a place without all those political beaucratats.

Warren this one's only for you.

Warren, I'll miss you...

May God grant you eternal rest.

Tigercub Software
156 Collingwood Ave.
Columbus, OH 43213
3 Jan. 1992

Dear fellow TI users,

For the past several years, I have been trying to help in keeping the TI community together, by maintaining a current address listing of all user groups, based on return addresses on the many newsletters I receive, listings in FOG, and an annual survey taken by Texas Instruments. This listing has been available by download from the Spirit of 99 BBS (614)235-3545 or from me for a disk with mailer and postage.

Texas Instruments has apparently abandoned this survey - they did not answer my inquiry but sent me a copy of the same list they distributed in early 1990, which was out-of-date even then. Therefore, I have decided to take my own survey.

If you are still an active TI group, would you take a few minutes to write a postcard and tell me so? I would have liked to enclose a postcard for your reply, but I am already spending too much to contact about 150 user groups on my list.

And give me any more information you would like to - number of members, whether you publish a newsletter, have a BBS, etc. Also, a phone number where a TI user visiting your area might contact you.

If this letter reaches someone who is no longer a member of the user group, but who knows that it is still active, I would greatly appreciate if you would either let me know or else pass this on to the group.

In the past, I have been encouraging the TI user groups to register with FOG, so that their names and addresses would be published in the FOG listings in the national newsstand magazines Computer Monthly and Computer Shopper. However, I understand that FOG is now charging $25 for registration, so that may no longer be worthwhile.

If you are publishing a newsletter, or if you just like to read articles concerning TI computing, you will be interested to hear that the Clearinghouse BBS has now been established as a part of the Spirit of 99 BBS mentioned above. The purpose of the Clearinghouse is to serve as a collection and distribution point for text articles, since the exchange of hardcopy newsletters between user groups has become too expensive for many groups.

The Clearinghouse BBS is asking for a contribution of $30 for associate membership in C.B.N.N.I., from those who wish to download files, in order to pay for the hard drive, controller, etc. the SysOP, Irwin Hott, is a blind TI user, a very respectable man, who devotes a great deal of time to this BBS but cannot afford all the needed equipment - he is presently operating with borrowed equipment.

Anyone who writes an article for the TI world is urged to place a copy in the Clearinghouse, either by uploading it or by mailing it on disk to Irwin Hott, 1560 Northridge Road, Columbus OH 43224. Or mail it to me and I will send you a disk full of articles in return.

The Central Ohio 99'ers, one of the most active TI groups, offers out-of-town memberships to those not resident in Columbus or adjacent counties. For $15 a year (US outside the continental U.S.) you can receive the large 20-page newsletter, published 11 times a year and full of interesting and useful articles. For $30 a year ($40 outside continental U.S.) you can receive the newsletter plus at least ten disks-of-the-Month. These are flippies for let them know if you can handle DS/SD), packed full of the latest fairware and public domain downloaded from GENIE and DELPHI and from other sources. Much of the material is archived to get even more on the disk, and sometimes an extra disk is included.

If you are interested, contact Harley Ryan, 4178 Chandler Drive, Whitehall OH 43213 (614) 231-1497.

I had better put in a plug for myself, so that I can at least write off the cost of this mailing as an advertising expense. Tigercub Software has released its 120 copyrighted programs to the public domain, excepting the three Hole & Bolts disks, and I am now offering public domain (including hundreds of programs of my own) and fairware as a copying service. Tex-Comp sells disks of public domain and fairware for $4.95, plus postage, and sells fairware without the author's permission. I sell disks for $1.50, postpaid if you order at least 8 (within U.S.), and do not offer fairware without the author's permission - but almost every author has given me permission.

Also, my disks are arranged by category - full disks of elementary math, classical music, card games, dozens and dozens of categories. They are packed as full as possible, if I could find enough worthwhile programs of the category. None are even archived or double-sided. All Basic programs have been converted to run in Extended Basic, and Extended Basic loaders have been provided for most of the assembly programs. Most of the disks have my own menuloader by full program name, not filename.

My 16 page catalog, plus supplement, now lists about 350 disks (must be well over 5000 files, I haven't counted), and lists the contents of each by program name and author. You can get a copy for $1.00, which is deductible from your first order - and there are other bonuses you will learn about. Write to Tigercub Software, 156 Collingwood Ave., Columbus OH 43213.

The TI-99/4A is still alive and well. Amazing new peripherals are being developed in the U.S., in Canada, in Germany, and elsewhere. Very advanced software is being written. TI computer fairs are being held in several cities in the U.S. as well as in Canada, Australia, Germany and England. Many BBS's devoted to the TI-99/4A are in operation, as well as TI sections on DELPHI and GENIE. At least 30 vendors are still supplying hardware and software. If you would like to have a list of vendors, and of user groups, send me $1.00 for the cost of a disk, mailer and postage.

Long live the TI-99/4A!

Jim Peterson

(An excellent first person article by a well-known prolific writer .. Reprinted from Last Times July,1992)

Chris' Corner

Why the TI?
part one

Almost a decade after Texas Instruments announced plans to cease production of the TI-99/4A™ Home Computer, hereafter referred to as the TI, the computer still enjoys a loyal group of supporters. Why? I am sure there are a variety of reasons. I would like to share with you why I still enjoy working with the computer.

I, like hundreds of thousands of consumers, purchased the TI hoping the features it advertised would enable me to fully utilize the computer. However, after I had spent thousands of dollars, Texas Instruments pulled the plug, and I was left with seemingly useless equipment. I initially bought the computer to help me in my language studies. Texas Instruments' decision to cease production of the computer did not change that plan, it merely delayed it. With perseverance, I decided to pursue my original plan to use the computer in my language studies. I realized that to do so required learning as much as I could about computers in general and the TI in particular. I read everything I could about computers and began to form detailed opinions about what a computer could and could not do for me. Now I was ready.

First, I would like to share some things that many of you may or may not know about the TI. When the TI was introduced, it was billed as a 16 bit computer with 16K of memory offering high resolution graphics, polyphony sound and high quality speech. With these features it seemed that the TI should have dominated the new home computer market. It did for a while, but it soon became apparent that the features offered were seldom exploited. Therefore, the features were practically useless. Furthermore, to access any of these features required expensive cartridges and/or peripherals and guarded information about the TI which Texas Instruments seemed reluctant to release.

Despite the fact that the TI was the first mass produced true sixteen bit computer on the market, its power was severely restricted. Instead of using a sixteen bit data bus, the computer used only eight bits. The sixteen kilobytes of memory advertised referred to video memory, which is not directly addressable by the central processing unit. The computer only had 256 BYTES! Yes, that's right 256 bytes in which to write programmes. The 16K of memory was used for mass storage and was accessed by Texas Instruments' proprietary Graphics Programming Language (GPL). The computer was designed to use graphics read only memory (GROM) which was another Texas Instruments proprietary design, for programmes. But the grom based programmes were incredibly slow — most were GPL based and used the video memory for data processing. To add insult to injury, peek and poke commands were left out of the BASIC language groms built into the computer. Peek and poke commands would have allowed access to all the machine resources without the need for an additional grom cartridge or external peripheral.

Allow me to digress for a moment. You know that the TI has BASIC built-in. But did you ever wonder why the sixteen bit TI seemed no match for the 8 bit computers such as the Apple, Commodore VIC 20 or 64, Radio Shack Model One computers, etc. running the simplest of BASIC programmes. Well, BASIC is an interpreted language — i.e. each command is made into a form which the computer can use one command at a time. (Compiled languages like C change an entire series of commands into a form that the computer can use all at once.) Of course, this takes time. When the commands are stored in cpu ram they can be DIRECTLY ADDRESSED, but if they are on a mass storage device-like video ram then each access to that device slows down the process. Remember, the TI only has 256 bytes of cpu ram whereas the VIC 20, for example, came with SIXTEEN times as much ram - 4096 bytes. Also, TI

(An excellent first person article by a well-known prolific writer... Reprinted from Last Times July,199

Chris' Corner

BASIC was in grom not rom and written in GPL. Had the TI been provided a level playing field in the BASIC arena alone, I feel that the competition would have packed its bags and left town. The closest to leveling the playing field was the ability to add 32K of extra cpu ram.

If you are still with me, you see that the real power of the TI was hidden and that purchasing the expensive extra 32K of cpu ram was the only way to unleash the TI. Unfortunately, it didn't quite work that way. Buying the 32K memory offered the potential but the console BASIC provided no way to DIRECTLY address the memory. The only solution once you had bought the memory was to buy an expensive cartridge in order to use it like TI eXtended BASIC, TI Writer, Microsoft Multiplan, Editor Assembler, etc., all of which I bought as I approached a point of no return. My original reason for investing in the TI was to help me with my language studies. That had yet to be realized. So, as I looked at the piles of manuals before me, I decided that the thinnest of them — the eXtended BASIC manual — seemed to be my best bet to accomplish my goal.

It didn't take long to see that eXtended BASIC would not allow me to fully achieve my goals. There was no direct access to powerful capabilities of the video processor. The video processor was capable of allowing me to have instantaneous access to several foreign language character sets by using a process known as page flipping. So I decided that the only way to use the TI as I needed to was to use assembly language. This language would permit total access to all the resources offered by the TI and do so at ultra fast speed. Naturally, such power comes with a price. Assembly language is a very tedious way to programme a computer - that's why languages like BASIC were invented. Even worse than being tedious, there were no readily available books which would teach me how to programme the TI's unique cpu.

In 1984, still determined to protect my computer investment I bought six TI's at fifty dollars apiece. I figured that if I did succeed in using them like I wanted, I would need some to act as backups in the event that their use became critical to my daily operations. I also, discovered MICROpendium that year. It was in MICROpendium that I saw an ad for Wycove forth. The ad offered forty times the speed of BASIC and the same ease of programming. It also, promised access to the hidden abilities of the TI. I guess I didn't know when to stop, because I ordered the programme. That was my single most important purchase for the TI. It delivered all it promised but it was too late. Too late, for what I thought.

By 1985, I had even higher hopes for the TI than ever. When I discover how to use the bit-map mode I realized that I could draw anything on the screen that I wanted. More importantly, I discovered that I could create highly readable text which permitted a sixty-four column display. Further analysis indicated that on a typical page with two one inch borders, I could type a full line of text without the annoying jumps that TI Writer uses to show a full line of text. Before you say that sixty four columns is not enough, think about one of the most talked about computers of 1985-the Apple Macintosh. The Macintosh popularized the Xerox Parc project's development of the mouse and a graphical user interface (GUI). When I studied the Macintosh, I concluded that there was nothing the Macintosh did that I could not do on the TI. Especially, when you consider that the basic premise of a computer display is a symbolic representation of data scaled to the dimensions of the display. Using windows further emphasizes my point. Windows merely shows a small portion of a larger picture. Of course, the TI offered two major advantages over the Macintosh-colour and speech. I am not saying that the TI is better than the Macintosh. The Macintosh is a superior machine. I, however, am reminded of one of Apple's ads which showed the PC and the Mac and asked: "Which is the more powerful computer?" The obvious inference was that the ease of use on the Mac permitted greater usage. What I am saying is that even in today's crowded field of computers, the TI can hold its own provided there is software that exploits its powerful array of under used features. Such software is possible on the TI.

ct ✤

TYPEWRITER 99

TYPEWRITER 99, written by Jim Reiss and documented by Asgard Software in 1988, is a program that turns your TI-99/4A into an electronic typewriter.

The documentation states TYPEWRITER is available in three versions--on a disk for people with complete systems (32K memory expansion, disk drive and printer), a cassette version for people with mini-memory and a printer, and in a module for people with only a printer. (The assumption is that all these people also have the other required equipment--computer and monitor.)

The loading instructions say TYPEWRITER can be loaded with either an Editor/Assembler or a TI-Writer module in the cartridge port, and gives the procedure for either module. The instructions also explain how to load the program from a cassette. What isn't said is that TYPEWRITER also loads quite easily from Extended Basic, if you have that module in the cartridge port.

The program does have some interesting features of its own in addition to some that seem to have been lifted from TI-Writer or some other word processor.

After leaving the title screen, the program permits you to select the proper printer port for your system. By using the up & down arrow keys you are led through several possible printer options. Included are several RS-232 options as well as PIO options that are identified with TI, CorComp or Myarc interface cards.

Caution--unlike TI-Writer and other word procesors, you must select the proper printer option, or your printer will not operate! For example, with TI-Writer you need only to identify your printer as PIO if you are using a parallel printer while, with TYPEWRITER, you must also identify which printer card is being used.

The manner in which the right and left margins are set is quite interesting, as is a little 'tick' which indicates where your cursor is in relation to the page itself. While typing your message, the screen will window, which means you have to window back and forth to see your entire line.

As with regular word processors, certain keys are utilized for specific purposes. Most of them are identical to the TI-Writer and/or are standard in the 99/4A. FCTN 1 will delete a character, FCTN 2 will permit insertion of a character and FCTN 5 will window across the page.

Some of the more interesting key functions are CTRL K, which turns a 'key-click' on and off. This 'key-click' will make a little noise each time you strike a key, which might be appreciated by experienced touch typists. CTRL C, if pressed after you have typed something, will center the text on the screen and on the hard copy, much the same as the .CE command will do in TI-Writer.

CTRL J permits you to right-justify a line of text, but only if you are in the line mode. CTRL W activates the word wrap. This option will permit you to continue typing without striking 'ENTER' when reaching the end of a line. Without word wrap, you cannot continue typing at the end of a line without striking 'ENTER' first.

Other CTRL commands that can be used are CTRL B for bold print, CTRL U for underline, CTRL S to insert a space between lines, CTRL N for next tab and CTRL T for setting tabs.

Other key commands include FCTN M which permits you to switch between 'line' mode and 'type' mode. Line mode is the default, and permits you to type an entire line which is printed when you strike 'ENTER' upon reaching the end of the line. Type mode will cause the printer to print each character as you strike it. You can edit and correct your typed line in the line mode, however, in the type mode, correction cannot be made without starting over, since the character typed is printed immediately.

FCTN 9 will restart the program and FCTN = will allow you to leave the program after asking if you really want to do so.

I found the program somewhat difficult to use, particularly after being accustomed to TI-Writer. The ability to edit an entire document written with TI-Writer is absent in TYPEWRITER. In this program you must correct your mistakes before you strike 'ENTER' or your mistake is printed. In the type mode you don't even have that option.

I suppose TYPEWRITER 99 may have some useful purpose, but in my review I have failed to find it. It is my opinion that although someone might find the program useful, experienced TI'ers will prefer using the word processing programs to which they have become accustomed. I would include this program in my library only for the sake of having it. Using it would be another matter.

Bill Berendts

Editor's note: It's fairly easy to tell that Bill has responded to TYPEWRITER 99 like most proficient TI Writer users. A similar program was used at Central HS to teach typing on the computers since an employee going to work in an office might not have access to a word processor but would almost certainly use a typewriter. It is much easier to adjust from a typewriter to a word processor than visa versa.

The other use that comes to mind is the filling out of forms. I haven't tried TYPEWRITER, but if you can adjust the printer line spacing, it should work well.]

****

you must come if we are to have a proper meeting. We await your arrival with eager anticipation.

Chris' Corner

Why the TI?

part two, continued

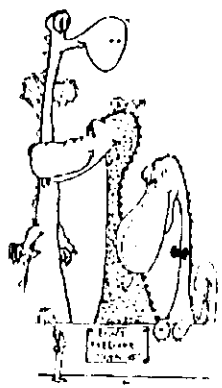
low for the postscript to last month's article.

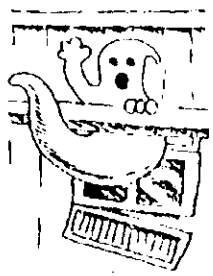
was hesitant to talk technically about the /DP but I must for those who would like to elve deeper into my infatuation with the TI.

s stated the original VDP chip, the 9918 dif- red from the 9918A, in that the 9918A con- ined a bit-map mode. The other modes: raphics one, multi-colour and the text modes ere the same. In fact, simply changing the 9918 the original 99/4 console to the 9918A would ake both machines both hardware and ftware compatible. Remember that the VDP socketed which means that simply disassem- ling the console, replacing the chip and proper- reassembling the console is all that is required make the upgrade. Now for more tech talk.

he maximum number of pixels – picture ele- ents or dots – that is displayed with the 918A is 256 across and 192 down. This yields n aspect ratio of 4:3. I mention aspect ratio ecause of the computers then mass arketed, only the Mac and the TI had a 4:3 pect ratio prior to the introduction of VGA raphics in the IBM world. The simplest ex- mple of the importance of the aspect ratio ould be to draw a circle on the computer. If e computer had the same aspect ratio as the splay monitor (4:3) then it would appear as circle, otherwise, it would appear as an el- pse. The most immediate effect would be on e text displayed because when the characters e created some would look funny in order to mpensate for the aspect ratio distortion.

nyway, it is from the 256 by 192 dots that the 918A develops its various graphics modes. To lustrate my point I will deal with graphics ode one. In graphics mode one, the display is ubdivided further into tiles or characters. Each haracter is 8 by 8 dots. Therefore, the display onsists of 32 characters (columns) across (256 quals 32 times 8) and 24 rows of characters 192 equals 24 times 8). Now, since these sub- visions are a physical part of the chip, it only eeds to keep track of the subdivisions (charac- rs or tiles, call them what you wish). In raphics mode one, the VDP chip need keep rack of the locations of the 32 columns and the





24 rows which means that it must keep track of 768 subdivisions. So only 768 BYTES are needed to keep track of the positions of the characters. These positions determine what will be shown on the screen and thus, may be called the screen table. Computer arithmetic works best when the numeric boundaries are based on powers of two. In this case the boundary used by the processor is 1024 bytes or one K or kilobyte.

Using the "CALL CHAR" of TI BASIC it is possible to redefine the shapes of the tiles to form characters or alphabets. In TI BASIC, only 128 characters can be redefined through a very tedious and time consuming process. The 9918A, however, permits 256 characters to be redefined. The amount of space required to redefine all the characters is 2k (2048 equals 256 times 1byte-each character row consists of 8 bits which equal one byte- times 8 rows). The processor chip uses 2K boundaries to describe pattern tables.

Finally, graphics mode one has provision for coloring the various character tiles. By assigning a colour to each dot that is on and another colour to each dot that is off, only two colours are needed per character tile. To further save memory, the colour assignments are restricted to groups of eight tiles. In the case of TI BASIC, using the "CALL COLOR" command one can access 16 (128 possible tiles divided by 8 groups) of the possible 32 colour sets used in graphics mode one. And as you may have guessed , by using 32 byte tables the processor creates colour tables.

If you are still with me great! These tables are accessed by special registers. There are seven write only video registers in the 9918A. We will concentrate on the pattern. colour, and screen registers. If there is sufficient interest I will conduct a special class detailing information on the other registers.

Recall that the primary reason that I maintained interest in the 99/4A was to help me with my language studies. Once I had written a character generator that eliminated the use of "CALL CHAR" and obtained access to all 256 character tiles, I was able to accomplish most of my goals. I went further, once I found out how to use the various tables. For example I could, create Russian, Korean, Vietnamese, and Arabic characters and have them instantaneously available by simply pressing a button which would select which pattern table I desired. Unfortunately, not very many TI users had need of multi lingual computer capabilities. But there was another, potentially more powerful use for the ability to quickly change tables.

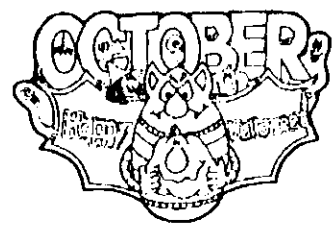
When the Apple computer was in its heyday, almost all of the software shown on it emphasized its graphics. Then some bright programmer realized that by using a process called page (tables) flipping, animation could be done on the computer. Well, it didn't take long before animated graphics dominated Apple's graphics demonstrations. Little did TI users know that the animation potential of the 99/4A dwarfed anything seen in the early eighties and with the 9938/9958 AVDP available today, still can hold its own. The original 99/4A came with 16K of video ram attached to the VDP. Theoretically, it permitted up to 16 tables of screens, or 8 tables of patterns, or 512 tables of colour, or any combination thereof. Couple this with the use of sprites which were optimized for animation and were, also, table based and you begin to see the tremendous possibilities of the 9918A VDP. If what I am saying is true, you wonder, then how come no one ever did it. I did but only for my amusement. I guess the obstacles that Texas Instruments created to limit easy access to the resources of the 99/4A were not worth the time and effort to many. As easily as one can use TI BASIC, commands I can use Wycove forth to change and manipulate the resources of the VDP.

If you don't understand what I am saying about how tables or pages are used in animation, maybe when you were younger you made stick figures "move" by drawing a series of pictures of pieces of paper and then rapidly flipping them. The result was that the stick figure seemed to move. If you did not do this when you were young do it now. Take about ten small pieces of stiff paper and draw a stick figure which changes its position on each successive piece of paper and then flip it. It's really that simple. By drawing, let's say, an airplane and then changing its position just a little on a series of screens, it can appear to move smoothly by sequentially and rapidly selecting the different screens. Each screen table can hold a slightly different view of the airplane such that near real-time animation could be done with the TI using the 9918A. If you upgraded the 9918A to the 9938/9958, the animation could be dazzling since these processors support fourteen times more video ram than the 9918A.

So you see, in just a discussion of only one the graphics modes of the 9918A, impressi things could be done. When the bit-m mode was added, the 99/4A with addition CPU ram became a serious computer. Texas Instruments offered the 9938 in a p compatible (hardware) version for the 99/4. I for one would gladly spend fifty to seven five dollars to protect my investment. Hi maybe we can start something, maybe a use group draft petition.

P.S.S. The TIM board offered by OPA fe tures the 9958 processor which is mostly com patible with the 9938 in the Myarc 9640, Di AVPC and the Mechatronic 80 column car It eliminates mouse support, monochrom output and composite video output (whi means that you must also buy a RGB colo monitor).

Next month: Peripherals in the Nineties ... 3 inch drives, laser printers, monitors, etc. et



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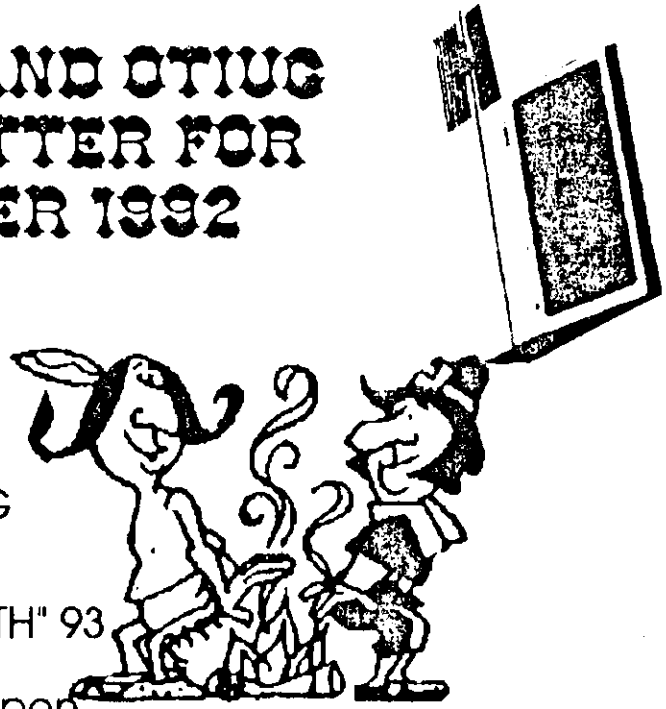

Happy
THANKSGIVING

FestWest "NORTH" 93

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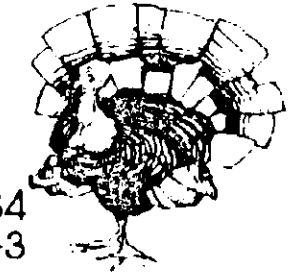

LET them know you are calling for

FESTWEST "NORTH" 93

What's Happenin'

by Joe T. Masarone
SLaVe's President

Sorry about the delay of our October Newsletter. Warren did the copying and distribution ...so I'll blame it on the dead. Warren won't mind. I promise that the rest will come on time.
So you get a double treat (treat?) this month.

First item on the agenda is Salt Lake and Valley User Group elections. Two months ago I warned you. This month's meeting is it! Vote. *Speaking of voting, the news, printed or otherwise, should be pretty clear of the other election crud by now. Thank God!*

We will demo the usual monthly software and also, back by popular demand, TI Base. The meeting may be shorter than normal because the FW Committee plans on touring Howard Johnson's Hotel (again!) to check out how the arrangements are coming and do logistics and on items we haven't thought about as yet.

FestWest News

The FestWest Committee has met twice last month. Vendors have been contacted to reserve space as soon as possible. If the Chicago TI Fair is any indicator, we may have vendors falling over each other to get selling space if you don't know what I'm talking about **tough!** O.K. I'll tell ya. The last Chicago TI Fair had the most vendors show up **Ever!** So if you plan on selling at FestWest best get your application in. Besides it's cheaper now that later. The cost for table space goes up soon.
Mike Berry of SLaVe's fame has consented to have a show-long demonstration on accessing radio bulletin boards, using what else the TI and his ham-radio stuff.
You out-of-towners might be interested in watching a *UTAH JAZZ* basketball game on February 13. They host the Atlanta Hawks at the Delta Center, which is easy walking distance from the Howard Johnson's Hotel. In fact, it's almost across the street!
I'll keep you posted on other events of interest as I find out about them. (Jack, what else is happening on Valentine's weekend '93?)
Locally, Rich Phillips, will be filming the next FestWest Committee meeting for some footage for the informational video we are producing.
Bottom line -- FestWest is coming ready or not!

Soap Box...

Once again this space is all mine. So what can I bore you all with this time?
How about...nah. Too controversial. I know! Nope. Wrong audience! How about non-profit organizations. (Hot topic!) O.K. Here's my beef.

I contribute to the Combined Federal Campaign (CFC) at work. This is the federal United Way. I currently select mostly environmental type charities, since I feel my church donations take care of the humanity type stuff. So what happens-- all of a sudden I'm deluged with junk mail from various different non-profit organizations wanting a piece of the action. I gave some money via the CFC to the National Forest Association (or something like that) so who do I get a plea from the Save the Redwoods Foundation. O.k. it fits. Then I get a letter from the Yosmite League. The letter makes it sound like I've been to the park recently and they need my financial help to keep it nice. I've never been there! I continually get junk mail from various charities I've donated to in the past. Couldn't they use the postage cost to fund their concerns?
But what really burns me up is that I get pleas from the **same** organizations I donate to every payday!!!
If anyone can spare some change send it to me in care of this newsletter. $$$$

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COMPUTER CONTROLLED ROBOT

By Ken Gladysewski

LA 99ers Topics

CONTROL A ROBOT OR ANYTHING USING "PIO"

Some years ago while visiting my local Radio Shack, I discovered a robot called "The Mobile Armatron" and immediately decided that controlling this robot with my computer would make a great project. So did Radio-Electronics Magazine in an article which appeared in their May 1987 issue using a Commodore 64. This simple robot consists of five motors which cause different motions when energized by a handheld remote attached to the robot via a two foot, seven conductor ribbon cable. The remote consists of a number of pushbuttons which when pushed connect the wires of the ribbon cable in various combinations to energize one of the motors in a given direction. After reading and understanding the article, I concluded the TI parallel port is similar to the Commodore user port and could be used in a like manner to control the robot. These ports both have 8 data bit outputs which can be used to drive relays whose contacts then act just as the pushbuttons did in the remote. My design for the interface uses SPDT relays instead of the SPST relays used in the article and only 6 instead of 7 of the 8 available data bits. In addition to less hardware, the contacts are interconnected so that each motor acts as a generator when power is removed, causing the motion to stop quickly instead of coasting. The remaining bits can be used for other purposes, such as speed control, by switching out resistors to vary the voltage to the motor.

Before attempting to write the program and design the interface, I did some investigation into the workings of the parallel port and learned the following:

The parallel port on the TI RS232 card is bi-directional, meaning the port may be used to input as well as output information. A printer and the robot use the output ability solely and can be used with a parallel interface that can only output data, such as the Axiom parallel. The connector on the TI card is a 16 pin IDC type having 2 rows of 8 pins, per Fig. 1. The data bits are connected to a pair of cross wired 74LS373, 8 bit transparent latch IC's. These chips are capable of sinking 18 MA (input mode) and sourcing 6 1/2 MA (output mode). LED's and relays (even low power reed type) require more current than this and must be driven by a transistor.

When the computer outputs a byte, it causes the "handshake out" line to go high when the "data bit" lines have all changed. The data lines are latched, i.e., they remain in their last state until changed by new information. The peripheral device must cause the "handshake in" line to go low when it has read the data lines. The computer is then allowed to change the "data bit" lines to output another byte.

This information was used to design the universal interface shown in Fig. 2. The design is modular using a handful of inexpensive generic parts which are easily obtainable. All relay contacts are wired to a 25 pin D-Sub connector (like the one used with the RS232 serial port). Interconnections between the contacts required to use the interface with the robot are made in the mating interface cable which attaches between the interface box and the robot ribbon cable. Using this approach, one interface may be used for many different projects, each with it's own custom cable. Almost anything can be controlled using this interface and some imagination! These relays could energize bigger relays if final devices require a large amount of power. The program in Fig. 3 shows how keys 0-9 on the computer keyboard may be used to energize one or more relays at a time.

The actual program for the robot includes unlimited speech and the ability to store motion commands to disk. The commands may be input to the computer interchangeably through the keyboard or the handheld remote attached to the joystick port. The program is in this newsletter. It consists of 120 lines of Extended Basic with no Assembly routines, except for the text-to-speech routine. The program could be re-written to run in Basic on a console, using the Terminal Emulator cartridge, a cassette recorder and a stand alone parallel port.

If you have a Mobile Armatron and would like to computerize it now, or have other uses for this information and can't wait - - - write to me!

Ken Gladysewski
6440 St. Rte 86
Concord, OH 44077

Editor's note:

It must be very hard putting all this effort into letting others know what amazing things our TI can do when there is very little feedback from the readers. Ken told me this project has spawned many more ideas that cannot possibly be looked into without the help of other hardware hackers, as time is always an enemy which can't be overlooked! Please write Ken if you would like to get involved in this project or any other that Ken has written about in the past. Also, write Ken, just to let him know if you like his ideas or not. This way, you may see more projects printed in this Newsletter! Thanks, Harry

SCHEMATIC FOR COMPUTER CONTROLLED ROBOT

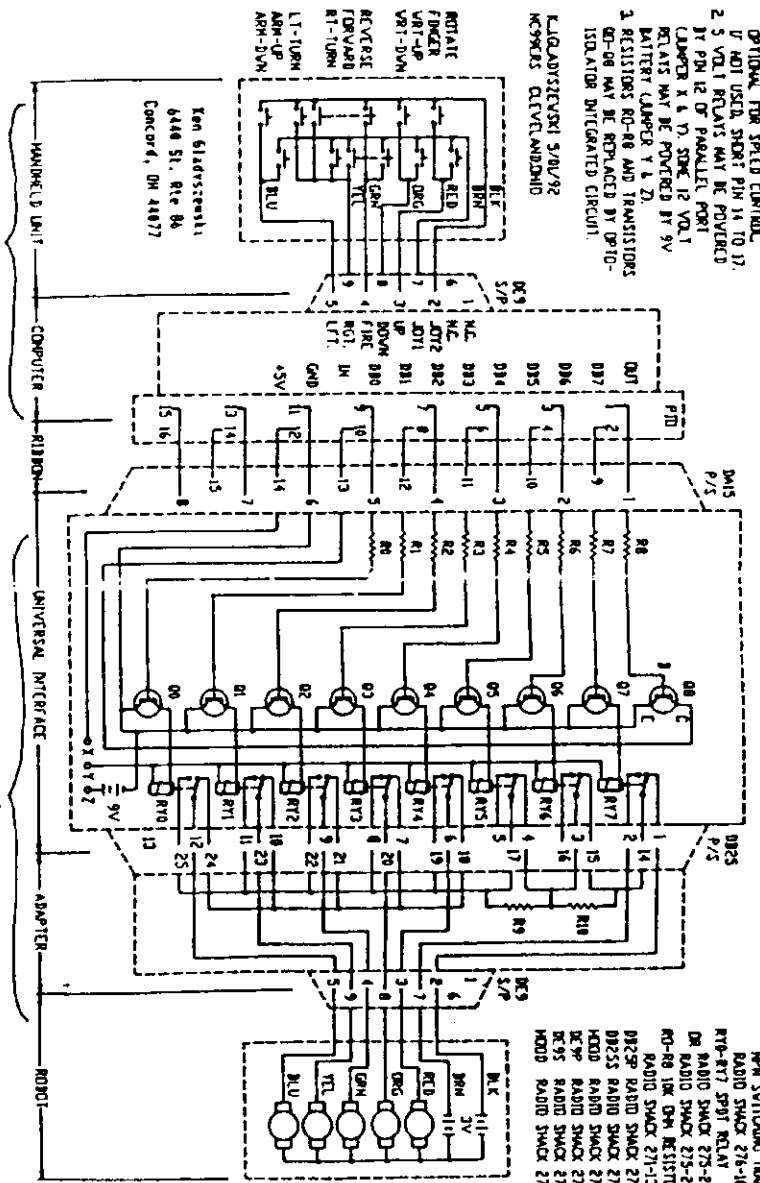


FIG. 1

FIG. 2

Downloaded from Delphi:

Expanded Capacity on Our Floppy Disk Drives
by Richard Roseen

Here is the scoop I found on the expanded storage capacity on the 360k MFM DDDD 135 tpi 3.5". The Atari and Amiga world are beginning to use the above type disks at a maximum of 82 tracks per side or cylinders.

The Amiga, Atari world is also using the above 3.5" disks with more sectors per track which is really how they get 880k. Their old 720k format is 80*2 trk * 9 sec/trk * 512 bytes/sec = 737k. Ours is the same 80*2 tracks * 9 sec/trk * 512 bytes/sec = 737k. Also other computers get as much as 800k capacity in 5.25" drives and disks by adding one or two more 512 byte sectors per track.

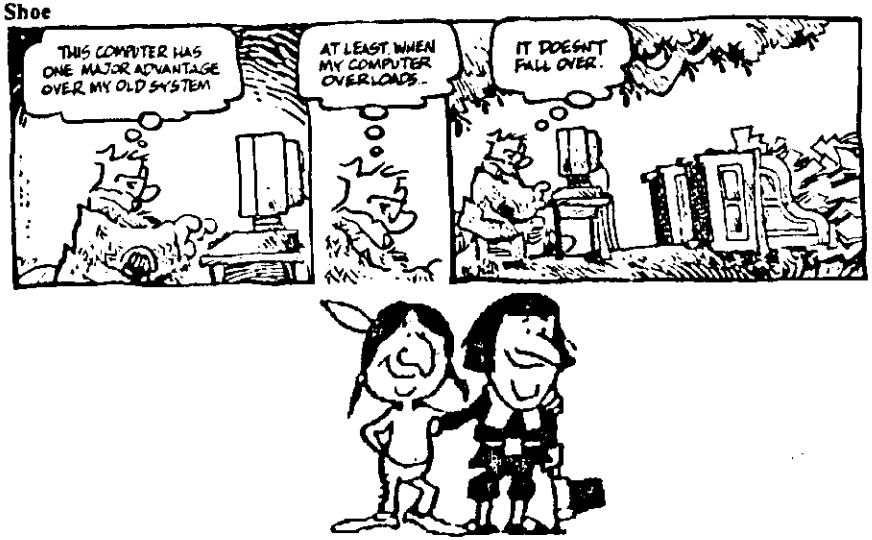
(Some of the 68000 computers use cylinder access, if you loose the byte map and you really get lost finding and recovering any files. I know from experience of recovering a file on a QL 3.5" in which the file was all over both sides of the disk. First logical sector of the file LS was at tr 28 si 1 sc 1, next 2 ls at tr 27 si 2 sc 6; next 3 ls at tr 28 si 2 sc 5; next 4 ls at tr 29 si 1 sc 2. The files on disk were fractured so the intial disk allocation rules as to skew, interlace and side select delay were not apparent.)

Using their format to illustrate calls for 512 byte sectors which are normally written in 9 sec/track (IBM format). At 82*2 trk * 9 sec/trk * 512 bytes/sec = 756k an extra 36k. Since we use 18 sec/trk at 256bytes/sec we would also have 756k. Measuring the 3.5" media gives about .75" * 135 tpi = . The drive head travel goes all the way out till it it starts hitting the plastic case of the 3.5", but there seems to be a gap between where the track sensor stops the head and the inner end of the plastic case. What does allow the AA world 880k capacity is formating with 11 sectors instead of 9. With 80 tracks this gives 880k. It has been pointed out the 3.5" 135 tpi dsdd media is claimed to be material of the quality of the 1.2 meg type used for the 1.2 meg 5.25" disks. However, if we start using 4 extra sectors/trk, (the AA world only needs two extra since they are at 512 bytes/sec) we are forcing more bits/track at higher risk than the 512 bytes/track format because of the larger amount of ID, gap and CRC bytes. 4 extra sec/trk * 2 sides * 80trk/side = 640 extra sectors which added to the 2880 sectors is well over the 3000 sector max for the Myarc standard 80 track bit map. Unless we adopt the 4 bits/sector 4 sec/block bit map that we would use for the 1.44 meg. 3.5" capacity disks. However, we could get carried away at this floppy bit map madness as I have seen the Kodak 3.3 meg. 5.25" drives availible at the $100 range and $20 sellout. If we use the 82trk/side 4 extra tracks * 18 sec/trk = 72 extra sectors we come well within the range of 3000 sector limit for the 2 sec/bit map of 80 track bit map now and

get the extra 36k. This I am sure would be used advantageously by a jumpboot disk. It would be another feature if programmers were made aware of what the different bit map capacities are and the need to use the system calls to ensure these compatibilies. We have 4 different formats for the 1 sec/bit bit map that all are aware of. The 2 sec/bit bit map has four now and with 82 trk/side they would be faced with 4 additional more.

With the 1.44 meg 3.5" disks and drives we would face with 4 or 8 additional formats at 80 or 82 trk/side respectively. Do we need more dense information in sector zero of our floppies? Trk/side or sec/trk or number of sides or number of density seem necessary. Should 3.5" 1.44 meg. disks have a triple density bit map or would it be simpler just to have a bigger bytes/sector? Should the hard disk and new MDOS multiple floppy directories carry individual bit maps Which alternative spells relief without going overly incompatible? The major obstical to expanding capacity of our floppies to the point others our is the natural insistance on 256 bytes per sectors. This is also true on our hard drives where it has been seen fit that we again use 256 bytes per sector. The limit is not just in capacity caused by small sectors creating more overhead bytes (CRC, GAP, ID bytes) and making moves to higher capacity more difficult and error prone because the increase above causes more total bits per track, but also in the speed with which accesses occur. Comparison between 512 and 256 bytes per sector may not show that much on floppy, but on a hard drive where space runs wild with file headers, directory headers, fragmented files and bit map, sure the day will come when a user hooks up a 60 meg. hard drive and finds to his surprise that his access to his files are slower than floppy. This may sound radical now, but if you were the first to experience it would you like to backup 60 megs. without a tape drive, so that you could reformat and start the files contiguous?

Shoe



TIPS MANIPULATOR--A REVIEW

by Dick Beery

A month or so ago, Jim Peterson asked me if I would review this program which Patrick Powell, its creator, had sent to him. I said that I would, wondering why as I did so. It seemed obvious to me that all that was necessary in using TIPS pictures was to go to the appropriate file and pull out what was deemed appropriate. I was WRONG ! As I began to use this program I discovered how many files of TIPS pictures there are, that they lack a common index, and that trying to find all the pictures on a given topic can be very time-consuming. I now recommend that a number of people make use of this program, create files on subjects that interest them, and then make these "homogeneous" files available to others. Two people at the C.O.N.N.I. meeting during which I demonstrated this program volunteered to do one special topic file apiece, and when mine is completed, we will place the results of all three in the C.O.N.N.I. disk library. Maybe we will also place them on our Clearinghouse BBS, so that others across the country can have access to them.

The program itself, Tips Manipulator version 2.1, comes with over seven pages of documentation, but it is quite easy to use. I suggest a careful reading of the docs before beginning to use the program, then the use of the Sequence of Events (Docs, page 7). Tips Manipulator is a modified version of Ed Johnson's TIPS2PP program (Jan. 1991) that has also been modified by Ed's co-author Bob Kaat. This latest version, 2.1, allows renaming of pictures, forcing of uppercase, and has been prescanned to increase speed of operation. It is written in Extended Basic, and comes with a modified version of Irwin Hott's Load program.

Once you have loaded the program, you will be permitted to change the screen background colors to your choice. Also, you then remove the program disk and insert your TIPS file disk. As I have two drives, I place the disk that is to receive my newly-created file in drive two. If you have only one drive, you will need to make sure your original TIPS file disk has enough room to receive the new file as well, as the program does not yet support the changing of disks. (Maybe a later version will!). The printer parameter menu permits you to change your printer designation to PIO, RS232 or whatever.

The main menu offers the following choices: manipulate files, sort file, print file, catalog a disk, rename pictures, reset color/printer, and exit.

I found, that since picture names do not always reveal the complete nature of the picture, that it worked best for me to skim the pages of pictures I have printed out and saved in a looseleaf notebook, ,ot the name of the file (e.g.GRCD.TXT) and the names of the pictures wanted and then move to the Tips Manipulator (hereafter referred to as TM) program. Since the operation of the TM requires that you use the picture's number within the file, I found it indispensable first to use the Print File option to print out each of the TIPS picture files I planned to use. This gives you a printout with the picture number and name but no graphic printout. You can thus circle the numbers you want and use these sheets as a guide when accessing the Manipulator function.

The Manipulator function offers the possibility of printing files, but since you have already done this, select "N". You will then be asked for the drivenumber and filename of the source file (e.g. GMAZ.TXT) and the same for the new file you are creating. While you can input up to seven characters for the source file, the program works well with a four-character input (e.g. GMAZ). You are limited to four characters in your output (new) file. Since my file deals with computer-related items, I named it COMP. The program adds the necessary .TXT and .XXX extenders.

Once you select picture numbers to be manipulated (transferred to the new file), you will be asked for the picture numbers they will have in the new file. The easiest way is to accept the default numbers at the bottom of the screen, and when you have your new file all or partially completed, use the Sort function to arrange them in alphabetical sequence, if this is desired. When your new file is complete, you may use it in the same ways you use your present TIPS picture files.

As soon as you have completed and sorted your new file, I suggest that you use the TM program to print the new file (numbers and names, remember?), and then move to one of your TIPS companion programs to print out the actual graphics, the same as for your other, heterogeneous, TIPS picture files.

When you print the file in the TM print function, you may find that not all picture names will print, the problem being that some came over from the other type of computer in lower case. The Rename Pictures function of TM will redo these in upper case, and you can then print out the entire file correctly.

I found the program to be very user-friendly and had only minor problems with it, and those I expect to eliminate when I have time to practice with it more in depth. I highly recommend it, and think that you will find a little time spent in organizing your TIPS pictures into homogeneous files will save you much time and frustration when you have a quick project to execute and little time in which to do it.

The program is released as Disk Ware, and the author states that " I do not grant any company or person other than Jim Peterson/Tigercub Software to charge any copying fee for this program..." In other words, you can give it away, but don't sell it! He also asks that those who use the program send a note, or a copy of the club's newsletter, or a disk from the club's library (or why not a disk from your personal collection?) to him.

Address: TI EXPRESS
C/O PATRICK R. POWELL
P.O. BOX 496
OCEAN PARK, ME
04063-0496

You may also contact him on Genie. Address: P.POWELL7

P.S. I give this an A-PLUS rating on both program and documentation. Hope you en,oy using it as much as I do!

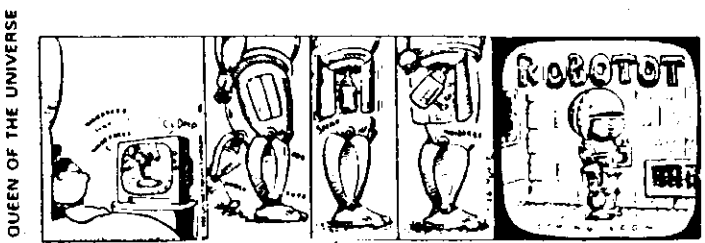
Tip(s) on T. I. Artist

Stan Katzman
West Penn 99'rs

The use of the majority of T.I. Artist (Version 2) is very easy. What you cannot figure out can be obtained from the instruction manual. I felt that the Slides section of T.I. Artist was a little obscure . So I would like to discuss this section because it is a very valuable part of this program.

When you go into Enhancements you see the central menu and then around three of the sides there are the slides which are composed of electronic symbols. If you want to use these symbols move the cursor over one of them and press Enter, press the space bar and you will see the symbol in the drawing area of the Enhancement section. Use the cursor keys to move the symbol to where you want it and then press Enter to make it permanent. Press the space bar to return to the Enhancement menu and select another symbol and continue to build your drawing. This is fine if electronics is your bag, but what if you want a different set of symbols? You could possibly purchase some or you could create your own. This is what I would like to discuss. There is a minor limitation; size. A slide is a small item within the bounds of the frame, which about the size of four Enhancement sized letters square and you can have a maximum of 24.

Creation process of a slides file. In the main drawing program (or in the Enhancement screen) create a maximum of 24 small sized figures, go to the Enhancement section and select "Slides", you will see a menu that says "1) Define slides, 2) Erase slides, 3) Rotate slides, 4) Load slides, 5) Save slides file, 6) Load an instance file and 7) Save an instance file." Select (1) (Define slides), go to the main Enhancement screen, place the cursor over a selected slide, press Enter, press the space bar, a small box will now appear in the Enhancement drawing screen which is now placed over your slide drawing (using the cursor keys), press Enter, press the space bar and you will see the new slide in the place of the old slide in the Enhancement menu screen. Keep doing this until you replace your old slides with your new slides. Then select 5) Save slides file and save your new slides in a file name as directed. Now in the future you can call up your slides and use them in your creations.



CONVERTING NINTENDO STICKS TO THE TI

by Randy Packham

If any of you have ever played Nintendo, you may have noticed how nice the joysticks are (never mind the games for now Gary Bowser is working on a Sega interface). They take a lot of use and don't cause fatigue. The old TI sticks can cramp your hands so badly I wonder if TI designed them to prevent video game addiction.

At first manufactures tried building bigger and tougher sticks, but that was no solution. Some got awkward to handle, other had enough leverage to seriously damage the contacts.

Later systems discovered that smaller sticks gave better response and suffered less abuse. Enter the Nintendo/Sega controllers with hard board contacts like a calculator, not the "crushable" flex film of the original TI sticks.

With the new sticks, some have auto-repeat fire buttons but unfortunately I had to scrap the idea of using that feature. For one thing compatibility goes out the window. The TI sticks have 6 wires - 4 positions, one fire, one power, that's it. The TURBO-TECh Nintendo compatible I used for this project had only 5 wires, for 8 signals and power! There are too many chips (2 or 3) in it. But you can make them work.

Some cutting of the circuit board filaments is necessary. Then by peeling the filament up you can solder jumper wires directly to the board. In this manner I wired both fire buttons to work in parallel.

Now wire the power wire from the TI harness to the pin on the chip that supplies power to the one side of all four directional pads (see diagram - no diode on power wire). Then solder jumper wires from there to one side of the A and B Fire Button pads (be sure to cut the curcuit away from the pad - leave yourself room to work!). The return wire for the fire button has a diode (as do all the return wires on the super-stick harness I used). Solder the other side of the fire buttons to the "Fire" return with "jumpers".

For the directional controls, use the same procedure for each individual pad corresponding to the return wire or follow the circuit to a pin, and solder there (see diagram). Some cutting elsewhere on the board may be neccessary.

Now you are all set, put it all together and try it out. I was very pleased with the results and since I always use joystick #1 only one was used. Most people have scrap joysticks laying around so for $14.00 you can have a real durable manageable cramp free, responsive joystick. Happy gaming.