

CLEVELAND AREA 99-4A USERS GROUPS NEWSLETTER

JANUARY, 1987

OFFICERS	OLON	NORTHCOAST	GOLDEN CRESCENT	TI-CHIPS
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LIBRARIANS	KIM JONES(1-274-8019) LADD PATA (662-9253)	DEANNA SHERIDAN (333-5986)	BOB BARTO (1-282-7037)	MARK McCAULEY (235-8888)
BULLETIN BOARD----- (24 HOURS) (216) (944-1072)				

EDITORIAL COMMENTS

In trying to thank everyone who contributed hints or articles this past year, I left out Oscar Przemetsky and Dwayne Hughes. I did want you all to know how much every little bit counts and is appreciated.

A new year is a time of hope and it looks like the TI has good things happening for it in the coming year. However, on the local front, we have lost one of our user groups which makes a big gap for those living on the southeast side of this area. It is even sadder when you think that the Solon group was our original group and the rest of us would not exist were it not for those pioneers. Believe me, it was an emotional decision for them to make. The other clubs in the area will benefit from the dedicated few who will join, but there will be others who will drift away completely.

The same fate could befall all of us eventually, so if you want to keep using you TI and see new hardware enhancements and exciting software, do your part when asked. It got down to a dedicated half dozen at Solon who just couldn't do it all alone and they had to pack it in. The other 3 clubs will be having election of officers this month, new committees will need to be formed, new directions planned and you plan to do your part if you REALLY want the TI clubs in this area to have a future.

On Saturday, December 28, Marty Smoley, Ken Gladyszewski, Chuck Mareno and myself met with Wes Richardson of the Lexington, KY group at Ernie Mitschke's house. We were there about 4 hours, had 2 systems going full tilt and copied, copied, copied. Ernie and his son, Don, have their work cut out for them as Northcoast's new librarians. Over the past year, it has been Northcoast's policy to share any and all programs with the other groups. This is going to be a BIG sorting and cataloging job, and it is hoped that we could get several people from each group to help out. It really isn't fair that the Northcoast people do all the work and hand over completely cataloged and sorted programs without any participation from the other groups. Close to 100 disks were copied at this meeting. You can imagine all the new software that will soon be coming your way. PLEASE offer to help out. I

did almost 2,000 programs by myself a little over a year ago and would never go through it again. You literally burn yourself out. There are also a lot of good programs listed in the various newsletters we get. Pick your language as there are basic, extended basic, logo, forth, c99, assembly...all which could be typed in and added to our libraries. Come on guys, volunteer!

Thanks for 3 great articles by local people this month...Jim Kekeel, Frank Jenkins and Paul Neweyer. I hope we didn't blow it all at one time and such more will be forthcoming in the months ahead.

To other newsletter editors. We are again updating and trying new clubs for possible exchanges with us. If you are receiving our newsletter for the first time, please consider exchanging with us on a regular basis.

Marty Smoley has included a questionnaire which he hopes all of you will complete and return to help determine direction for ALL of the clubs this year. The results will be shared. It is directed towards the Northcoast group, but if you have any comments, suggestions, etc. please participate whether you are a Northcoast member or not.

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SOLON EXECUTIVE NOTES

This will be the final Solon Executive Notes installment in this newsletter. Due to a continuing lack of attendance, support and renewed memberships, the Solon Chapter will be officially dissolved as of January, 1987. It saddens all of us who have faithfully been a part of the group, some since it's very founding some four or five years ago. I well remember the first meeting I visited in early 1984, and had to stand in the back of the room because there was no room to sit or squeeze in near the front. What great turnouts we had in those days! At our December meeting, we had 6 members, which has been about average for the last six months. We finally came to admit the reality of the situation and were forced to do the only logical thing and dissolve the group.

I have spent lots of time trying to analyze the reasons for our demise and tried, unsuccessfully, to head off the inevitable end result. My conclusion is that like anything else, a computer loses it's luster to all but the die-hard devotee; the one who is willing to invest a little more than casual interest or time in the product. Most people are not inclined or willing to put out the effort. Oh, I'm sure that some dropped off in favor of more powerful and larger machines, but these are probably the exception rather than the rule.

I also have to put the blame to some degree upon myself as your president the last two years. Maybe I could have done more to keep the interest level higher or tried to have better monthly programs from time to time. I will always wonder if I failed you as your leader. However, one thing that I am proud of is the friendships I cultured over the last few years, and for that I am truly glad.

I hope that all of you will continue to support the other local users' groups and stay in touch. As for myself, I will still continue to be active in a group in one form or another, either in the Cleveland area, Youngstown, or both.

I wish to thank all of those individuals who have helped me out in the last two years; your support meant more to me than I can say. Good luck to each and every one of you and hope to see you in the future.

Sincerely, Steve Weinkamer

LIQUIDATION MAIL AUCTION

The Solon User's Group is liquidating it's assets. Now is the time to expand your system. Sealed bids will be received by mail until Friday, January 16, 1987, for the following items:

- 1) TI-99/A computer console, power pack and modulator. Minimum bid: \$25.00
- 2) Peripheral Expansion Box, 32K memory expansion, disk controller and one(1) single-sided, single density disk drive. Minimum bid: \$200.00.

Send your bid with your name, address and phone number to:

Frank Jenkins
19809 Gladstone Road
Cleveland, OH 44122

The highest bid will be acknowledged on Friday evening, January 16, 1987, by phone. Transfer of equipment can be arranged at the Northcoast meeting on Saturday, January 17, 1987, at 1:30 p.m. at the Euclid Square Mall, or at some other prearranged time or place.

EXECUTIVE NOTES - TI CHIPS

We were glad to see so many faces at our December meeting and Christmas party. In addition to a great program, the Thalmers of Edu-Comp had a nice surprise of software for last-minute Christmas gifts.

Mark McCauley ran some Christmas programs from the library. Ed Keonelly demo'd the CSGO graphics program (with which he made a banner); Terry Vacha demonstrated the Font Writer program from Asgard, and Tom and Judy Thalmers brought a working home sentry system to control lights appliances, etc. from your computer. Phil Novak won the drawing for computer paper.

Next meeting will be election of officers. We still need someone to run for Treasurer and volunteers for Membership and publicity. If you are interested in any position, please contact Russ or Mark. We need everyone's help to make this group great.

In addition to elections, there will be another raffle. Mark Andell will present LOGO Part II, Les Kee will demo Super Cart, and Mark will demo a calendar program.

See you on January 17, at 10 a.m.

JAN FEDOR

EXECUTIVE NOTES - NORTHCOAST

An important reminder that you attend the next Northcoast meeting if at all possible as there will be election of officers for the coming year. The nominating committee presented the following slate for consideration at the December meeting:

PRESIDENT - Martin Smoley
VICE PRESIDENT - Rich Johnson
SECRETARY - Chuck Poulin
TREASURER - Jim Mekeel

Nominations were requested from the floor, but none were voiced. Nominations can still be made at the next meeting.

As reported elsewhere, the Solon group has disbanded and a large selection of hard copy books was presented to Northcoast for a lending library. Dick Alden has agreed to oversee this library. A deposit of \$1 to \$5 is required to check out a book for a period of 1 month. Much thanks to Solon for this contribution, even though not under the best of circumstances for them.

Deanna Sheridan reported reading in a newsletter that Millers Graphics would no longer be producing the GrafCracker or The Explorer. This was confirmed by the Thalmers of Edu-Comp who stated Craig Miller did not feel he could do justice to the project along with the others in which he is involved, namely the card(s) to make the TI IBM compatible.

Deanna also reported that it would be at least another month until we receive the 20 disks of RLE graphics from Asgard. They were overwhelmed with requests and have not been able to get them out on a timely basis.

Jim Mekeel gave an impromptu demonstration of the diagnostic disks received from TI.

Next month Frank Jenkins will give an in-depth report on the use of PRBASE (I understand the demo he did at Solon was great!). Also, Paul Wheeler will demo Pre-Scan II from Asgard (reviewed in last month's newsletter). This will be the raffle feature for January.

There should be lots of new programs to announce for the library also after a holiday exchange of library items with Wes Richardson of Lexington, KY who was in our area for the holidays.

See you at the January meeting!

GETTING THE MOST FROM YOUR CASSETTE SYSTEM
BY MICKEY SCHMITT, WEST PENN 99ERS NOV/DEC, 86
CLYDE COLLEDGE'S HIGH-SPEED CASSETTE LOADER

For those of you who are not familiar with this program... let me say... If you are still using a cassette system... this program is a must! It by far one of the most impressive cassette utilities available.

By way of introduction, I would like to quote a brief paragraph from the TI program recorder manual: "NOTE: Used with TI Extended Basic, the memory expansion peripheral card adds 32K bytes of random access memory (RAM) to the built-in memory of the computer. However, even with the memory expansion available, the largest program that can be stored on a cassette is 12K bytes (approximately 12,000 characters) in size. Although the length of the actual program is limited by the amount of available memory in the console. Utilizing the memory expansion unit provides other advantages. For example, with the unit installed in the peripheral expansion system, your program can be up to 12K bytes in length. While any data generated by the program can be stored in the memory expansion, without the unit, the program must be shorter so that both it and the generated data can be stored in the computer's built-in memory."

Now that you know what the limits of the cassette recorder used to be according to TI, let me introduce you to Clyde Colledge's: High-Speed Cassette loader. The high-speed cassette loader utility was written for people who have added 32K memory expansions to their computer. It is hoped that this utility would make adding 32K memory expansion a more useful addition to basic computer systems. The assembly language routines that do the saving and loading of programs are loaded very easily from cassette tape and reside in an area of memory not usually used by XB

programs. The high-speed cassette utility will allow the loading and saving of programs up to 24K bytes in length. In addition to increased program size, the same size programs can be saved or loaded in approximately half the amount of time that the original routines required. The increase in speed is due to removing duplication of data sent to the cassette recorder. While this decreases reliability slightly, few errors have been encountered in use and error checking is still used. The size limitation was increased by writing directly to the memory expansion rather than to the console memory which the program was sent to by the original cassette routines.

While loading Clyde's program is not a difficult process in itself, understanding the procedure for the very first time can be a little confusing. With that thought in mind, I have tried to keep the "LOAD" instructions as simple as possible:

Instructions for loading Clyde's Loader:

1. Insert the XB module into the computer.
2. Select Option 2 - Extended Basic.
3. Type: OLD CSI
4. Then: Press Enter
5. Follow the directions as they appear on your monitor or TV screen.
6. After loading, wait for the flashing cursor to appear in the lower left hand corner of your screen.
7. Type: RUN
8. Then: Press Enter
9. The computer will return to the XB screen with the message: \$ READY \$ and the cursor will once again be flashing in the lower left hand corner of your screen. Clyde Colledge's High-speed cassette loader is now loaded.

Instructions for using Clyde's loader:

1. After you have loaded the loader, type: CALL LINK("OLD")
2. Then: Press Enter
3. You can now load in any program which you have on cassette in half the amount of time it would have normally taken.
4. Follow the directions as they appear on your screen. That's all there is to it.

Clyde's loader has 2 very special features that should not go without mention. First off all, the high-speed cassette routines are exactly the same as TI cassette routines - making this program very user-friendly. Secondly, once the LOAD program has been placed in the 32K memory, it will stay in memory - even if you accidentally hit the "FCTN QUIT". Just retype "CALL LINK("ON")" and you are ready to go. If you wish to purchase this program, please send \$5.00 to:

WEST PENN 99ERS
C/O JOHN F. WILLFORTH
R.D. #1, BOX 73A
JEANNETTE, PA 15644

ATT: WEST PENN LIBRARIAN

A REVIEW OF "GK UTILITY I"
FROM LINA BITS, BYTES & PIXELS
December, 1986

This package allows you to add features to EXTENDED BASIC by itself, or to a combination of EXTENDED BASIC and EDITOR/ASSEMBLER which can be saved as a single module loaded into grams 3-7. If you choose the combination, the EDITA1, ASSM1, and ASSM2 files are loaded by the software package into grams 1 and 2 for instant access when typing in assembly language program listings. In either case, a new character set with true descenders is loaded into gram 0.

If you choose to use GK UTILITY I to modify only EXTENDED BASIC, it allows you to store short TI BASIC programs in gram 7 (where the E/A module would be in the combined version) and to add these programs to the power-up menu in addition to the modified EXTENDED BASIC. I did this with the MSAVE program which comes with the GRAN KRACKER. The ability to use MSAVE with modified EXTENDED BASIC is a major reason to choose not to use the XB-E/A UTILITY I. This ability should be mentioned in the GK UTILITY I documentation. It isn't.

My startup menu is as follows:

PRESS:

1. FOR TI BASIC
2. FOR GK-XB
3. FOR DISK MANAGER
4. FOR PRINTER CONDENSED
5. FOR PRINTER NLD

Item 3 loads DM1000 from my horizon ram disk via a 1-line BASIC program that reads 100 CALL DM. Items 4 and 5 set up my STAR SG10 printer for either condensed or near letter quality print and then returns the computer to the startup menu.

The software package loads an excellent lower case character set with true descenders into the computer's operating system (gram 0). This character set is available from TI BASIC, modified EXTENDED BASIC (hereafter called GK-XB) and from any module that uses the computer's character set as long as the GRAN KRACKER is switched to gram 0.

This new character set is easier to read than either of the ones TI released with the public domain version of TI-WRITER. It is comparable in readability to the CHARA2 character set on FUNLWRITER 3.3.

Following are my personal observations after using GK-XB. All existing extended basic programs run correctly with the new modifications in place. There is no compatibility problem with existing software.

GK-XB is dark blue with white letters when in command mode, and the usual light blue with black letters when running a program. This cosmetic change is useful in that you can easily tell whether you are in command or program modes.

The QUIT (FCTN =) key is disabled upon entering GK-XB and remains so unless you turn it on with CALL QUITON. I can see no reason for doing this. BYE works just as well and is safer. Never again will you accidentally erase a program you are typing by pressing FCTN = instead of SHIFT =.

LISTing to a printer can now be done with any desired line length. Twenty-eight column listings simulate exactly

what you see on the screen. This is useful for error checking. You can also specify 132 columns to take full advantage of condensed print. The GK UTILITY I documentation makes the list syntax look complicated (LIST "device name":line length:star line number-end line number). What is not made clear is that the complete syntax often isn't needed.

LIST lists to the screen as usual.

LIST "PIO" lists the entire program to a parallel printer with the default line length.

LIST "PIO":28: (you need both colons) lists the entire program to a parallel printer in 28 columns.

LIST "PIO": :150-200 lists lines 150 to 200 to a parallel printer with the default line length.

LIST "PIO":132:150-200 lists lines 150-200 to a parallel printer in 132 columns.

RESequence can now be used to resequence only part of a program. This can be very useful to those who write in BASIC. The documentation shows several examples of the new syntax (RES initial line, increment, starting line number - ending line number), but again does not make clear that all this is not always needed. RES will work exactly as in ordinary XB if desired.

RES resequences the entire program starting line numbers with 100 and using an interval of 10.

RES 50 resequences the entire program starting line numbers with 50 and using an interval of 10.

RES 50,5 resequences the entire program with starting line number as 50 and with an interval of 5.

TRACE can now be made to output to any output device such as a printer or disk drive. This allows you to TRACE a program without disrupting the screen display, a theoretical advantage. Unfortunately, the way this feature works, several program lines are executed before their TRACE numbers are printed. Thus, when a TRACE is sent to a printer, you can't see on the screen the exact effect each line causes. I consider this a major disadvantage. I don't think I will find sending TRACE's to my printer very useful because of this problem.

CURSOR MOVEMENT when editing program lines has been greatly improved. You can now move the cursor UP or DOWN within a program line by pressing FCTN-SHIFT and the E or X keys. Similarly, you can instantly move the cursor to the start of a program line or to the space after the end of a program line by pressing FCTN-SHIFT and the S or D keys. These movements also work when responding to an INPUT or ACCEPT AT statement in a running program. The enhanced cursor movements are very useful additions to extended basic.

You can now DELETE a group of program lines all at once rather than one at a time. This feature is handy in attempting to transfer long programs between tapes and disks.

CALL PEEK6, CALL POKE6, CALL PEEKV, AND CALL POKEV work exactly as the regular CALL PEEK and CALL LOAD except that they peek and poke to gram/gram or to VDP memory. There may be some uses for these in running a program. Outside of a program, these functions are most easily done with the excellent memory editor that comes built into the GRAN KRACKER.

REVIEW OF 10 FORTH DISKS
(Located in the Northcoast Library)
By Paul Newmeyer

The old standby languages of Basic, XB and Assembly face a challenge from C and Pilot. However, in all our scurry after a new love language, let's not forget the mysterious FORTH.

Many users and programmers scare away from FORTH because they see it as difficult to run. This is, in part, caused by the nature of the language--the stack. For example, if you get something foreign on the stack, and it seems like you usually do, your objective fails, strange creatures crawl on the screen, and you then sorrowfully discover that they devoured your program. As a result, you get discouraged with FORTH and abandon it.

But let me encourage you to persist, for the results will prove prudently well worth the effort.

Let's get our feet wet by doing a little wadding in the 10-disk pond of FORTH. That's right; our library has 10 great FORTH disks, on 5 floppies. However, before trying them, also secure our TI Forth System Disk, Revised Forth System Disk and Forth System with the XB loader. Sooner or later you'll want all these fine disks.

Now, let's step into the water. Put the TI FORTH System disk into the drive and, from the E/A option 3, type and enter "DSK1.FORTH". Sit back and watch it boot in. A list of load options appears on the screen. Since each FORTH program requires a certain set of options in order to run, let's type -VDPMODES -FLDPT -GRAPH -COPY -64SUPPORT. Hit <ENTER> and get a cup of coffee while the options load (a shade less than 3 minutes).

When you see an "ok" appear and the cursor blink, out of our set of 10 disks, put disk #5 into the drive, type 9 LOAD and <ENTER>. Now! Isn't that amazing--a screen popped up.

FORTH now loads a series of screens (9-24). Simply follow the prompt and a listing of instructions scrolls by, for a program called GRIDPLOT.

For starters let's type in a demonstration of what FORTH can do. So, type DEMO and hit <ENTER>. Up comes a sample of what you too can learn to draw in Forth. After the drawing completes, an "ok" appears for your entry. Go ahead, try a drawing. Type 75 128 SPOKES; then <ENTER>. Spokes draw a fan on the lower right of the screen.

Now, type DEMO2 for another demo. Dops! Everything went black and the bugs ate the program (you should have entered CLEAN to clear the screen for another drawing, or RESET to prepare for entering of DEMO2). That's what discourages everyone, because you have to start all over. So, do it--and get another cup of coffee.

There, we're back to the instruction screen; type DEMO2 and <ENTER>. Look at that--circles, radii, and flashing borders. Stop the display by hitting FCTN 4, and you're back to split screen mode.

Now, enter DEMO3. Circles galore appear, with arches of all types. This would make a nice design for a manhole cover. FCTN 4 takes you back to split screen again.

For our final demo, enter DEMO4 and watch ellipses unfurl.

Unfortunately, we can't spend any more time with this program, but if you obey the HELP instructions, you'll have a lot of fun drawing all kinds of shapes and learning a little about FORTH.

This same disk also has a speech editor, debugger,

enlarged print utility, and games. Disk #6, the flip side, has some nice graphics, disk cataloger, sound generator, sort and sound routines and games.

Disks #1 and #2 supply games, copiers, drawing routines, sprite maker, screen dump, printer utilities, graphics routines and a clock. Disks #3 and #4 contain copiers, graphic utilities, file and sort utilities, sound interface, games, graphics and a FORTH word decompiler.

Disks #7 and 8 sport drawing in the bit-map mode with excellent demonstrations, and a sonnet creating program. Disks #9 and #10 provide you with XB to Forth routine, copiers, clock and a universal disassembler.

Some disks have the FORTH System load options on them, while other disks require the use of the FORTH System disk. As you develop more familiarity with FORTH through playing with these 10 disks, you'll get frustrated. Expect that. But remember, only good things come easy; the best comes hard.

Eventually you'll discover how to avoid starting over and really enjoy the speed and control this language offers. I believe a few frustrating hours with FORTH proves far better than a headache over a "Fifth".

STAR

A Program Review by Bonnie L. Snyder
The Front Ranger November, 1986

The computer world is populated with a number of "whiz kids", youngsters of junior high and senior high school age who are turning out some pretty amazing software. The TI-994/A is lucky enough to have its share of these geniuses. The author of STAR, Michael Riccio, is one. Once you try this program, I am sure you will understand why I say this!

STAR is a package of 53 assembly language routines which can be accessed through Extended Basic via the CALL LINK statement. The disk also includes some very thorough and well-written docs. The program is autoloaded prior to programming in Extended Basic, or prior to running a program which uses the routines from STAR. STAR has an Extended Basic loader and will auto-load into low memory. Once it is loaded, it remains in memory until the system is turned off (BYE, NEW or FCTN = will not remove it). A program which uses STAR routines can be loaded from the STAR program once it is in memory using a RUN "DSKn.name" in the program's LOAD2.

Now, as for the capabilities STAR offers: the documentation neatly categorizes the routines, and I will touch on each category briefly.

CHARACTER SETS - STAR offers four different character sets which can be called from it, including true lower case.

SOUNDS - Three standard sounds (BEEP, HONK and CHIMES) can be accessed as easily as typing the command CALL LINK("sound").

CASSETTE CONTROL - Here is an interesting set of routines with which you can include taped background music, speech, whatever behind your program by accessing a tape recorder hooked up to the console with the TI cassette cable.

COLORS - There are four color routines which can control character set colors, screen colors and can "flash" like the Apple and other computers do!

VDP ACCESSES - sorry, I am not terribly well versed in this area. I will tell you what the routines are, and

STAR - Cont.

those of you who know what these will do, will benefit from the information: the routines are PEEKV, POKEV, and VOPRE6. They basically allow you to read and write the Video Display Processor's RAM memory.

SCREEN ACCESSES - There are seven of these routines which allow you to control whether you want the entire screen display on or off, plus means by which characters can be read from the screen into arrays and these arrays can then be read back to the screen at the programmer's discretion. Another interesting feature in this area is the ability to save and display screens from other programs AND if the screens have sprites, even the sprite motion is saved and can be displayed independently of the program from which it was taken!

CONTROL ROUTINES - There are seven of these which can be accessed inside a program including BYE and NEW. You can also choose to disable the quit key (or re-enable it) when you so desire. There are two routines to control sprites, one to stop their motion, and one to restart their motion.

ERROR CODES - Should an error occur, if you CALL LINK("ERROR",error-code), the error will be quickly identified.

KEYBOARD DETECTION - There are five key scan routines which scan keys which would be difficult or impossible to check from XB including a check for the position of the ALPHA LOCK, a check on the SHIFT KEYS, CONTROL KEY, FUNCTION KEY and the wait for keypress function.

CHARACTER DEFINITIONS - There are six of these which can modify characters in unique ways, including rotating screen text upside down, sideways and backwards!

DISK ACCESS - There are six powerful routines to manage your disks in this program, which give you capabilities heretofore only available through GraeKcracker. Using the CALL LINK statements in this category will allow you to catalog disks, protect and unprotect disk files, rename files and read and write sectors.

TEXT MODE - There are four text/graphics mode routines in this category which, among other things, offers you 40 columns in text mode and returns you to 28 columns in graphics mode. It also offers DISPLAY AT functions.

STRING HANDLING - There are two routines for this purpose which basically handle such things as changing all lower case letters to upper case and reversing order of characters within strings. Using the STAR routines for these things will be much faster and easier than in normal Extended Basic.

Well, the above is a quick description of what STAR offers. It is truly an impressive and useful tool for programmers, and I recommend it highly. Young Mr. Riccio is only asking \$10 to \$15 for this program, and I think it is well worth the money.

(NOTE: this program will be available in the Cleveland libraries).

I have been using PRBASE for about 3 months, originally 1.2 and then 2.0 and have just now gotten around to sending the \$10.00, mainly because I wanted to make sure that this is THE database I would use. I have looked for over two years for a database that has all the features that PRBASE offers. I needed one with flexibility, yet ease of use. I can now build a new database, including a data file, in about 30 minutes.

There were several questions I had, so I wrote to William Warren (when I sent the \$10.00).

In DATABASE CREATION:

1. I have a file with 16 fields. When setting up or reports or labels, is there any way I can enter the fields without having to "0" out ALL the fields that I don't need?

A) Yes. When creating the Report Format Design, all you have to do is zero out the first unneeded row. The program reads the pointer table until it finds a zero entry for the screen location.

2. I have a Gemini 10X printer. When setting up printer codes, how do I find the proper sequences for: elite, condensed, or italics print?

A) Check the ASCII codes that come with your printer documentation. For the Gemini 10X, the codes are as follows:

- 27 - Escape
- 78 8 - Skip 8 lines at perforation
- 15 - Condensed (132 characters)
- 52 - Italics
- 69 - Emphasized
- 71 - Double strike
- 87 1 - Double Wide Print

So, for my User's Group list, I use: 28 78 8 15 0 0. It works great.

In DATA MANAGEMENT:

3. Is there any way to do a double-field sort? for instance, I do a "I" on the Group field, then an "S", but I also want the Last Name in alphabetic order to print for that group?

A) In this case the answer is easy. Enter "0" for option. For selective indexing enter "Y". Then enter "1" for Index and hit Enter until the primary sort field is selected. Press FCTN6. Then the secondary select option is selected. Press Enter until the proper field is selected and enter the Data to select (for instance group name) and press FCTN6. The primary field will be sorted alphabetically and the secondary field will be selected. Then you can select "R" to print the desired report for only those records selected.

4. Is there a way to eliminate the deleted records (sectors). I have 100 records and delete 10, but I still have 100 records.

PRBASE - Cont.

A) Using the PRBUTL/BAS program, you can eliminate the deleted records when you resort. Normally, they don't interfere much unless you have lots of them. Make sure that you are starting at the beginning of your database whenever you press "A" to add a new record, because PRBASE will search for the first available blank record.

5. Is there a way to convert files to DIS/VAR 80 so they can be used with TI-Writer? How about converting files into a value file to be used with the mail-merge option of TI-Writer?

A) If you have more than one drive, or a ramdisk, you can output to the file instead of printer. Just use a disk file name instead of PIO or RS232. If you need all of the info, rather than just what is in a particular report, just create a report format that writes everything on your screen (in chunks of 80 characters at once). Also, the DOCS for 2.0 give a few hints on how to create a mail merge file on page 11.

I have really enjoyed PRBASE and revel in its versatility.

FUNNELWEB, VER. 3.4
BY JOE MUVOLINI, FRONT RANGER, 12/86

This latest version is far better than the previous ones. It now has 4 menus with 39 selections. The first (main) menu now has TI-WRITER, EDIT/ASSEM, and 16 additional customized options. There are 2 that I call side menus. Selecting 1 displays the TI-WRITER menu. This has the EDITOR, FORMATTER, DM1000, DATABASE, MODEM, and USER LIST. Pressing 2 brings the EDIT/ASSM menu. It has EDITOR, ASSEMBLER, LOADERS, c-COMPILER, DISKPATCH, and RESET/QUIT. You can switch between these 2 menus by pressing the space bar. The central menu (USER LIST) has nine selections. The first 8 are user-definable although FORTH, CASSETTE and INSTALL UL come in 6, 7, 8. The ninth has CART ROM. This one looks for a cartridge ROM header at >6000 and executes the first program listed there. The INSTALL UL option allows you to customize your central menu (UL) without using a sector editor. Tony said there were too many screams from the non-programmers.

So much for the menus and on to other improvements. Tony has speeded up the screen re-write to reduce the problem of dropping characters during word-wrap in the EDITOR. It still happens occasionally, but far less frequently. I learn something new every time I read the DOCS for this program. As you probably know, Funnelweb has auto boot tracking. This means that the LOAD program searches the disk controller for the drive number used to load it and writes it into the system filenames. So if you select the EDITOR, it will load from the same disk

that the LOAD program booted from. This feature will also override the drive # you have in your A\$= lines in the LOAD program. However, there is a way around this! The secret lies in the value of K in each of these lines. If the file you want to load is a program image file, then the value of K would normally be 3. K would be 4 for a FIXED 80 file. However, if you want the program to load from a drive other than the original booting drive, then you must add 32 to the value of K. For example, let's say you originally booted Funnelweb from Drive #3 and you had a program image file X you wanted to load from Drive #1. The A\$= line would read a\$="DSK1.X" :: K=35 :: GOTO 520 ! OPTION n. If the file were a FIXED 80 file, K would be 36. So you see, k=3 or 4 for the booting disk and 35 or 36 if booting from another disk. Furthermore, if you have a program that is on a separate disk and you want the program to pause and prompt you to insert the other disk, you need only add 8 more to the value of K and this will occur. There is an interesting discussion about this and more information on the value of K in the DOCS under loading TI-FORTH in the FWD0C/LOAD file. This makes the program much more flexible. I think the information has always been there, but I just never noticed it before. I guess there's something to be said for re-reading the DOCS.

I made one add to the LOAD program. If you try to boot a program from an empty drive, the LOAD program will obviously crash. I added two lines, 105 ON ERROR 600 and 600 RUN "DSK1.LOAD" (assuming you have Funnelweb in Drive #1). Now, if the program crashes, it automatically reboots. Tony has renamed the files with 2-letter names. The editor is ED EF, formatter FO FP, assembler AS AT, modem program MD ME, DM-1000 MG MH, diskpatch DP, database DB DC, DE(PRBASE), and so forth.

Again, this is by far the best version of this program I have seen. Will and Tony have obviously put a lot of time and effort into the development of this version. Even though our group has sent considerable FREEMARE fees for the earlier versions, I plan to gather up some additional funds from our group and it's members to forward to Will and Tony for this latest effort.

Others who get this fine piece of software should endeavor to do the same. Let's make sure that these 2 fine programmers are well compensated for what I consider to be one of the very finest programs written for our orphaned computer. If we do them justice, I can assure you that we will see more fine software heading our way from "down under"!

NOTE: The Northcoast group has been collecting money for V.3.3 which they felt was outstanding and now V.3.4 comes along. It will be available by the next NC meeting and if anyone from any of the clubs would like to add to the pot, Tom Nellis collecting the money for eventual distribution to Australia.

QUIET PERIPHERAL EXPANSION FANS
 By Jim Mekeel, Northcoast 99ers
 Cleveland, Ohio

With all the discussions at user group meetings and in newsletters about how to quiet the cooling fan in the peripheral expansion unit (PEU), I have noticed that the TI community has many inventive and clever people among its ranks. Most of the suggested solutions have fallen into three categories:

1. Replace the original fan with a higher-quality substitute.
2. Improve the mechanical mounting so that there is less transmitted vibration to the case.
3. Reduce the voltage to the fan to decrease its speed and subsequently the vibration and airflow noise.

The solutions presented in the first two areas have been well documented, and I do not think I can improve on them, but the third area provides some interesting possibilities.

A baseline needs to be established first. This will be done by reporting measurements that I made. The original fan had 76 decibels (dB) of noise, measured 3 inches from the fan (away from the airflow stream). The air temperature inside the power supply section had a one degree Fahrenheit rise over ambient. With the fan disconnected, the noise level measured 54 dB and the temperature rise was 12 degrees. To give you a scale of comparison, a whisper measures 58 dB and normal conversation measures 69 dB.

For you folks that have PEU's with only one or two cards in the slots and do not operate your computer for extended periods of time, you might have just found your solution. Simply disconnect the cooling fan! But most of us require some amount of cooling.

The fan used in most PEU's is Gould type JB, 115V, 60Hz, 14 watt, with 2800 RPM nominal speed. It has shaded pole motor. This type of motor has a very low stall torque, is tolerant of decreased voltages, and will operate at a lower speed with reduced voltage. One way to reduce the voltage to the fan motor is to use a series dropping resistor. The following table shows the results with different resistors:

None	---	120v	76dB	1 degree F
400 ohms	7.5W	65v	72dB	1 degree F
450 ohms	7.8W	61v	69dB	2 degrees F
500 ohms	8.2W	56v	66dB	2 degrees F
560 ohms	9.0W	49v	62dB	3 degrees F
600 ohms	9.4W	45v	60dB	4 degrees F
no fan	---	0	54dB	12 degrees F

So, there you have it. Choose the results you want and use the corresponding resistor. Cut one of the wires leading to the fan and splice the resistor in series with the motor. Carefully insulate all the connections before you turn the power on. I installed a 500 ohm, 20-watt resistor in my PEU and have been happy with the results.

There are other ways to drop the voltage to the fan. One would be to use a series capacitor. However, to effectively do it with this motor would require too big and expensive a capacitor. Another way that has been suggested in some newsletters, is to use a light dimmer. At first this seems to be an attractive way to go - simply dial the speed you want. But this is dangerous since most dimmers rectify the 120 volt AC into half wave or full wave DC current. You run the risk of burning out the motor coil with DC.

Using a dropping resistor seems to be the best way to go since it is compact in size and it does not rectify the current. One drawback is that to drop this voltage, the resistor generates heat. The resistor you choose to use should exceed the minimum wattages I've listed above. A 20-watt resistor is still a compact size yet allows good margin for extra heating. Even though the resistor is adding heat to the PEU, there is a small amount of heat being subtracted from the motor coil so that the net result is little extra heat. The resistor can be mounted on the rear wall of the PEU so that it's heat will be exhausted quickly by the fan.

Your local Radio Shack does not carry these resistors. You will need to obtain them from better parts stores. To help you, I'm providing manufacturers' names and part numbers.

Ohmite	Ohmite	Clarostat	
No B20J400	No. F215	Type VPR 20W	400 ohm
B20J500	F215	(Specify value)	500 ohm
B20J650			650 ohm
B30J750			750 ohm
None	---	120v	76dB
			1

Resistance	Minimum Wattage	Motor Voltage	Decibels	Temperature Rise
------------	-----------------	---------------	----------	------------------

QUIET PERIPHERAL EXPANSION FANS

F O R S A L E

EXPANSION BOX WITH 32K, RS232 AND DRIVE.....	\$225.00
CONSOLE - NEW.....	50.00
GEMINI 10X PRINTER WITH TI CABLE - NEW.....	180.00
VOLKSMODEM WITH CABLES.....	35.00

JOHN MERCER - 845-8817

THIS N' THAT

If you are in to genealogy, you might try the following bulletin boards: (614) 488-4736 and (415) 584-0697.

Got a flyer from Ron Albright and he is starting a new "adventure" for TI users "T.I. Network News (TINN)" which he will be electronically publishing on the DELPHI Telecommunications Network. We received a hard copy of the first issue which outlined the capabilities of the Gene've computer, reviewed the Chicago TI Faire, touched on several new software products, etc. DELPHI has not caught on as fast as The Source, Compuserve, Etc. Rates are \$7.20 per hour for 300/12//2400 baud. You can sign on for as little as \$10 for which you will receive a handy quick reference card as well as one hour of free time. Call 1-800-544-4005.

H & O Enterprises, 120 Elm Street, Vermillion, SD 57069 (605) 624-6344 is selling "slightly used diskette". They come from a large software mfg. company and contained hard-disk programs (now bulk erased). The programs were transferred from the floppy to the hard disk. Price for 100-249 is \$.19 ea and include white paper sleeves. SS/DD. the DS/DD diskettes are \$.23 for the same quantity. They are 3-1/2" x 15/16 labels at \$4.50 for 1000. All orders have a shipping charge of \$2.00.

When using DM1000 you can print out catalogs using different print size by loading DM1000; when the first menu is on the screen type "FCTN 3". Enter the information needed for your printer, ie., P10, etc. Use control codes to set size of print and any other special effects you may want. For example to get condensed, 8 lines per inch, use code 27, 31, 19 *. A space must be placed after each number and before the required final asterisk. When completed, save it to the DM1000 disk and it will be ready to use as needed. To use it, go to the disk utility menu and type "FCTN 7" and a catalog will be printed. (From the Greater Akron 99ers, 12/86).

From the Philadelphia Area U6 12/86 comes a hint to avoid excess wear and tear on your drives and to prolong the time between failures, every six or so months swap your drives around so that DSK1 is now DSK2. It seems that disk drive #1 gets the most use in almost every set-up and swapping them around can save considerable down time due to a "worn out" head.

From RAndY's RunOr Ra6 via SMUGLET, 12/86. CorCoop says that you can't load their manager from within a program. Lee Bendick says you can by:

```
100 CALL INIT
110 DELETE "LD-CHDS"
120 CALL LINK("MGR")
OR TRY
```

1 CALL INIT::DELETE"LD-CHDS"::CALL LINK("MGR"). It saves 9 keystrokes and the mandatory spaces are automatically inserted by the computer.

If you enjoyed "The Orphan Chronicles", you should be

looking forward to Ron Albright's followup book "The Orphan's Survival Handbook". It will contain 200 pages of material, including schematics, hardware hacks, programs, tips and tutorials. The manual is looseleaf and three hole punched so that it can be updated with planned inserts for registered owners. It will be sold by Disk Only Software, P.O. Box 4170, Rockville MD 20850 with a projected retail price of \$16.95.

Mark Beck (author of Creative Filing System) is releasing V5.0 with some additional features which allow you to create business forms, post cards, and memos in any format; use special printer fonts on individual fields. This program is not as fast as PRBASE, but allows you to perform mathematical operations on numeric fields and has many good points. I have corresponded with Mr. Beck and is constantly adding features to CFS. The program now requires 3 disks.

From TI TALK on the FREE-NET comes some help from Terry Vacha if you are interested in purchasing the Avatex 1200-baud modem. He has found a local source for these at \$125 which includes the cable. Ads in Computer Shopper run from \$87 to \$109 plus shipping and cable. The local source is Marvin Bicker of NDA at 338-6571. He backs up the units purchased from him but not those bought out of state. Terry received his the day he called.

Once you own the modem, the cable which connects to the RS232 serial port must be altered. The connector on one end of the cable must be opened up so that certain pins can be pulled out and reinserted in different holes. The correct pins are ~~NOT~~ those listed for the TI in the Avatex manual! The correct ones are as follows:

Modem Pin	(goes to)	RS232 Pin
2		3
3		2
7		7
6		20
20		6

If you need assistance, call 1-800-4-AVATEX.

From the NORTHWEST OHIO 99ER NEWS, December, comes the note that there are some minor bugs in PRBASE 2.0 (essentially those I pointed out in the review we published) One, some TI disk controllers don't seem to be willing to format the back side of double sided diskettes. If you run into this problem, initialize you data disks with another disk manager and return to PRBASE to create your files. Two, when creating a new database, press ERASE (FCTN-3) prior to entering the output device name. Alternatively, you can type in your device name and completely fill the name field with spaces. Not doing this will result in receiving an I/O error when trying to print. You won't have to keep doing this, only the first time you use it.

PRINTER COMMANDS

(energizes or turns on)

	10X	SG-10	MX-80	FX-80	KX-P1091	OKIDATA
ITALICS	127 52	127 52	#####127 52	127 52	#####	
ELITE	127 66 2	127 66 2	#####127 77	127 77	127 77	28
CONDENSED	127 15	127 15	127 15	127 15	127 15	29
PICA	127 66 1	127 66 1	#####	#####127 80	127 80	30
EXPANDED	127 87 1	127 87 1	127 14	127 87 1	127 87 1	31
SUPERSCRIPT	127 83 0	127 83 0	##### 27 83 0	127 83 0	127 83 0	127 74
SUBSCRIPT	127 83 1	127 83 1	#####127 83 1	127 83 1	127 83 1	127 76
NEAR LETTER	#####127 65 4	#####127 120 1	#####127 110	127 49	127 49	127 49
EMPHASIZED	127 69	127 69	#####127 69	127 69	127 69	127 84
UNDERLINE	127 45 1	127 45 1	#####127 45 1	127 45 1	127 45 1	127 67
DOUBLE STRIKE	127 71	127 71	127 71	127 71	127 71	127 72
SLASHED ZERO	#####127 92 1	#####	#####	#####	#####	#####
1/8 LINE SP.	127 48	127 48	127 48	127 48	127 48	127 56
1/6 LINE SP.	127 50	127 50	127 50	127 50	127 50	127 54
7/72 LINE SP.	127 49	127 49	127 49	127 49	127 49	#####
n/72 LINE SP.	127 65 n	127 65 n	127 65 n	127 65 n	#####	#####
n/144 LINE SP.	127 51 n	127 51 n	#####	#####	#####	127 37 57 n
n/216 LINE SP.	#####	#####	#####127 51 n	#####	#####	#####
TOP MARGIN	127 82 n	127 82 n	#####	#####	#####	#####
BOTTOM MARGIN	127 78 n	127 78 n	127 78 n	127 78 n	#####	#####
LEFT MARGIN	127 77 n	127 77 n	#####127 108 n	#####	#####	#####
RIGHT MARGIN	127 81 n	127 81 n	#####127 81 n	#####	#####	#####
COLUMN WIDTH	#####	#####	#####127 81 n	#####	#####	#####
PAGE LTH. LINES	127 67 n	127 67 n	27 67 n	127 67 n	#####	#####
PAGE LTH. INCHES	127 67 0 n	127 67 0 n	#####127 67 0 n	#####	#####	#####
PAPER OUT "OFF"	127 56	127 56	127 56	127 56	127 56	#####
PROPORTIONAL	#####127 112	#####127 112	127 111	127 111	#####	#####
RESET PRINTER	127 64	127 64	#####127 64	#####	#####	24

THE ABOVE ARTICLE COULD NOT HAVE COME AT A BETTER TIME. I HAVE RECEIVED MANY QUERIES ON HOW TO CONTROL A PARTICULAR PRINTER, WELL WHAT DO I KNOW ABOUT EVERY PRINTER UNDER THE SUN, SO WHEN THIS ARTICLE ARRIVED IN THE " BRAZOS VALLEY 99'ERS ", I WAS ELATED ! SO YOU HAVE ALONG WITH RICH SPRECHER'S ARTICLE QUITE A BIT OF NEW PRINTER INFO TO CHEW ON. (From West Penn 99ers)

Name _____ Age _____
 Address _____ Apartment _____
 City _____ State _____
 Zipcode _____ Phone (_____) _____

IMPORTANT

*** HARDWARE ***

**** SOFTWARE ****

- [1] Beige Console
- [2] Silver Cnsl.
- [3] Tape Recorder
- [4] P. E. Box
- [5] Corcomp 9900
- [6] _____

Notes: Please check one column to indicate the amount of use for software you own.

Column [3] = Use Frequently -----
 Column [2] = Some Use -----
 Column [1] = Little Use -----

This is a fairly extensive survey. However, I would appreciate your taking the time to fill it out completely. Circle the appropriate number for each item you own, check the proper columns, and print clearly the answers to questions which have space provided. Feel free to include extra paper with comments, or lengthy answers to questions.

*** Memory ***

- [7] TI 32K Card
- [8] Corcomp 32K
- [9] Myarc 32K
- [10] Stand alone
- [11] _____

- [51] TI Basic : | | |
- [52] TI Extended Basic : | | |
- [53] _____ : | | |
- [54] TI Editor/Assembler : | | |
- [55] Macro Assembler : | | |

I am taking this survey because I have a sincere interest in continuing the existence of the 99/4A as a viable entertainment, learning and business tool. The information gained will help with plans for future NorthCoast 99er meetings and aid in the personal plans for my own computer.

*** Ramdisks ***

- [12] Horizon
- [13] Myarc 128K
- [14] Myarc 512K
- [15] Corcomp 256K
- [16] Corcomp 512K

- [56] _____ : | | |
- [57] TI FORTH : | | |
- [58] MYCOVE FORTH : | | |
- [59] _____ : | | |
- [60] TI Writer : | | |
- [61] FunlWriter : | | |

I am asking that you complete the name, address and especially the phone number portion of my survey that I might contact you by letter or by phone at a later date to discuss your ideas further. I will keep phone numbers and personal information confidential unless I have approval by you to do otherwise.

*** Misc. Mem. ***

- [17] MB Graacraacker
- [18] Mechatronic
- [19] Triple Tech
- [20] MBP A/D Clock
- [21] _____
- [22] _____

- [62] _____ : | | |
- [63] PILOT : | | |
- [64] c99 Clint Pulley : | | |
- [65] Microsoft Multiplan : | | |
- [66] Plato : | | |
- [67] P.R.K. Cartridge : | | |
- [68] Fast Tern : | | |

I would like to thank you in advance for the time and effort you put into my survey, the advancement of the 99/4A and their supporting users groups.

Sincerely

Martin Sooley

*** Controller ***

- [23] TI Disk Contrl
- [24] Corcomp Contrl
- [25] Myarc Contrl
- [26] Stand alone
- [27] _____

- [69] _____ : | | |
- [70] _____ : | | |
- [71] _____ : | | |
- [72] _____ : | | |
- [73] _____ : | | |

*** Disk Drives**

- [28] 1 _____
- [29] 2 _____
- [30] 3 _____
- [31] 4 _____
- [32] _____

- Magazines you subscribe to
- [74] Micropendium
 - [75] Smart Programmer
 - [76] Beniel Traveler
 - [77] Super 99 Monthly
 - [78] RYTE Data
 - [79] _____
 - [80] _____
- Bulletin Boards you use
- [81] _____
 - [82] _____
 - [83] _____
 - [84] _____
 - [85] _____

 * HERE ARE SOME IBM COMPATABLE QUESTIONS *

**** RS232 ****

- [33] TI RS232
- [34] Corcomp RS232
- [35] Myarc RS232
- [36] Stand Alone
- [37] _____

Please answer the following questions
 * Why you DO or DO NOT attend club meetings.

*** Printers ***

- [38] Serial
- [39] Parrallel
- Mfg. _____

Model

**** Modem ****
Type

- [40] 300 Baud
- [41] 1200 Baud
- [42] 2400 Baud
- [43] _____

* What programs would make interesting meetings.
 If I could plan a monthly meeting, I would plan a program about: _____

- * [85] You own one *
- * [86] Type _____ *
- * [87] Use at work *
- * [88] Type _____ *
- * [89] Might buy one *
- * [90] Type _____ *
- * YOU PROGRAM OR USE *
- * [91] Word Process *
- * [92] Type _____ *
- * [93] Data Base *
- * [94] Type _____ *
- * [95] Spreadsheet *
- * [96] Type _____ *
- * [97] Telecon. *
- * [98] Type _____ *
- * [99] _____ *
- * _____ *
- * _____ *
- * _____ *

----- Fold and tape -----

Martin Smoley
6149 Bryson Drive
Mentor, Ohio 44060

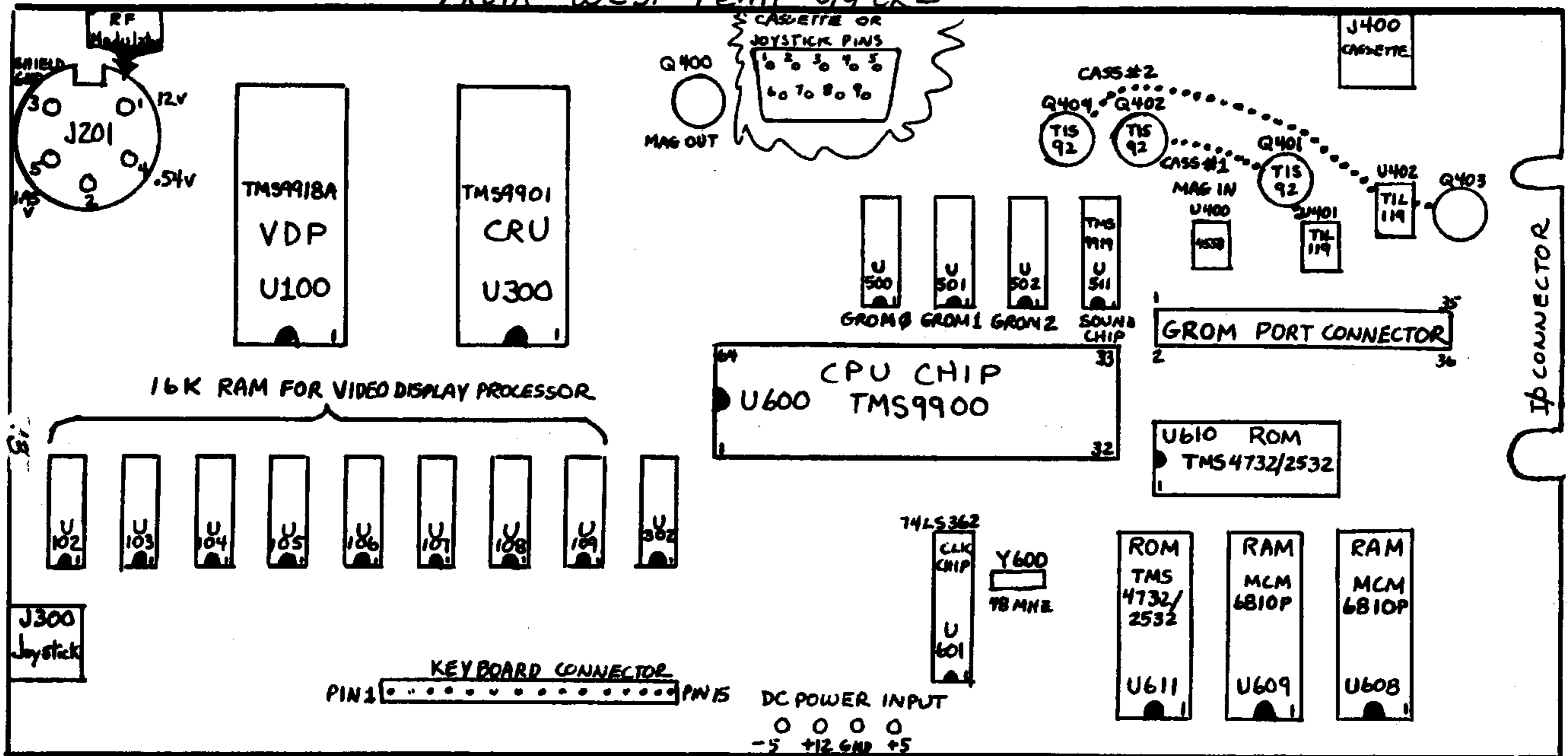
Place
Stamp
Here

Martin Smoley
6149 Bryson Drive
Mentor, Ohio 44060

----- Fold and tape -----

GENERAL COMPONENT LAYOUT ON TI 99/4-A

From West Penn 99ers



NOTES:

I'VE MADE THIS LAYOUT, USING BOTH SAM'S PHOTO-FACTS, AND THE SCHEMATICS THAT I BOUGHT FROM T.I.. THIS IS BY ALL MEANS NOT THE ENTIRE PICTURE OF THE 99/4A, BUT IF YOU HAVE A SLIGHT FAMILIARITY WITH ELECTRONICS, AND SOME EQUIPMENT, AS WELL AS ACCESS TO SOME OF THE CHIPS OR OTHER COMPONENTS, YOU JUST MIGHT BE ABLE TO TRACK DOWN A PROBLEM WITH YOUR CONSOLE, AND SAVE YOURSELF NEARLY \$40.. I HAVE FIXED 8 CONSOLES IN THE LAST 5 MONTHS, AND JUST AS A POSSIBLE AID, I'LL GIVE YOU THE COMPLAINT, AND THE FIX. NO VIDEO, OR A LOT OF SNOW WITH WEAK SIGNAL = DEFECTIVE RF MODULATOR (OR BROKEN WIRES). BLACK SCREEN WITH LOUD NOISE = ANY OF THE GROMS PARTICULARLY GROM 1, OR A DEFECTIVE CARTRIDGE. TITLE SCREEN BROKEN OR PROGRAM OPERATES STRANGELY = NEARLY ALL OF THE ABOVE CONDITIONS CAN BE CAUSED BY A DEFECTIVE VDP CHIP OR THE 8 RAM CHIPS. I'VE ALSO HAD THE CONSOLE WORK FINE, BUT WHEN HOOKED UP TO A PEB, PROBLEMS WITH SYSTEM HANGING OCCURRED BECAUSE OF A DEFECTIVE I/O PORT TRANSCEIVER CHIP. YES THERE IS A LOT TO TROUBLESHOOTING A CONSOLE, AND THIS IS MADE MORE DIFFICULT BY THE FACT THAT TI DID NOT SOCKET ALL OF THE MAJOR CHIPS. IF IT IS NOT THE VDP, THE 3 GROM CHIPS, THE SOUND CHIP, AND SOMETIMES THE CLOCK CHIP, WHICH ARE THE MOST COMMONLY SOCKETED CHIPS, YOU MAY WISH TO HAVE AN EXPERT FIX YOUR MACHINE.

GOOD LUCK!

JOHN F. WILLFORTH

**RAVE KEYBOARD BY ROGER HICKERSON
BAYOU BYTE 11/86**

The RAVE Model 11/101 keyboard was received promptly after my order was placed by telephone. I requested shipment by UPS C.O.C and paid \$83.00 for the keyboard and a cover for the space left in the console when the old keyboard was removed.

One of the most important considerations in any purchase of hardware or software is the quality of the instructions received. Inadequate instructions can introduce errors which can often result in an improper installation which will result in damage to your system. The instructions from RAVE are given in easy to understand step-by-step format. Where the possibility of fatal errors occurred, a warning notice was printed, and the instructions were given in even more detail with references to illustrations to provide greater clarity.

Installation involves removing the existing 99/4A keyboard and replacing it with a PC interface. The power supply is connected to the interface and the coiled telephone cord attached to the keyboard plugs into the interface board. The cover provided is then fastened down to cover the opening in the console.

The Model 99/101 has a 101 key layout and four setup modes. Two separate modes are command/program modes. Mode 3 is a word processing mode and mode 4 is for Multiplan. Function key assignments differ in each mode.

In all modes, there are four key dedicated cursor control and a 10-key numerical keypad. Mode is displayed with the SETUP key and changed with the shifted SETUP key.

In all modes the 11 function keys arranged across the top of the keyboard. The function keys are single keystroke operation which allows use of the overlay strips. Pressing the shift key converts the function keys to control codes.

The Alpha Lock key performs normally, except that the position of this key has no effect on joystick operation. The two command/program modes allow the QUIT key to be defeated or implemented as a single keystroke. Mode 2 supports Editor/Assembler editing keys. Mode 1 places the quote key in the unshifted key position for ease in programming.

Keyboards can be obtained with customized key layouts such as Dvorak or Multiplan. User installed options are also supported for a Load/Reset, Load Interrupt, and Econ Port Modifications.

Due to the short time I have had the keyboard, a full evaluation would be premature. However, it receives four star ratings for ease of installation and ease of use. Users will need to review the key assignments in each of the 4 setup modes. Overall, my impression is the keyboard is a highly desirable addition to any user's system and could be indispensable for those with heavy word-processing usage.

**CLEVELAND AREA 99/4A USERS GROUPS
C/O DEANNA SHERIDAN
20311 LAKE ROAD
ROCKY RIVER, OH 44116**

PLEASE NOTE - NEW ADDRESS

**CHECK YOUR EXPIRATION DATE.
THIS MAY BE YOUR LAST ISSUE!**

!! TIME DATED MATERIAL !!