



FOR THE RECORD

ISSUE #7 JULY 1987

by Frank N. Zic
for Ed Bittner
Recording Secretary

The June meeting of the West Penn Ninety Niners was called to order at a later than usual 7:25 by President Scott Coleman. This was through no fault of his own, I would give you the reason for the late start and it is very interesting but it is better kept between those of us who actually attended. All I can say is "JOHN you are a marvel". Scott started by reading the minutes of the last meeting. Jan gave the treasurers report and all is sound even after the purchase of a second complete operating system. Now Scott can come to the meetings with less burden. A note to all, "We still need a large, deep storage cabinet for our equipment". Eric, keep looking. The attendance at the annual picnic could have been better. Our librarian Clyde brought several nice new cassette games.

Old business. Since it was previously overlooked, it is now being acknowledged that we did favorably vote on the by-law amendment that pertains to the disposition of the club's equipment in the unlikely event of our demise as an operating club. A word of thanks to Ken Farr for wording the amendment. John stated that we have not as yet heard from the L. A. 99'er club about our exchange of information, e.i. diskette library. Joe Ekl has been placing ads in the local papers for new members and once again we had some new faces looking our group over. If you know of anyone who might be interested, invite them as your guest to our next meeting July 21st at 7:00 P.M. They may be more interested than you think especially if they have a T.I. console.

New business. Pace warehouse has disk storage cases for \$5.95 that hold 50 diskettes. They also have 2700 ct. tractor feed paper for printers for \$15.95 The Warehouse Club on Rt. 30 also carries 2600 ct. paper for \$14.44. In the next newsletter John will have a survey sheet that will go back to our equipment suppliers so that they can keep abreast of our needs. Please take the small amount of time required to accurately fill out your sheet and bring it to the next meeting. Be a part of the organization by doing your part. A generic program has been written by Bob Stall that couples the RS232 card with a Amateur radio hook-up. Rave key boards are available for \$159 in quantity. The latest state-of-the-art addition to a T.I. console is now the XB cartridge itself. Wow, will it never stop? John cautioned, however, that it will be necessary to turn off your console when inserting any cartridge. More suppliers names and phone numbers will be published next month. A new word processor in cartridge form that is compatible with the TI and has a 30,000 word vocabulary will soon be released by Champion thru Cor Comp for \$32. You can do your spell checking while in the editor mode and it is faster. Could this be the beginning of some new interchangeable hardware? The reports are not all in yet but change-out of the 390 ohm resistor has not produced a marked improvement in picture quality.

Well Ed, I hope you had a nice vacation in Florida. But it is time once again to get in harness, besides no one picks on me when you're away. Until next time may the good 4's be with you.

Respectfully submitted,

Frank N. Zic

JUNE TREASURER'S REPORT

JAN TRAYERS

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* 6/1      CASH BALANCE      $ 65.10 *
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*
* 6/16     LIBRARY SALES      18.00 *
*          T.I.SYS. SALES      3.00 *
*          DISK SALES          160.00 *
*          MICROPENDIUMS      + 11.00 *
*          -----
* 6/16     TOTAL PROFITS     $192.00 *
*          CASH ON HAND      + 65.10 *
*          -----
*          TOTAL              $257.10 *
*
*
* 6/22     BANK DEPOSIT      - 200.00 *
*          -----
*          CASH ON HAND      $ 57.10 *
*****
*
*
* 6/1      BANK BALANCE      $522.10 *
*
*
* 6/16     MICROPENDIUMS      - 15.00 *
*          -----
*          507.10 *
*          POSTAGE            - 57.00 *
*          -----
*          450.10 *
*
*
* 6/22     BANK DEPOSIT      + 200.00 *
*          -----
*          BANK BALANCE      $650.10 *
*****
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*
* 6/23     TOTAL MONIES      $707.20 *
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July Meeting.....

Will be held on JULY 21, at the UNITED PRESBYTERIAN CHURCH OF THE COVENANT, corner of Oak and 4th Streets, in Irwin, Pa.

We generally have the doors open (unless they are locked) by 6:45 PM. and the library functions in progress.

The general meeting is at 7:00 PM, followed by demonstrations, and then The SIGS.

TI WRITER ASSEMBLY ADVENTURE
HARDWARE and MORE.

These SIGS generally start at about 8:30 and continue till about 10:30 or 11:00.

We always have the best refreshments during the entire duration of the events listed above. Many feel that this is the best part of the night.

If you can make it, your presence will be much appreciated.

We have more disks. Jan just received an order and you can pick them up at her place, or call her to reserve yours.

Jan Trayers 412 863-1575

Lach McCutcheon has a TI disk controller which according to him has only about 5 Hours on it, for sale. The price is \$50. If you are interested call John Willforth at 412 527-6656.

Scott asked me to announce that the hardware SIG has been receiving a lot of interest lately, and at the June meeting, we installed the Video Display enhancement resistor, and the diode in the keyboard, which removes the contention that exists between the joystick and the keyboard. The demonstrations gave some more confidence to undertake these two mods themselves. That is our goal in the HARDWARE SIG. If you would like to demonstrate something that you have learned, to the HARDWARE SIG, or any other group for that matter contact Scott or myself.

In case I forgot to say it "HAPPY EASTER"

"TIPS FOR BEGINNERS"

-BY FRANK N. ZIC

Here we go together No.-7. Let's talk a little about buying your first, and if done with good foresight, perhaps the only printer you may need to purchase. One of the prime considerations should be to think about your needs for both today and tomorrow. While a printer is practically indispensable for making up catalog listings of filenames to place on your disk jackets, it sure would be nice to do other things too such as graphic print-outs. In other words let's look ahead to all of the features you might later want to use. So, in order to do these graphics you would want your printer to be of the dot-matrices type. Now you can do more things than if your printer was of the daisy-wheel type. The daisy-wheel type of printer, however, does have it's place to give you unmatched letter quality print and interchangeable wheels for special effects. But you would be better off with the more universal responding dot-matrices. One really nice feature you can have on your printer is the NLQ (Near Letter Quality) that will give you surprisingly well formed letters. Another important feature to have is to be able to use tractor feed (perforated feed paper) or friction feed for envelopes and single sheets. The ribbon feed should be of the small spool or reel type that automatically rewinds itself (keeps reversing itself automatically) and is not nearly as expensive to replace as the cartridge type.

While letter quality printers respond at a rate of between 15 to 20 CPS (characters per second), your dot-matric's will be in the neighborhood of 100 to 120 CPS. What is really nice about this faster speed is that with it you can keep up with a 300 baud rate Modem should you want to print out the various screens on a BBS(Bulletin Board Service) as I often do. We shouldn't overlook one of the most important features and that is to have your printer be Epson compatible. This allows your printer to respond to ASII standard codes, allowing it to respond to all the various commands normally used during programing. Such nice things as Condensed, Italic, Super & Subscript, Expanded and others types of printing are all possible with the standard built-in features. Another important item is to have your printer be of the parallel configuration. This permits the fastest printing mode and commands to the printer are the shortest to input.

All of the features listed above, and much more, are standard on my Gemini Star SG-10 and newer models. The number 10 after the SG specifies the width of the carriage and therefore the maximum width of paper that can be handled. The 10 will handle a standard 8 1/2 inch wide sheet (normally listed as 9 1/2 on the large boxes of paper because of the extra 1/2 inch on each side of the paper for the tractor feed holes. So you can see that if you are going to use wider paper, you will have to go into the next size carriage which is specified SG-15. Today it doesn't cost you an arm and a leg to purchase a really fine printer as it did not too many years ago. Wholesale catalogs such as Computer Shopper offer such units for under \$200 on sale. Until next time may the good 4's be with you.

This part will deal with headers, footers, begin a page and include file.

Let's start with headers. If we want to number a page and every page sequentially what you do is type the following at the beginning of your document .HE %<enter>. What this will do is number each page of a multi-page document sequentially putting the number in the upper left hand corner. If you want the number elsewhere at the top of the paper type .HE~~~~~%<enter> and the carets (required space symbols) will put the number of the page the same number of spaces to the right of the left margin as you have carets.

If you want to have a header on the top of each page that is of the same type and says something then type .HE Hello<enter>. Then at the top of each page at the upper left will be the word "Hello". (Of course you could use any statement you want.) You can also "mix them up". Type .HE Hello page%<enter>. (By the way the % sign here means to number sequentially.) And at the top of each page will be "Hello page 1", "Hello page 2" etc. To turn off the header just enter on a separate line .HE<enter>. This will turn off the header.

We can also number at the bottom of a page if we want. Type at the start of your document .FO %<enter> and the numbering will be on the bottom left hand corner. If we type .FO~~~~~%<enter> the number will be moved to the right depending on the number of carets, just like a header. .FO Hello<enter> will print "Hello" on the bottom left of each page.

To make the printer start a new sheet of paper you have two options in the formatter the new page entry in the editor (Control 9) will work both in the text editor and the formatter. For the formatter you could also type, on a line of its own, .BP<enter> and this will cause the printer to stop printing on that page and go to a new page.

The last command I want to discuss is a very powerful command, Include File. If you have a very large document too large for your memory, like a book, just make each chapter a separate file to disk with names like CHAP1, CHAP2, CHAP3, etc. Then make another master document that has all the formatting commands for page length, margins, headers, and each chapter listed in an Include File (.IF) command like so

```
.PL 60<enter>
.RM 70<enter>
.LM 10<enter>
.FI<enter>
.AD<enter>
.HE~~~~~%<enter>
.IF DSK2.CHAP1<enter>
.IF DSK2.CHAP2<enter>
```

etc. The beauty of this is you do not have to do give any formatting caommands with each document it is done with the master document which is the only document that is called when the file name is called for in the formatter. The entire document will be printed out formatted and in the sequence asked for in the master file. You are only limited by the number of disks that you have. Is that not powerful and terrific!

32K ON THE 16 BIT BUS
By - John Clulow
Based upon ideas from Mike Ballmann

The following is a step-by-step description of how to add 64K of RAM memory on the 16 bit bus. The present modification uses only 32K. This corresponds to the memory space of the 32K Memory Expansion. The modification yields a speed increase of about 50%.

Mike Ballmann is currently working on a circuit to allow CRU decoding of the remaining 32K. This will open up a whole new area of software, including such possibilities as a real DOS which could be loaded into RAM from disk on power-up. The 32K modification described below can easily be modified for full decoding upon completion of Mike's work.

You will need two Hitachi HM62256LP-12 RAMs. One source of these is Microprocessors Unlimited. They cost around \$12. You'll also need a 74LS21 and a 74LS153. These can be obtained from various electronics supply houses. All wiring should be done with wire-wrap wire. You should use a low wattage soldering pencil with a fine, pencil type tip.

The modification is done on the main board of the Black Silver console, and you'll need to refer to the Logic Board Component Location Diagram in the TI-99/4A Console Technical Data book.

1) Remove the board from the console, and identify the two ROMs. They are located between the GROM connector and the 9900 IC. One is parallel to the 9900 and the other is perpendicular to it. They are U610 and U611 on the Component Location Diagram.

2) Bend the pins on the HM62256 IC's closer so they will firmly contact the ROM pins when piggy-backed. One way of doing this is to place the RAM on it's side on a table and then move the body of the IC toward the table to bend the pins uniformly.

3) Bend out the following pins on both HM62256 RAMs: 1 2 20 22 23 26 27 28. These pins will NOT be soldered to anything on the ROMs. Holding the IC with the notch up and looking at the top, pin numbers start with pin 1 on the upper left, go down the left side, then across and up the right side. Pin 28 is opposite pin 1 on the end with the notch.

4) Place one HM62256 over the ROM that is parallel to the 9900. Make sure the notch points toward the 9900 and that the writing on the 9900 and the 62256 can be read from the same direction. Place the RAM such that pins 1 2 27 and 28 extend beyond the end of the ROM. The un-notched end of the RAM should line up with the un-notched end of the ROM. There should be a sort of "spring tension" that clamps the RAM pins onto corresponding ROM pins below it. This will help to insure good solder joints. If the RAM doesn't fit tightly, remove it and bend the pins closer.

5) Solder all RAM pins not bent out to the ROM pins below. Use a low wattage pencil with a fine, pencil type tip. Inspect each solder joint carefully in good light, under magnification.

6) Place the second 62256 on the ROM that is perpendicular to the 9900. The notch on the RAM points away from the 9900 and toward the edge of the board. As above, solder and inspect all pins that were not bent out.

7) Bend out the 74LS21 pins 1 2 4 5 6 8 10 12 14. Note that pins 1 and 14 are across from each other on this 14 pin IC.

8) The 74LS21 will be piggy-backed on the 74LS138 U504. This IC is located adjacent to the end of the board where the edge connector is. There are two 138's next to each other. U504 is the one nearest the end of the board. You will place the 74LS21 so that the UN-NOTCHED end lines up with the un-notched end of the 138 (pointing toward the cassette connector). Pins 1 and 16 of the 138 will extend beyond the notched end of the 74LS21.

32K ON THE 16 BIT BUS CONTINUED

9) Before positioning the 74LS21, solder 1/2" lengths of wire-wrap wire to the 138 pins 7 and 9. Then position the 74LS21 on top of the 138 and solder all pins not bent out to the 138 pins below and inspect the connections.

10) Bend out all of the 74LS153 pins EXCEPT 8 and 16.

11) Place the 153 over U613, a 74LS194. The notch will line up with the 194 notch and point toward the edge of the board away from the 9900. Solder pins 8 and 16 of the 153 to pins 8 and 16 of the 194 below.

12) At the end of the 9900 opposite to where the RAM's have been piggy-backed, you will see a line of three ICs. They are a 74LS00, 74LS32, and 74LS04. The 74LS00 is U606 and the 74LS32 is U605. Turn the board upside down so you can see the traces. Find the trace that runs from pin 11 of the 74LS00 (U606) to pin 13 of the 74LS32 (U605). Double check to make sure you're doing the pin numbering correctly. When you've found the trace, cut it with a knife so there is no continuity between the LS00 pin 11 and the LS32 pin 13.

13) Identify the piggy-backed RAM that is perpendicular to the 9900. Solder wire wrap wires connecting every bent out pin on this RAM to the corresponding bent out pin on the RAM that is parallel to the 9900. Pin 1 to pin 1, pin 2 to pin 2, etc. There will be eight wires in all to solder.

14) Solder wire-wrap wires to make the following connections on the RAM that is parallel to the 9900. Pin 1 goes to pin 24 of the 9900 (solder the wire to the 9900 pin on top of the board). Pin 2 goes to the 9900 pin 22. Pin 20 goes to two places. Connect pin 20 of the RAM to pin 22 of the RAM and also to pin 8 (bent out) of the 74LS21. There should be three wires coming off pin 20 of the RAM. Pin 23 of the RAM goes to pin 21 of the 9900. Pin 26 of the RAM goes to 23 of the 9900. Pin 27 of the RAM goes to pin 61 of the 9900 (fourth from the top on the right side). Finally, connect pin 28 of the RAM to pin 20 of the 74LS244 adjacent to the piggy-backed 74LS21.

15) Connect the following 74LS21 pins with a bare wire: 1 2 4 and 14. Connect the short wire from the 138 pin 7 to the LS21 pin 5 (bent out). Connect LS21 pin 6 to LS21 pin 12. Connect LS21 pin 8 (bent out) to the piggy-backed 153 pin 2. Connect the short wire coming from the 138 pin 9 to LS21 pin 10. Finally, connect the 74LS21 pin 14 to the 74LS244 pin 20 that you connected the RAM pin 28 to.

16) OK, we're almost done, so take a break and have a beer.

17) On the 153, connect pin 9 to pin 13 on the 74LS32 (U605). Pin 10 of the 153 goes to pin 14 of the 74LS74 next to it (U607). Also connect pin 10 of the 153 to pins 11 and 13 of the 153. Connect pin 12 of the 153 to pin 15 of the 153, and then connect pin 15 of the 153 to pin 7 of the 74LS00 U612 (next to the 74LS74). Connect pin 14 of the 153 to pin 11 of the 74LS00 U606; that's the one you cut the trace on.

18) That's it! Now have another beer before putting your computer back together. When you try it out, remember that this version isn't compatible with other 32K in the system.

If you have problems with this I can't promise I can help but feel free to give me a call or write EMAIL (419) 874-8838. Ask for John (or Hose-Head.)

DIJIT Systems, the San Diego based company that brought professional quality RGB display to the TI-99/4A, introduced its latest product at the 99/FEST-WEST/87 in Los Angeles: The Advanced Video Processor Card. The AVPC fits into the Peripheral Expansion Box and is compatible with existing TI99/4A software. It features 80 column text and advanced graphics with up to 512 colors. The AVPC also supports Mouse and Light Pen inputs. The DIJIT Systems card contains 192K of video RAM and is designed to work with the "DIJIT-EYEzer", an external Gen-lock and video digitizing accessory. It will allow titling and graphic overlays on home videos as well as computer manipulation of external video images. The DIJIT Systems AVDP gives the TI-99/4A video processing power comparable with the Atari ST and the Amiga. The product is scheduled for release in August for \$195.00. DIJIT Systems 4345 Hortensia Street San Diego, CA. 92103 (619) 295-3301

INSTALLING EXTENDED BASIC INSIDE

YOUR CONSOLE..... John F. Willforth
of West Penn 99

For many of us there has been much frustration over the last several years about the "HANG-UPS" that occur to the TI-99/4A using extended basic, just as the most critical part of a program or game is reached. There are those who would lead you to believe that the power supply has been the culprit in the majority of the console locking in their club. This may have been the problem experienced in the microcosm they are in. I have experienced the problems with inconsistent and noisy D.C. voltages issued from the TI supplies also. A few months ago I ran through 5 straight VDP memory problems in a row, and could have made the statement that most if not all TI console problems will be found to have defective 4116 dynamic ram chips. This would have been absurd! I'm making this statement only to try to reassure you that of all the possible causes for console hangs, the Grom connector/cartridge connection is far and away the most common, and in particular the mating (or lack of) between the Extended Basic and Grom Connector, is the greatest culprit. The purpose of this article is to assist those of you who would like to move the Extended Basic on-board.

----- DO THE FOLLOWING AT YOUR OWN RISK !

PARTS; * 1' ribbon cable (36 lead) or 2 lengths of 25 lead cable

* 1 Extended Basic Cartridge (shell removed)

* 1 Double-pole, single throw slide switch (for enabling/disabling ext.-basic)

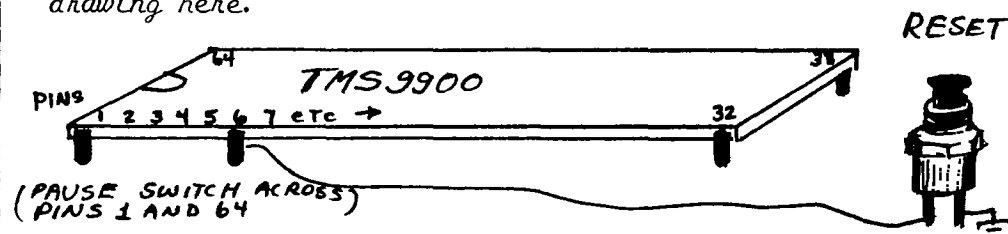
* Solder, iron, wire cutters, etc

I'm not going to get into the details for I feel if by now that you can't remove your CPU from your console, you shouldn't be attempting this. Get someone who can. Remove the Grom Connector from the unit, and attach the ribbon cable to the pins of the rear of the circuit card that the Grom Connector is attached. Attach all but pins 4 and 6 to ribbon cable. 4 and 6 are unused here. Now, keeping the length of the wire to less than 8" attach the other ends of the corresponding wire to the Extended Basic card edge connector lands, remembering the relationship between the two. i.e.; pin 1 must go to pin 1, 2 to pin 2, and so on. (not 4 on 6) Before you attempt any further modification to the machine, reassemble and see if Extended Basic comes up on the menu, and still functions, SIZE, ACCEPT AT, etc. If you are still functional continue.

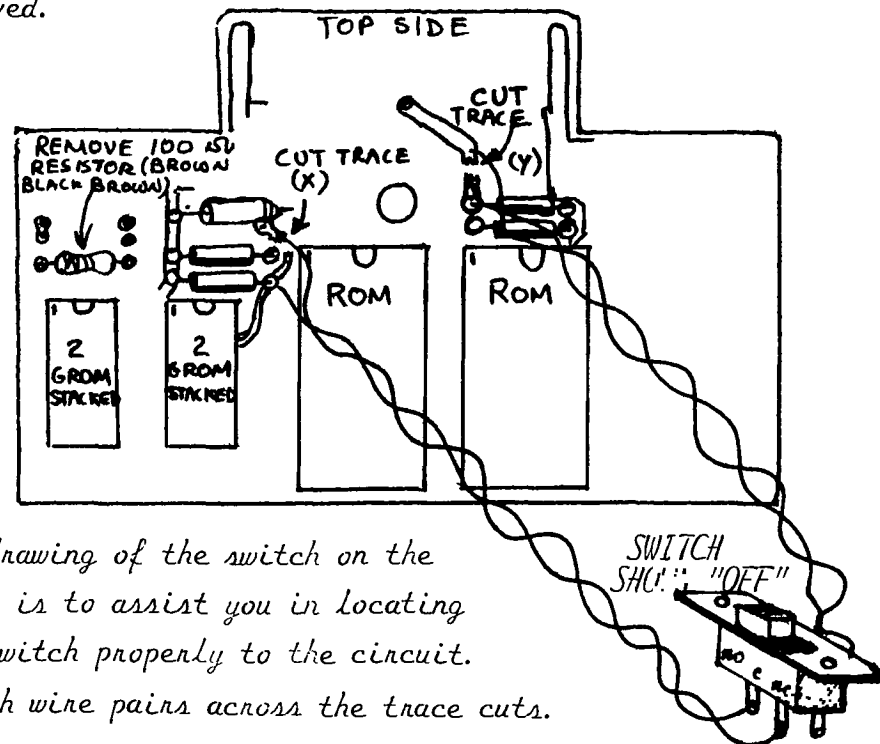
Remove the 100 ohm resistor indicated, and cut the two traces where shown. Now you may solder 4 equal lengths of wire to the switch (not longer than 10" in length). Attach two of the wires across the cut in the trace (x) and the other two across (y), making sure that the pairs are on the same switch pole set. Now, test the results again.

If the extended basic works when the switch is closed, and the cartridge slot will accept cartridges (meaning that a variety of GROM/ROM cartridges will function), when the switch is open, then you're almost home. Mount the switch in a convenient location, and insulate the bottom of the Extended Basic Cartridge and locate on TOP RF SHIELD to left of grom conn. Reassemble. It would also be of benefit to you at this time to install a reset button across pin 6 of the CPU chip and ground. Trust me.

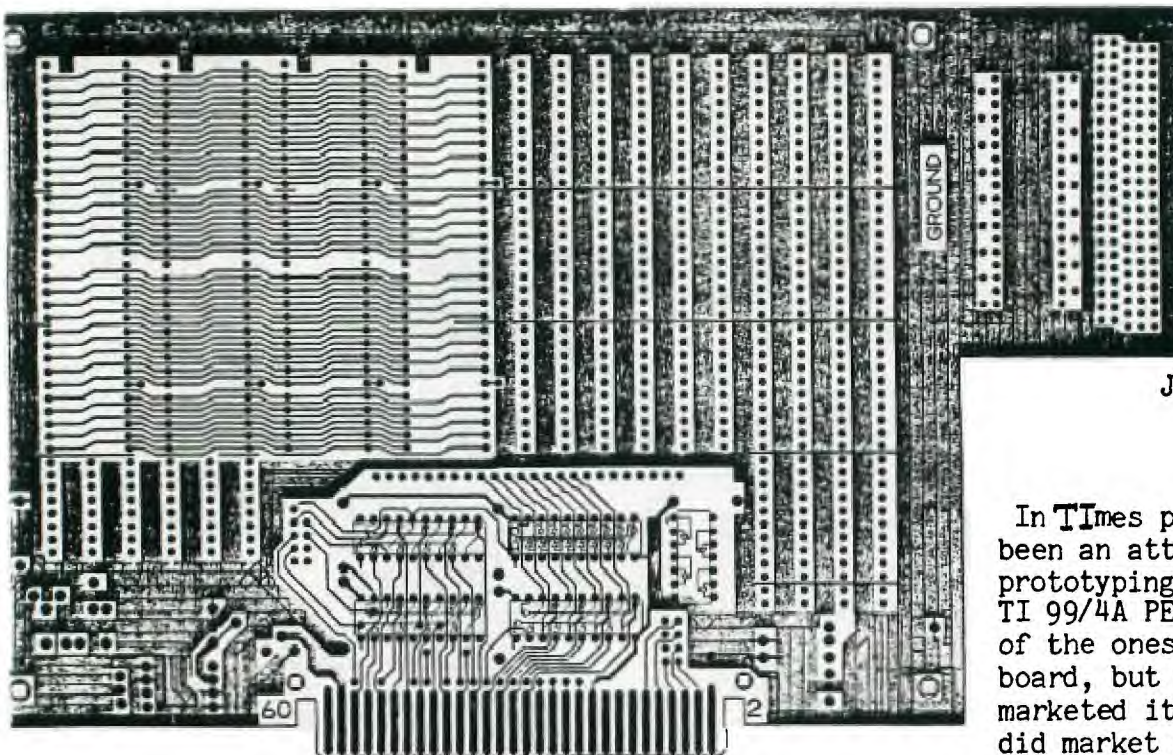
The reset switch will be particularly useful, in that you will now not be able to reset the machine by inserting the Extended Basic cartridge. You may find that without the RESET switch, you will have to turn the console power switch off and then on to begin operation after switching from basic to xbasic on other cartridges. This is an easy option to install with a momentary contact switch across pin 6 on the CPU chip (TMS9900) and ground. Reference drawing here.



The view below is here to help you find the two traces that must be cut, and the 100 ohm resistor that must be removed.



The drawing of the switch on the right is to assist you in locating the switch properly to the circuit. Attach wire pairs across the trace cuts.



PROTO BOARD
FOR PEB

by
John Willforth

In Times past, there has been an attempt to produce prototyping boards for the TI 99/4A PEB. TI was one of the ones who made the board, but never really marketed it. Others who did market it, were not as successful as they would

like to have been. The primary cause of their failure was the methods TI used in marketing the 99/4A, software, and peripherals. No one knew enough about the TI 99 system and internals to write software, let alone design hardware (which would have needed software in order to function). We believe that "Times have changed !".

Above you see a very reduced picture of a new product that Scott Coleman and I are attempting to produce NOW for those who want to do their own prototyping of PEB peripherals, or would like to take advantage of the new projects that have come out recently for the PEB, such as speech on a card in the PEB, 32K memory and Super Cart Memory in the PEB, John Clulo's DSR card for the PEB and others that are just waiting for a place to reside.

This card will not just serve the TI99/4A community, but when the "fire-hose" is removed and a 9640 (GENEVE) is in that old PEB, we have taken the special requirements of the 9640 and it's additional use of some of the sixty pin buss in the bottom of the PEB into consideration, and made it easier for some one developing for that buss to use the same card in that environment.

Scott and I are nearing completion of the design of this card as of this date (6-25-87), and within 10 days we hope to have definite pricing on the manufacture of this board. We will have everything in place to have the units made, and then take orders. So if you are interested, let us know, but don't order until we are ready. I'm not going to say more about this board until it is ready. Wish us luck.

ELECTRONIC PARTS.....

Originally I gathered the parts for the HORIZON RAM disk together myself to build the unit, feeling that there was no way that BUD MILLS could provide these parts for less than I could acquire them, and still make any profit. **" I WAS WRONG ! "** Bud can not only provide these parts down to the battery holder, but he can provide you with many parts for other projects TI related and otherwise. The next time I order parts, it will be from BUD. At least give him a call. 419 385-5946 or write:

BUD MILLS
166 DARTMOUTH DR.
TOLEDO, OH 43614

The kit cost for the RAM DISK (less the board/docs and schematics) is \$110.00. You will have to order the board **FROM:**
HORIZON COMPUTER LTD. BOX 554 WALBRIDGE, OH 43465
\$53. s/h qty 1

MORE SUPPLIERS OF STUFF FOR THE T.I. 99/4A.....
by John F. Willforth

Last month I included 29 listings of suppliers of hardware/software/services for the T.I. 99/4A. This month I'm including 16 more. I'd suggest that you put these together with the rest, and keep them in a place where you can find them.

DataBioTics Inc. P. O. Box 1194 Palos Verdes Estates, CA 90274	Has quite a collection of hardware and software on cartridge and disk for your system. Write to them, I'm sure they will send their catalog to you. (714) 552-1244	
Millers Graphics 1475 W. Cypress Av. San Dimas, CA 91773	Advanced Diagnostics, GK utility, PROM SET for your CORCOMP disk controller, and some excellent games. Write for list of availability. (714) 599-1431	
Nameloc Software 3971 SE Lincoln Portland, OR 97214	I don't know what the offerings are of Nameloc, but that shouldn't keep one who is thirsty for new software, from finding out. Write to them.	
Pilgrims Pride P. O. Box 2 S. Williams Lane Hatboro, PA 19040	A large supplier of software/hardware and misc. items for the T.I., and I've seen their catalog. They are able to supply some things that you will not find in any other catalog. Write them, or call: (215) 441-4262	
Tenex Computer Express P.O. Box 6578 South Bend, IN 46660 (800) 348-2778 to order (219) 259-7051 information	Tex-Comp P. O. Box 33084 Granada Hills, CA 91344 (818) 366-6631	Texaments 53 Center St. Patchogue, NY 11772 (516) 475-3480
Triton Product Company P. O. Box 8123 San Francisco, CA 94128 (800) 227-6900	Mr. Dave Rose 2781 Resor Rd. Fairfield, OH 45014-5053	GENIAL TRAVELER GENIAL COMPUTERWARE 835 Green Valley Drive Philadelphia, PA "A DISK MAGAZINE" 19128
SMART PROGRAMMER % BYTEMASTER 171 Mustang Sulphur, LA 70663 (318) 527-0035 Richard Mitchell	RYTE DATA 210 Mountain St. Haliburton, Ontario KOM 150 (705) 457-2774 Bruce Ryan	MICROpendium P. O. Box 1343 Round Rock, TX 78680 12 issues \$17. (3rd cls) \$22. for 1st Class Mail
ARMADILLO BYTES % Richard & Annie Fleetwood P. O. Box 900921 Dallas, TX 75218 (214) 328-9257 Carry hardware (new/used), software.		Heiner Martin Romerster 93 7900 ULM WEST GERMANY
DOTS-PERFECT for your EPSON FX,JX,RX and MX printers to make your EPSON matrix printer a NEAR LETTER QUALITY (NLQ) printer. Send Myra \$63.00 + \$2.00 S/H and the model of your printer and she'll send you the ROM. MYRA D. WHITE 849 E. Bonita Av. La Verne, CA 91750 (CA. Res. add \$4.10 sales tax). Call after 6PM PST, (714) 592-6897		

The Game Room
 by The Tinman

[illegible]

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1010101010101010101010107F0C0C
0C0C0C0C0C0C0C0C0C0C0C0C0C0F0
)! I
310 CALL CHAR(140,"3F1F1C1C1
C1C1C1F1F1C1C1C1C1C1C3EE0F01
B0B0B0B1BF0E0000000000000000")
)! P
320 REM INITIALIZE
330 B=99999
340 CALL CLEAR
350 CALL SCREEN(6)
360 CALL MAGNIFY(4)
370 RANDOMIZE
380 CALL CHARFAT(58,C#)
390 CALL CHARFAT(37,C#)
400 FOR I=1 TO 13
410 CALL CHARPAT(87+I,C#)
420 CALL CHAR(39+I,C#)
430 NEXT I
440 C$="FFFFFFFFFFFFFFFF"
450 C$="000000000000000000"
460 CALL CHAR(36,C#)
470 CALL CHAR(191,C#)
480 CALL CHAR(190,D#)
490 CALL COLOR(3,2,15)
500 CALL COLOR(4,2,15)
510 CALL COLOR(8,9,15)
520 REM RESTART POINT
530 N=-1
540 FOR I=1 TO 4
550 CALL SPRITE(8(I+9),124+4
81,12,16,32+32*1)
560 NEXT I
570 FOR I=1 TO 13
580 CALL MCHAR(I+7,3,36,13)
590 NEXT I
600 DISPLAY AT(8,15):"GOAL X
ZZZ"
610 DISPLAY AT(9,22):"ZZZ"
620 DISPLAY AT(10,22):"ZZZ"
630 DISPLAY AT(12,15):"PRESS
X [I]"
640 DISPLAY AT(13,22):"[[["
650 DISPLAY AT(14,22):"[[["
660 DISPLAY AT(16,15):"RZRES
ET QZGUIT"
670 DISPLAY AT(18,15):"MOVES
X 0"
680 DISPLAY AT(20,15):"BEST
X"
690 GOSUB 1670
700 FOR I=1 TO 9
710 C1I)=9
720 CALL SPRITE(81,88+411,9,
55+348)INT((I-1)/3),348(1-36)
NT((I-1)/3))-15)
730 NEXT I
740 P=1+INT(98RND)
750 M=7

```

```

760 IF (P=1)+(P=3)+(P=7)+(P=
9) THEN M=10
770 IF (P=5) THEN M=11
780 GOSUB 1340
790 REM MAIN LOOP
800 GOSUB 1440
810 GOSUB 1700
920 ON K GOTO 830,890,940,10
00,1050,1120,1170,1230,1280
830 REM K=1
840 P=1 :: GOSUB 1340
850 P=2 :: GOSUB 1340
860 P=4 :: GOSUB 1340
870 P=5 :: GOSUB 1340
880 GOTO 800
890 REM K=2
900 P=1 :: GOSUB 1340
910 P=2 :: GOSUB 1340
920 P=3 :: GOSUB 1340
930 GOTO 800
940 REM K=3
950 P=2 :: GOSUB 1340
960 P=3 :: GOSUB 1340
970 P=5 :: GOSUB 1340
980 P=6 :: GOSUB 1340
990 GOTO 800
1000 REM K=4
1010 P=1 :: GOSUB 1340
1020 P=4 :: GOSUB 1340
1030 P=7 :: GOSUB 1340
1040 GOTO 800
1050 REM K=5
1060 P=2 :: GOSUB 1340
1070 P=4 :: GOSUB 1340
1080 P=5 :: GOSUB 1340
1090 P=6 :: GOSUB 1340
1100 P=8 :: GOSUB 1340
1110 GOTO 800
1120 REM K=6
1130 P=3 :: GOSUB 1340
1140 P=6 :: GOSUB 1340
1150 P=9 :: GOSUB 1340
1160 GOTO 800
1170 REM K=7
1180 P=4 :: GOSUB 1340
1190 P=5 :: GOSUB 1340
1200 P=7 :: GOSUB 1340
1210 P=8 :: GOSUB 1340
1220 GOTO 800
1230 REM K=8
1240 P=7 :: GOSUB 1340
1250 P=8 :: GOSUB 1340
1260 P=9 :: GOSUB 1340
1270 GOTO 800
1280 REM K=9
1290 P=5 :: GOSUB 1340
1300 P=6 :: GOSUB 1340
1310 P=8 :: GOSUB 1340
1320 P=9 :: GOSUB 1340

```

```

1330 GOTO 800
1340 REM SET COLOR
1350 IF C(P)<9 THEN 1400
1360 C(P)=15
1370 CALL COLOR(8P,15)
1380 CALL MCHAR(12+INT((P-1)/3),23+P-3;INT((P-1)/3),48+P/3)
1390 RETURN
1400 C(P)=9
1410 CALL COLOR(8P,9)
1420 CALL MCHAR(12+INT((P-1)/3),23+P-3;INT((P-1)/3),91)
1430 RETURN
1440 REM CHECK FOR SOLUTION
1450 N=N+1
1460 DISPLAY AT(18,26-LEN(STR(R(N)))):N
1470 IF C(5)<9 THEN 1660
1480 FOR I=1 TO 4
1490 IF C(I)<15 THEN 1660
1500 NEXT I
1510 FOR I=6 TO 9
1520 IF C(I)<15 THEN 1660
1530 NEXT I
1540 B=MIN(B,N)
1550 GOTO 1670
1560 DISPLAY AT(22,3):"SOLUTION !"
1570 DISPLAY AT(23,3):"ONLY "
1580 "N-M:"E(TRA MOVES"
1590 CALL SOUND(500,440,0)
1600 IF S=0 THEN 1590
1610 IF K=81 THEN 1790
1620 IF K<82 THEN 1590
1630 DISPLAY AT(22,1):""
1640 DISPLAY AT(23,1):""
1650 GOTO 520
1660 RETURN
1670 REM BEST SCORE
1680 DISPLAY AT(20,22):SEG#1
1690 " ",1,5-LEN(STR(B));ST
R#(B)
1690 RETURN
1700 REM WAIT FOR KEY
1710 CALL KEYIO(K,S)
1720 IF S=0 THEN 1710
1730 IF K=81 THEN 1790
1740 IF K=82 THEN 520
1750 IF (K(49)+(K(57)) THEN 1710
1760 K=K-48
1770 IF C(K)=9 THEN 1710
1780 RETURN
1790 FE=QUIT
1800 CALL CHARSET
1810 END

```

FLIP FLOP

This little game of "Flip-Flop" will test your patience. When you run the program you will be presented with a square divided into nine small connected squares, one or more of which will be white and the rest red. Your job is to change the colors so that finally you have the center square

red and all the rest white. You do this by pressing the number of any white square and the adjacent colors will flip from white to red or vice-versa. There is a scoring area that keeps track of the number of times you hit the keys and another area that records the shortest time for a player. I did it once in 17 tries but have not come anywhere near that on subsequent games.

The following survey was received by the WEST PENN 99 ER'S rather late, but I feel that it is very much worth your while to fill it out, and mail it to the address that appears below. The survey will be used to provide information to those who might be interested in producing hardware/software to the TI community. It will help to show where the interest lies, what the base for such product really is. Please respond, and DO IT NOW !

If you don't take the few minutes, and I hear you complain next year that there just doesn't seem to be anything new out for the TI, I'm going to ask did you respond to this survey. So you better beware. It will save us both embarrassment if you do it now. J.F.W.

TI-99/4A OWNERS SURVEY

DATE:_____

PLEASE USE A DARK COLORED FELT PEN, THANK-YOU
YOU MUST SELECT ONLY 1 ANSWER, NO EXCEPTIONS.

- A1(2) WHAT IS YOUR SEX? M ___ F ___
A2(5) WHAT IS YOUR AGE GROUP? 17 OR UNDER ___ 18-24 ___ 25-34 ___ 35-44 ___ 45 AND OVER ___
A3(5) HOW MANY YEARS OF EDUCATION? 11 OR LESS ___ 12 ___ 13-15 ___ 16 ___ 17 AND OVER ___
A4(5) YOUR OCCUPATION? STUDENT ___ BLUE COLLAR ___ WHITE COLLAR ___ PROFESSIONAL ___ RETIRED ___
A5(2) DO YOU USE A COMPUTER AT WORK? Y ___ N ___
A6(8) WHICH BRAND? N/A ___ IBM ___ APPLE ___ DEC ___ SPERRY ___ NEC ___ DONT KNOW ___ OTHER ___
A7(3) HOW MANY TI-99/4 OR 4As DO YOU OWN? 1 ___ 2 ___ 3 OR MORE ___
A8(4) HOW MANY PEsystems DO YOU OWN? 0 ___ 1 ___ 2 ___ 3 OR MORE ___
A9(7) WHICH MEMORY EXPANSION DO YOU HAVE? NONE ___ TI ___ CORCOMP ___ FOUNDATION ___ MYARC ___ MECHATRONIC ___ OTHER ___
A10(6) WHAT SIZE? N/A ___ 32K ___ 128K ___ 256K ___ 512K ___ 1024 ___
A11(6) WHICH DISK CONTROLLER CARD DO YOU OWN? NONE ___ TI ___ FOUNDATION ___ MYARC ___ CORCOMP ___ OTHER ___
A12(4) HOW MANY 5-1/4" DISK DRIVES DO YOU OWN? NONE ___ 1 ___ 2 ___ 3 OR MORE ___
A13(5) CONFIGURATION? N/A ___ SS/SD ___ DS/SD ___ DS/DD ___ DS/QD ___
A14(2) DO YOU OWN A HARD DISK SYSTEM? Y ___ N ___
A15(4) WHATS THE SIZE? N/A ___ 10 OR LESS MEG ___ 20 MEG ___ 30 OR MORE MEG ___
A16(2) DO YOU OWN A MODEM? Y ___ N ___
A17(4) INDICATE HIGHEST BAUD RATE? N/A ___ 300 ___ 1200 ___ 2400 ___
A18(10) WHICH PRINTER DO YOU OWN? NONE ___ TI ___ EPSON ___ PROWRITER/NEC ___ OKIDATA/C ITOH ___
STAR MICRONICS ___ COMREX/TOSHIBA ___ BROTHER/CANNON ___ JUKI/CITIZEN ___ OTHER ___
A19(2) DO YOU OWN A MONITOR? Y ___ N ___
A20(2) ARE YOU USING A TV? Y ___ N ___
A21(10) WHICH MONITOR BRAND? N/A ___ TI ___ AMDEK ___ SANYO/TAXAN ___ NEC ___ TATUNG/SAMSUNG ___
MAGNAVOX/SONY ___ EPSON/PRINCETON ___ HITACHI ___ OTHER ___
A22(4) IS YOUR MONITOR? N/A ___ RGB ___ RGB/COMPOSITE ___ MONOCHROME ___
A23(2) DO YOU HAVE THE GRAPH KRAKCRACK? Y ___ N ___
A24(3) HOW MANY SOFTWARE CARTRIDGES (MODULES) DO YOU OWN (INCLUDE CASSETTE) ? 9 OR LESS ___ 10-24 ___ 25 OR MORE ___
A25(3) HOW MANY SOFTWARE DISKS DO YOU OWN? 9 OR LESS ___ 10-24 ___ 25 OR MORE ___
A26(4) HOW DO YOU USE YOUR TI? ENTERTAINMENT ___ BUSINESS ___ EDUCATION ___ PROGRAMMING ___
A27(7) PROGRAMMERS, WHAT DO YOU PROGRAM IN? N/A ___ BASIC ___ XBASIC ___ ASSEMBLY ___ FORTH ___ C ___ OTHER ___
A28(2) EVER WRITE A COMMERCIAL PROGRAM FOR TI (INCLUDE FREEMARE)? Y ___ N ___
A29(7) IN WHAT LANGUAGE? N/A ___ BASIC ___ XBASIC ___ ASSEMBLY ___ FORTH ___ C ___ OTHER ___
A30(2) DO OTHERS USE YOUR TI? Y ___ N ___
A31(4) HOW MANY OTHERS? N/A ___ 1 ___ 2 ___ 3 OR MORE ___
A32(2) DO YOU OWN ANY OTHER BRAND OF COMPUTER? Y ___ N ___
A33(6) IF SO WHICH BRAND? N/A ___ IBM ___ APPLE ___ COMMODORE ___ ATARI ___ OTHER ___
A34(4) APPROXIMATELY HOW MANY HOURS PER WEEK DO YOU USE YOUR TI? 4 OR LESS ___ 5-9 ___ 10-14 ___ 15 OR MORE ___
A35(2) ARE YOU A MEMBER OF A USERS GROUP? Y ___ N ___
A36(8) HOW MANY MEMBERS? N/A ___ UNDER 33 ___ 34-49 ___ 50-74 ___ 75-99 ___ 100-150 ___ 151-199 ___ OVER 200 ___
A37(2) ARE YOU MEMBER OF A COMMERCIAL NETWORK? Y ___ N ___
A38(5) WHICH ONE? N/A ___ COMPUERVE ___ SOURCE ___ GENIE ___ OTHER ___
A39(6) HOW MUCH IN DOLLARS DO YOU USE IT PER MONTH? N/A ___ \$29 OR LESS ___ 30-49 ___ 50-74 ___ 75-99 ___ 100 OR MORE ___
A40(2) DO YOU PLAN TO PURCHASE (OR HAVE) THE MYARC 9640? Y ___ N ___
A41(9) WHAT SOFTWARE AREA YOU WOULD LIKE FOR THE 9640? N/A ___ CAD/GRAPHICS ___ DESK-TOP PUBL ___ DATABASE ___
WORD PROC/MULTIPLAN ___ TRUE BASIC ___ ASSEMBLY ___ C-LANG ___ OTHER LANG ___
A42(8) WHAT ABOUT HARDWARE FOR THE 9640 ? N/A ___ APPLE COMPATIBILITY ___ IBM COMPATIBILITY ___ RGB MONITOR ___ 3.5" MICRO
DISKETTE ___ CD ROM ___ SPEECH RECOGNITION ___ INTELLIGENT MODEM ___
A43(2) DO YOU PLAN TO PURCHASE (OR HAVE) TRITONS TURBO XT? Y ___ N ___
A44(8) HOW MANY EXTRAS DID YOU BUY WITH THE TURBO-XT? N/A ___ 1 ___ 2 ___ 3 ___ 4 ___ 5 ___ 6 ___ 7 ___
A45(2) WOULD YOU LIKE AN 'AT' UPDATE FOR THE TURBO-XT? Y ___ N ___
A46(3) HAVE YOU PLANS TO PURCHASE CARDS BY OTHER VENDORS? Y ___ N ___
A47(2) DO YOU PLAN TO PURCHASE (OR HAVE) RADES KEYBOARD? Y ___ N ___
A48(2) DO YOU PLAN TO PURCHASE (OR HAVE) A MOUSE? Y ___ N ___
A49(2) DO YOU SUBSCRIBE TO: MICROPENDIUM Y ___ N ___
A50(2) DO YOU SUBSCRIBE TO: SMART PROGRAMMER Y ___ N ___
A51(2) DO YOU SUBSCRIBE TO: COMPUTER SHOPPER Y ___ N ___
A52(2) DO YOU SUBSCRIBE TO: GENIAL TRAVELER Y ___ N ___
A53(2) DO YOU SUBSCRIBE TO: UG PUBLICATIONS Y ___ N ___
A54(5) WHAT IS YOUR OPINION OF THIS SURVEY? VERY POOR ___ POOR ___ OK ___ GOOD ___ VERY GOOD ___

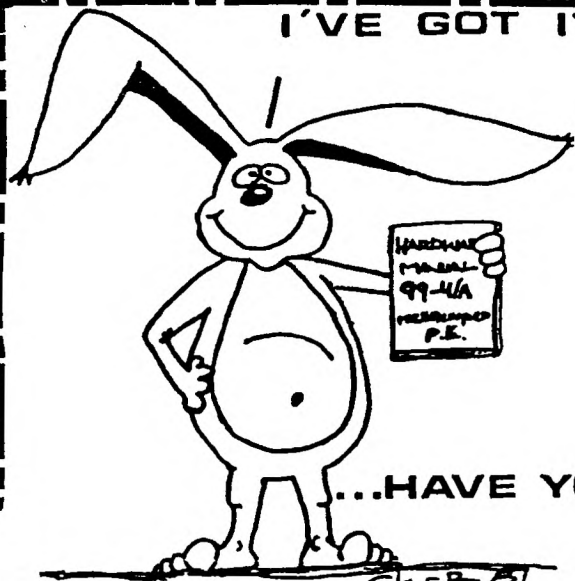
A6(3) THE NEXT 2 QUESTIONS ARE DEMOGRAPHIC. IF YOU ARE IN USA OR CANADA WHAT IS YOUR TELEPHONE AREA CODE. ALL OTHERS ENTER CITY: _____

Z6(3) IF YOU ARE IN USA OR CANADA PLEASE ENTER YOUR ZIP CODE. ALL OTHERS ENTER COUNTRY: _____

FOR COMMENTS, PLEASE WRITE A BRIEF LETTER & ENCLOSE IT WITH THE SURVEY.
IF YOU WANT: SEND YOUR NAME & ADDRESS ON THE OTHER SIDE OF THIS FORM.

MAIL TO: ALI ULGEN ATTN: SURVEY 952 E PARKHAVEN DR SEVEN HILLS OH 44131-3918 [Dn; SURVEY Fn; S/TI].

I'VE GOT IT!...



...HAVE YOU?

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I've received a copy from Mr. Bunyard, and it is an outstanding manual, produced by a man who has the deepest knowledge of the TI SYSTEM. The manual will be offered at the July meeting as a prize. We are taking orders for the above, in order to get a bulk purchase, so if you would like to get one contact Scott Coleman or myself and submit your \$15.00, we will take care of the rest only if you pick up your copy at the meeting, there will be an additional charge for mailing if you can't get to the meeting. Scott...412 271-6283, John....412 527-6656

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July Issue, 1987



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