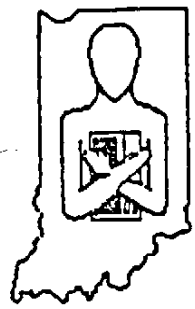

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December 1990 The HUGgers Newsletter Volume 9, Number 10

Officers Corner,
By Dan Eicher

Charles Good of the Lima TI Users Group is sending a package of unreleased TI games, as far as TI is concerned - these games do not exist. I will be demonstrating these programs at the meeting, afterwards they will be available for adding to your library. The next meeting will be Sunday, December 9 at Saint Anns School.

I have put together several hacks and have created a module that is for me handy to use on both my TI system with a GRAM device and my Geneve. This module incorporates both Triton Super extended basic and TI's editor assembler all on e menu. I have also edit the Super XB Cartridge so that the break key in extended basic work on a Geneve. TI told us never to use direct keyboard access, but instead use the assembler utility Kscan (this was to insure future portability of programming code), well guess what they did in the extended basic module? Thats right - direct keyboard access, fortunatly the modification that Mike Dodd came up with works on both the Genve and TI's. If you own both modules you may copy this duel modified module at the meeting.

I have been paging through old newsletters and came upon four TIps:

1. If you have a program that uses a lot of CALL SAY you can speed things up considerably by using call loads. Here is an example

   ```
   10 A=-27648
   20 CALL LOAD(A,70,A,65,A,72,A,70,A,64,A,80)
   ```

   This does the same thing as CALL SAY("#THAT IS INCORRECT#")

2. Have you ever wanted to print line numbers with a document your editing with TI writer? Here is the command to go just that PF <ENTER> then L PIO. <ENTER>.

3. Mike McCann is giving up on the Geneve market, probably the TI market also.... If you are having problems with getting IPA to print with the most current versions of MDOS, pull out your sector editors .. here is the fix:

   Find the following hex string 2A6C 1F00 2A88
   and change it to 2A6C 9F80 2A88.
   This patch is thanks to Mike McCann.

4. If you have ever used LOGO you may have noticed after you type bye, the turtle wishes you a good day. At this point most people hit FCTN =, but if you wait about 30 seconds the computer returns to the title screen on its own!

5. Under certain conditions Version 8.14 of ROS will display a message of "Gotcha" and erase all some files. This is not an attempt by the programer to "Get You", it was an internal message he put in while debugging the code, apparently that problem did not get fixed correctly. I think in the future Gary will be a little more careful with error messages, since Bud Mills has already received several angry calls.

Remember, elections are going to be here real soon, the current group of officers are ready to retire. I am going back to school in January to work towards an MBA degree so my time will be VERY limited. I will finish this term, but the amount of time I can give to the group afterwards will be somewhat restricted.

Walter Farmer has found a source of color composite monitors for 80 dollars in quanity, if you would be interested please bring cash money to the meeting. This is a great price and there are many use for these types of monitor besides computing, like a second output from your VCR or camcorder.

Late Breaking News: I have just received Funnelweb version 4.31, this has many improvements over the old 4.21! The new 80 column disk review completely intergrates all disk and menuing functions on one screen with the ability to select any option with either and arrow key or a single key stroke. Other goodies for 80-column users is the ability to view Myart files, normally when you are in disk review you cursor down to a Dis/Var file that you would like to be viewed on the screen and press V for review, if you have cursored over a Myart drawing file and press V, the picture will be displayed for you viewing --- Pretty neat! Many hidden improvements have been add (as always) an example .. if Fweb detects a horizon ram disk ros of 8.xx it will use fast Ramdisk to CPU memory transfer, thus saving time by bypassing the VDP buffers. The number for TM direct marketing is 1-800-336-9966, this is the outfit that took over the remander of Tritons TI bussiness. Hope to see YOU at the next meeting.

I wish you and your family a warm and safe holidays.

T.I.'S "COMPACT COMPUTER 40" AND IMPORTANT PERIPHERALS ARE ALIVE AND WELL

by Charles Good
Lima Ohio User Group

The CC40 was, in early 1983, T.I.'s first and maybe only entry into the laptop computer market. It is battery powered. Anything entered into the CC40's RAM stays there even after the computer is turned off. Four alkaline AA cells are said to provide enough power for 200 hours of operation and many more hours of "computer off" time. The CC40 can also be powered with an AC adapter.

I had long assumed that the CC40 was abandoned by T.I. a few months after its introduction, even before BLACK FRIDAY, and that the CC40 and its Hex Bus peripherals were no longer available except sometimes as used items. I also was under the impression that since T.I. never sold the promised WAFERTAPE DIGITAL DRIVE, there was no way to save data or programs typed into the CC40 into permanent magnetic media such as a disk or cassette tape. After watching Gary Taylor's CC40 presentation at the recent 1990 Lima MUG Conference I discovered how wrong I was! The CC40 is no longer available directly from T.I., but you get one NEW from L.L. Conner Enterprise. Important HEX BUS peripherals and useful CC40 software are available NEW directly from T.I. and from various dealers.

When it was introduced in 1983 the CC40 had a list price of $250. I recently paid $95 for my new CC40. For an extra $25 I had dealer installation by L.L. Conner Enterprise of the necessary chips to bring the CC40's internal RAM to the maximum 18K, up from the 6K RAM that the CC40 normally comes with. This extra memory increases the CC40's internal buffer capacity to around five text pages (up from one text page) when using the MEMO PROCESSOR word processing software cartridge. Although T.I. never released its WAFERTAPE DRIVE, it turns out that MECHATRONIC made a small "QUICK DISK" disk drive for the CC40. MECHATRONIC is no longer in business, but you can still buy one of these drives NEW, with a dealer warranty, for $110 from T.A.P.E. of Ontario California. No controler cards or other hardware are needed to hook this small drive directly to the CC40. The original printing device made by T.I. for the CC40 prints on rolls of adding machine paper. This HEX BUS PRINTER PLOTTER prints in 4 colors and two font sizes. Its main limitation is the width of the paper it uses. This device is still available new from dealers. What I didn't know before Gary Taylor's presentation was that T.I. also made a battery (or AC adapter) powered 80 column HEX BUS printer called the "PRINTER 80". This printer uses small ribbon cartidges to print on ordinary 8.5 inch wide typing paper or can print on rolls of 8.5 inch wide FAX paper without the ribbon cartridge. T.I. will be glad to sell you one of these printers NEW for $70. That's right folks, a new 80 column printer for only $70! What you are reading now [in the hardcopy of the Sept. '90 issue of the Lima UG newsletter] has been printed on a PRINTER 80. As with the MECHATRONIC disk drive, no additional hardware is needed to connect this printer directly to the CC40 and print documents. No, you can't easily use this inexpensive printer with the 99/4A. The MEMO PROCESSOR word processing cartridge is still available new directly from T.I. for $20. Thus, for $320 + tax and shipping (since T.I. is registered to conduct business in most states, T.I. will charge you local sales tax even if you purchase T.I. products mail order from Texas) you can purchase a small, complete, portable (capable of battery operation except for the disk drive), word processing and printing package that includes a very powerful computer. The portability of such a system is illustrated by the fact that I am typing part of this article with the CC40 sitting in my lap while on an overnight Cub Scout camping trip with my 9 year old son.

Why am I writing this article for publication in a newsletter devoted to the T.I. 99/4A home computer? The CC40 uses a different microprocessor than the 99/4A, with a different assembly language instruction set. However the editor assembler manual of the CC40 describes how to convert CC40 assembly code so that it can be understood by the 99/4A microprocessor, and T.I. once made a hardware device that does just that! If I had the rare and never officially released 99/4A HEX BUS INTERFACE, I could load this article or any CC40 program or file from my CC40 into my 99/4A for display on a monitor and processing with Funnelweb or T.I. Extended BASIC. The back of the box that contained my gray plastic 99/4A has a nice picture of this HEX BUS INTERFACE connected to a 99/4A console. Don't I wish! If anyone reading this article has one of these interfaces they are willing to sell me, PLEASE let me know. In this series of articles I will first describe the CC40 and then go on to describe the 80 column printer, the MECHATRONIC "QUICK DISK" drive, the printer plotter, the wafertape drive, and word processing using MEMO PROCESSOR, all of which I own.

The CC40 measures about 9x6x1 inches, the size of a small textbook. It uses a 2.5MHz TMS70C20 8-bit processor and has 34K of ROM and 6K (expandable to 18K internally) CMOS RAM. The RAM can be expanded beyond 18K up to 34K with a plug in 16K memory expansion cartidge. The ROM includes a very powerful "Enhanced BASIC" which is quite similar to TI Extended BASIC for the 99/4A. Both upper and true lower case letters (not just small upper case letters) a provided. Error and system messages can be displayed in either English or German.

I have no idea what the "40" in CC40 refers to, certainly not the CC40's display. The LCD display shows 31 characters of a single 80 character line. You can scroll or window left/right to view the entire line. Four dedicated cursor keys allow you to scroll up/down to view other lines or left/right within a line of text or program code. The LCD display includes special indicators for such things as low battery, the status of the shift function and control keys, upper case lock, and special math functions. Some LCD display indicators are user programmable. A control on the left side of the CC40 regulates the contrast (intensity) of the LCD display.

The CC40's keyboard consists of chicklet keys. Alpha numeric keys are arranged in a 44 key qwerty typewriter layout with number keys on the top row, looking very similar to the 99/4A key arrangement. No, you can't easily touch type. The alpha keys are just too close together. One finger pecking is the usual method of laptop data entry while holding the CC40 steady with your other hand. It is usually not ever necessary to press two keys at once. For those features such as one time capital letters that require the use of the SPACE, FN (function), or CTL (control) keys, you press the special key first and an indicator on the LCD display turns on. You then press the second key (for instance SHIFT and then D to display an upper case "D", or FN and then ~ for insert), and the special LCD display indicator turns off. A separate numeric keypad is to the right of the qwerty alphanumeric keys. The number keys on the top row of the qwerty layout are duplicated in this keypad. Special keys ar included for cursor movement (4 dedicated keys), BREAK, RUN, ON, OFF, and reset.

The BASIC that comes as standard equipment on the CC40 closely resembles T.I. Extended BASIC, but lacks most of the T.I.'s graphic, color, and sound features. There are no sprites and only one kind of programmable BEEP. Multi line statements up to 80 characters in length are supported, as are user defined subprograms with variables independent of the main program. Seven, and only seven characters (ASCII 0-6), can be user defined with CALL CHAR on a 5x8 pixel grid. CALL's relating to assembly code include POKE, LOAD (an assembly subprogram from an external device), PEEK, and EXEC (starts an assembly language program). Two dimensional arrays are supported.

Typing BASIC code into the CC40 is made easier with automatic line numbers (NUM) as in TI Extended BASIC. DELETE will delete one line number or a specified group of line numbers from the middle of a BASIC program. You can type the words for BASIC functions and commands with the alpha keys one letter at a time. Many BASIC commands and functions can also be displayed on screen by pressing only 1 or 2 keys. A plastic keyboard overlay that comes with the CC40 shows these special keypresses, most of which involve pressing the CTL or FN key followed by anpther key.

A particularly powerful feature you can access from command mode or from a running BASIC program is CALL DEBUG, which brings up a built in assembly language monitor and memory manager. This is designed to be used with the CC40's Editor Assembler Module, but can be used by itself. When in the DEBUG monitor you can display, modify, or copy any memory in hex. You can also change the microprocessor's program counter, stack pointer, and status register. You can set break points, single step through assembly code, start execution at a given address, and control paging in and out of system ROM and cartridge ROM. DEBUG is very powerful, and it is built into the CC40 for use whenever needed.

User defined hot keys can be set up, and remain in battery backed memory even after the CC40 is turned off. FN + 1-9 are the potential hot keys. These can, for example, be set up for commonly entered BASIC code, number sequences used in math calculations, or short text memos such as names and addresses.

You can use the CC40 as a scientific calculator by typing in your calculations directly rather than writing a BASIC program to do the calculations. The separate numeric keypad makes data entry easy. You can type in a string of calculations up to 80 characters long, press <enter> to display the answer, and then use the displayed answer as the starting point for more calculations. Or, when an answer is displayed you can press PLAYBACK (FN/up arrow) to redisplay the calculation that gave the answer. Calculation accuracy is 13 significant figures, with 10 significant figures usually showing on the CC40's display. Scientific notation is supported, allowing the CC40 to deal with numbers as small as +/-1E-128 or as large as +/-9.9999999999999E+127. PI, SQR, any other power or root, log (base 10, and base E), sine, cosine, tangent, arcsine, arccosine, and arctangent are all supported with special keypresses. Angles are calculated in either degrees, radians, or grads. A special indicator on the LCD display (DEG, RAD, or GRAD) shows which kind of angle is in effect. RAD is the powerup default. You could easily spend $30 for a hand held scientific calculator, and you would still not have a 31 column display or a scrolling 80 column data field. For a few more dollars you can have a new CC40, which is a real programmable computer and not just a calculator.

A modern product, almost the same physical size as the CC40, is described in the June 1990 issue of CONSUMER REPORTS. The ATARI PORTFOLIO computer has 128K RAM, built in word processing, spreadsheet, and address book software, and can be used as a sophisticated calculator. Unlike the CC40, the PORTFOLIO is not user programmable in BASIC. It only runs its built in software. The display shows eight 40 column lines. Batteries are good for only 39 hours of powerup time. Commenting on the typewriter like keyboard with no numeric keypad, CU says: "Touch typists will be reduced to hunt and peck- good enough for spreadsheets perhaps, but not for writing anything longer than a note." Price? -$400 plus $50 for a printer interface. It seems to me that the much cheaper CC40 is in most respects comparable to or better than the ATARI computer. CU recommends a regular laptop computer over the ATARI PORTFOLIO. CU says, "We've seen some advertised for less than $600." Comparing price and features makes the CC40 looks like a good bargain.

Sources of hardware and software: Phone first to check shipping charges and product availability.

L.L. Conner Enterprise
1521 Ferry St. Lafayette Indiana 47904
Phone 317-742-8146
A source of new and used CC40s, Hex Bus peripherals, and cartridge software. They will upgrade CC40s from 6K up to 18K of internal RAM.

T.A.P.E.
1439 Solano Place, Ontario California 91764, U.S.A.
Phone 714-989-9906
This is the only source for new MECHATRONICS disk drives for the CC40. This device is the only readily available mass storage device for the CC40.

T.I. Accessory Department
P.O. Box 53, Lubbock Texas, 79408.
Phone 806-747-1882
You should probably phone before ordering in order to get the correct part number. T.I. accepts credit card orders over this phone line. The following are available new for the CC40:
AC adapter, model AC9401, output 6V, 1A. $18.95. This can be used to power the CC40 or most of the other the Hex Bus peripherals including the MECHATRONICS drive and the PRINTER 80.
Book: LEARN BASIC: A GUIDE TO PROGRAMMING THE TEXAS INSTRUMENTS COMPACT COMPUTER. This is for beginners. The CC40 comes with an extensive user's guide that explains the CC40's BASIC. Price $10.
16K RAM expansion- $40. This cartridge contains RAM that can be added to the CC40's internal RAM to provide up to 32K total RAM.
8K constant RAM- $30. This battery backed cartridge is sort of like the 99/4A's MINI MEMORY in that you can save programs or data to this cartridge and then remove the cartridge from the CC40. It is an alternative to a mass storage device.
PRINTER 80 full width Hex Bus printer- $70
Pascal cartridge- $20. Comes with extensive documentation.
MEMO PROCESSOR word processing- terminal emulator cartridge- $20.
FINANCE software cartridge- $20
ADVANCED ELECTRICAL ENGINEERING software cartridge- $20
STATISTICS software cartridge- $20
MATH software cartridge- $20
GAMES 1 software cartridge- $20

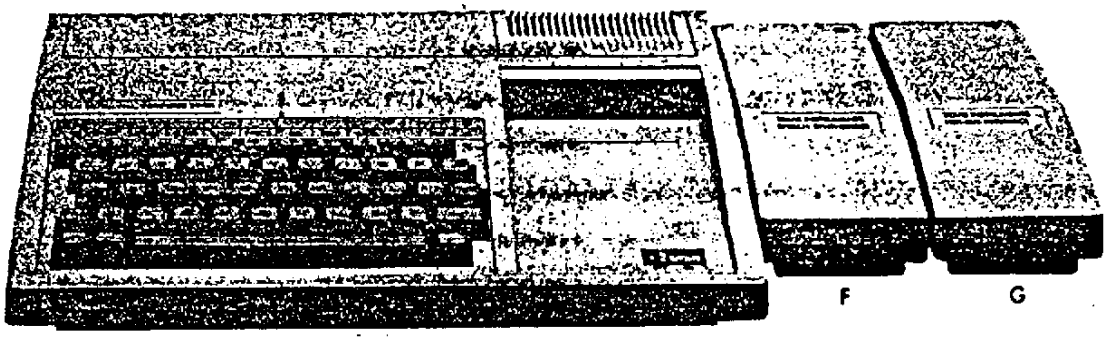
Jim Lesher
722 Huntley
Dallas TX 75214
214-821-9274
A nice selection of used CC40s, HexBus peripherals, and rare documentation.

WHAT HAPPENED TO TRITON?

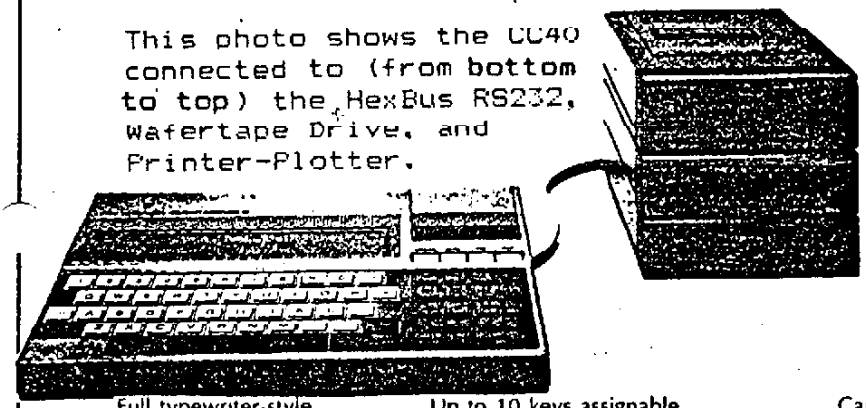
With X-mas coming up, many of you have probably thought of calling up Triton to order some more cheap TI cartridges to keep the kids busy! Well Triton hasn't put out a catalog in a very long time..... Triton has decided to get out of the TI business. The reminder of Tritons TI inventory has been sold to a former owner and co-founder of Triton - Terry Miller. The following is from a press release that was circulated in Chicago "I am exremely excited that I am going to be able to continue the strong relationship built with TI-99/4A users over the last 5 years," said Miller. "A computer as good as the **TI-99/4A** is and users as loyal as TI owners are, deserve great support and that's what TM D.M.P. is going to give them." The new companys name is TM Direct Product Marketing. Their phone number is 1-800-336 999.

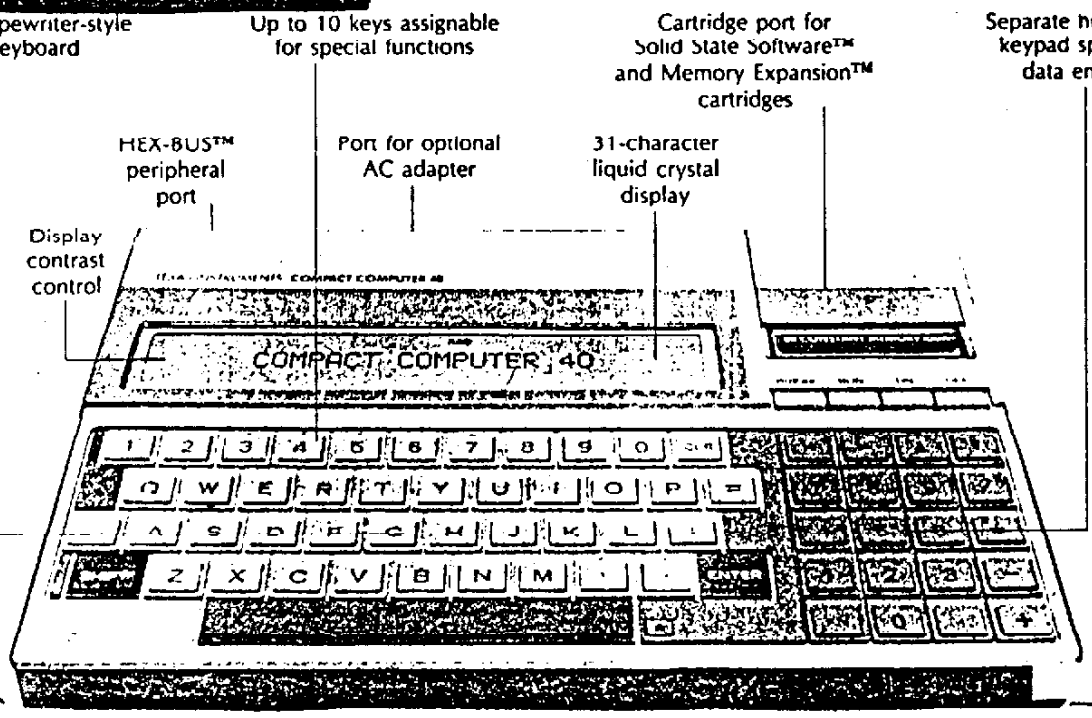
TM Direct Product Marketing
379 Beach Road
Burlington, California 94010

The photograph immediately below is reproduced from a box that contained a gray console. The box says "copyright 1983". "F" is a cosmetically redesigned speech synthesizer. "G" is the never released HexBus interface that allows 99/4A's to use (OLD, SAVE, PRINT#, etc.) all the HexBus peripherals.



This photo shows the CC40 connected to (from bottom to top) the HexBus RS232, Wafertape Drive, and Printer-Plotter.





These changes are recommended for ALL HORIZON RAMDISKS and are compatible for use with the TI99/4a or Geneve. These changes are already part of the 3000 Cards

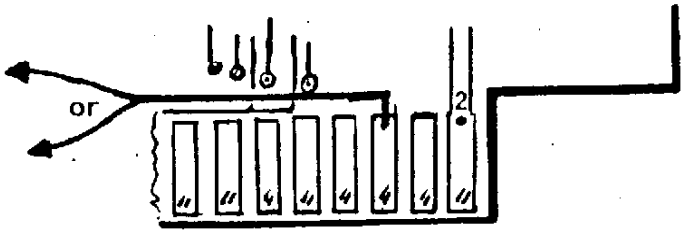
1. RESET on power-up

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

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

HORIZON serial numbers below 100:
Remove C8, CR2 and R2. Connect wire to front (or left) hole of C8 location.

HORIZON serial numbers above 100:
Remove C1, CR3 and R5. Connect wire to + (positive) side of C1 location.



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

2. DISABLE SWITCH

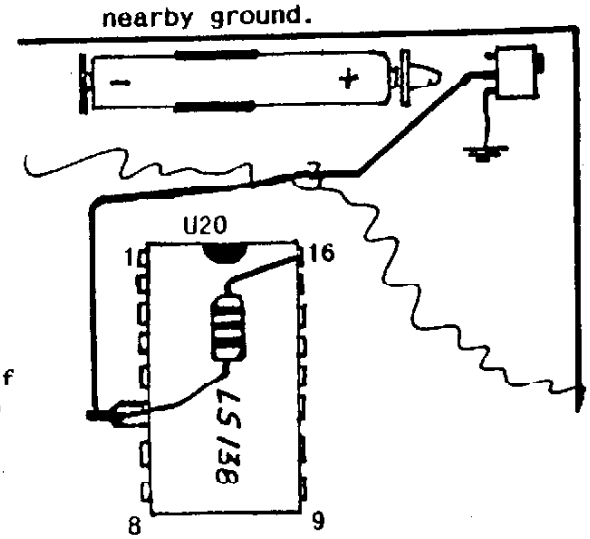
This modification provides a method to turn off (or hide) the HORIZON from the rest of the system. This switch allows you to turn off the ramdisk in the event of a system crash when the computer locks up. With the card turned off, you can power up the console and PE-Box, turn the card back on and proceed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

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

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

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

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



DEAD OR WOUNDED TI EQUIPMENT?
by Dan Eicher

I recently had a T.I. brand Rs-232 go belly up (with a little help from me). Upon calling 1-800-TI-CARES I got the dope on the price and what you needed to do to get T.I. equipment repaired.

The price structure is:

Console	45.00
32K Memory Expansion	44.00
Disk Controller	44.00
RS-232	33.00
P-Box	70.00

I think the P-Box an Interface cable can be sent in seperate, if you no which item is defective. I belive if you do this the price is more like P-Box 50.00 and Interface cable 25.00, but please check!

Plus six dollars for each item for shipping and handleing.

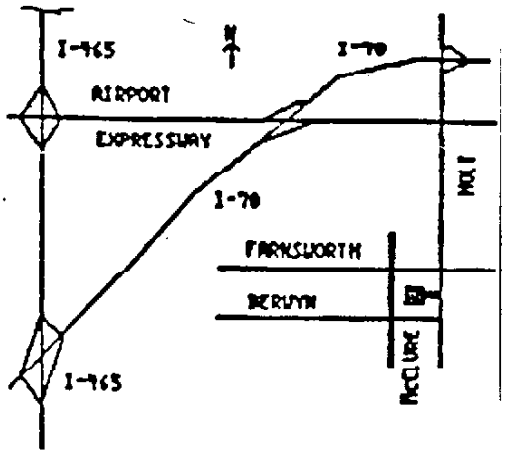
Mail each broken item with a check and a short description of the problem to:

Texas Instruments, Inc.
2305 North University Ave
Lubbock, Texas 79408

These prices are rediculously CHEAP, if you had a clone you would have to pay upward of 80 dollars and hour for someone to even look at a card, with a minimum of one hour time....that price would not include parts. Remember TI only works on the equipment they manufactured. My advice is...if you have any dead TI equipment send it in to be fixed before this service is discontinued, because at the prevailling rate, TI must be losing a fortune.

BBS
Hoosier Users Group
Baud rate 300,1200 & 2400
On Line 24 Hours Daily
782-994A

Now with a Hard Drive
on an experimental basis
courtesy of Gary McQuade



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TREASURER..GARY McQUADE	888-5654
LIBRARIAN..BRYANT PEDIGO	255-7381

TIME DATED
December 9
MATERIAL

A91/10

Dan H. Eicher
P.O.Box 605
Mooresville, IN 46158

APPLICATION FOR MEMBERSHIP

Below you will find an application for membership to the Hoosier Users Group. Active membership entitles you to the Newsletter, up and download on the HUGbbs, attendance and voting rights at regular club meetings, access to the HUGger Library of Programs, special club activities and special guest speakers for one year.

Make check or money order payable to **Hoosier Users Group.** Send completed application to:

HOOSIER USERS GROUP
P.O. Box 2222
Indianapolis, IN 46206-2222

(Cut on dotted line)

Check One:

Active Member

New: $20 ____
Renewal: *$17* ____

Amount Enclosed: $ ____

Name: _____ Today's Date: _____

Address: _____ Apt. # _____

City: _____ State: _____ Zip: _____

Phone: (____) _____-_____

Interests/Comments: _____

_____