

NEW HAMPSHIRE 99'ERS  
 AUGUST 1985  
 NEWSLETTER



NH99UG NEWSLETTER - PO BOX 5991 - MANCHESTER, NH 03108 -

VOL.3 NO.8

<<<LAST MINUTES>>>

President Curtis Provance opened the July 31 meeting with a discussion of the up-coming North East Computer Faire. Once our commitment is made, we are obligated to \$43 electricity charge and to staff the booth 10-6 for the four days (Sept. 26-29). The group voted to participate as long as an adequate number of members sign up to help run the booth.

Helene reminded everyone that the club has several items available on loan to members: back issues of Home Computer Magazine, the Diagnostic module, Financial Analysis book, and exchange newsletters (very informative!) in monthly packets.

Curtis pointed out that some 18 members are overdue in their annual dues, a factor which contributes adversely to the club treasury's balance. He also urged members to take advantage of the clubs disk library which has many many disks (and some tapes) of public domain and freeware programs for a very small distribution fee. (Some clubs charge \$10 per program or disk for what our members pay only \$2-\$5!)

Richard Bailey then presented a very entertaining demo of Graphx, the drawing program from Australia. He showed how he has drawn up schematics using components saved on the "clipboard". (Congratulations, Richard, on your contract offer for specialized clipboards!) He then demonstrated some of the other features, including the screens and pre-drawn clipboards that either accompany the purchase or are available through the club library. See Helene if you're interested in purchasing this fine program. Our group rate of five or more orders nets us a substantial discount off the \$50 price tag! Minimum configuration is 32K expansion, one disk drive, joystick, and Epson-compatible printer (other printer configurations are "in the works"). Specify Mini-Mea, Editor Assembler, or Extended Basic version when you order.



NEW  
 AT  
 THE  
 99'S

Richard also demonstrated his pepped-up PE box which features a QUIET fan and a modem with "auto-dial" feature to numbers entered from the keyboard. We also enjoyed his Editor Assembler which featured "Rabbit Trails" in its added 8K RAM backed up by a lithium battery (instructions by Richard to follow). Richard credited this idea to John Clulow et al of the New Horizons User Group.

Curtis demonstrated a new method to load printer codes in Multiplan files, using a file of the printer codes which are accessed via External Copy. An optional method of using a dummy character in the Multiplan file then using "Disk-0" or similar utility to convert the dummy character into the printer code was also explained. (Disk-E may be obtained through the club disk library). He also explained that he'd modified Multiplan to default to the second disk drive for transfer options without having to make the change each time Multiplan is used. He has also fixed his TI-Writer to load the formatter via the interrupt switch after text has been saved in the editor mode.

Helene demonstrated the modifications needed to convert from one drive to a two drive system (the installation of a termination resistor pack and DIP switch). This combination of techniques has been gleaned from several sources, providing a tried-and-true method of expansion that even a beginner can accomplish. (If I can do it, anyone can! -ER) (Instructions in this newsletter.)

Helene also announced that while you may have found the 800-TI-CARES number disconnected, this is not permanent but merely a "technical difficulty"; they are "still in business." Helene also informed us that the supposedly "new computer" mentioned on pg.2 of the July newsletter is really 99/4A and Corcomp cards disguised in an IBM enclosure. What next! Next meeting will be August 28 at Pablo's -- see you there!



TELECOMPUTING PART 3  
CONNECTING TO THE SERVICES  
by Phil Chouinard



I've been able to try two of the computer information services we've all heard about, THE SOURCE and COMPUSERVE. I first tried Compuserve with a friend over a year ago and it looked like it was the thing of the future. We were able to get a couple of real nice programs from the public domain area and they were really professionally done. Then with the same friend I tried The Source.

The Source has been going through all kinds of changes. Texnet has been rewritten the TI section didn't seem to have very much activity. There wasn't much available in public domain but we were able to buy a couple of nice programs in a software store section. I have to say I was disappointed and began to realize exactly what I wanted out of a CIS. I wanted hard to get information, solutions to problems, interaction with other TI users to find out what software is good and what is not. This is a lot like the club. But nation wide has real possibilities.

Compuserve was a pleasant surprise. I had not been on the system for nearly 8 months and what I found was unbelievable. The TI activity was great. In a little over a year there has been 40000 messages written in the message area. While I read some messages, that gave me some good information, a dozen more were written. The best part about the system is the activity and the TI section is hopping. Micropendium magazine is now online in the TI section. The TI section has a group of experts to answer most of your questions. They have solved some of the biggest problems we have faced.

One such problem is terminal software. TE2 has protocols that are only compatible with TE2. This left us outside looking in when it came to file transfers and such with other types of computers. Compuserve had the same problem so they created a subroutine to handle TE2 protocols. Paul Charlton has written a new terminal program called FAST-TERM which I think can solve most of our terminal problems. Fast term can use either TE2 or XMODEM protocols. XMODEM is much more wide spread, we can now save a program on a Radio Shack or Commodore 64 using this program. This is important when we are interested in local bulletin boards.

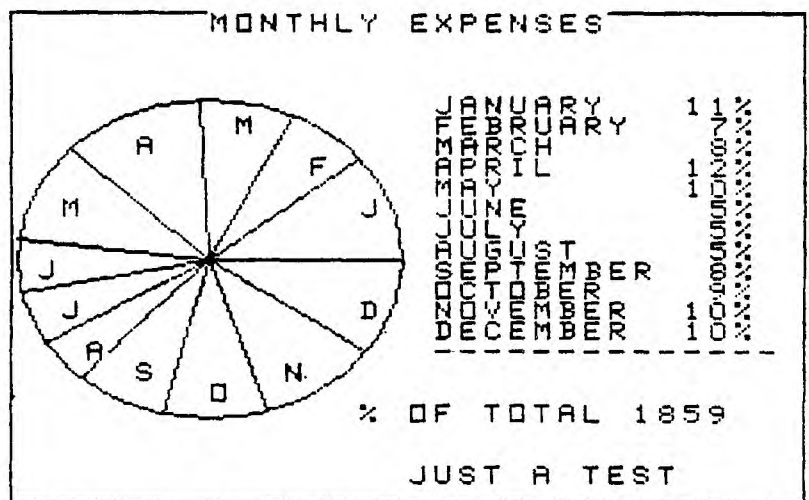
In my opinion compuserve is the way to go now. Things could change but for the TI user it can't be beat. The only problem is trying not to go broke. The systems are large. The TI section is much larger than most bulletin boards. Connect time can build up a bill fast. You'll have to be real careful not to waste money. Help from other members can pay for it self. Compuserve has a magazine it send to subscribers. This will help you keep in touch without spending \$50 to read different section just to see what is there.

If anyone has had experiences with other systems, let me know through the club. Write something up and put it in the news letter. We all need to know what the systems are really like. I'm afraid all the ads sound alike but when you get there you'll find the real story.

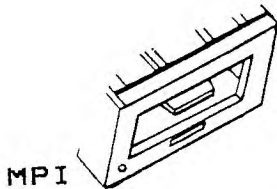
‡ HAPPY COMPUTING ‡

CHARTMAKER from Quality 99  
A Review by Phil Chouinard

QUALITY 99 has come out with a graphing package to go along with the Draw N Plot graphics program it's been selling for a while now. There has been a revision to the Draw N Plot that enables it to print enlarged or standard size print outs, and this feature works with the chart maker. You can print out horizontal or vertical bar graphs and pie charts. The software is only OK though. It does what it says but there is some distortion in the double size print out. I honestly haven't used it much because I have a program in basic which I have modified to use my block graphics characters of my printer and it produces better graphs. I do like the pie charts but they are a little "blah". If you have Draw N Plot then chart maker is not a bad investment. But don't expect anything spectacular. The price is kind of high too. This is a good example of how to use the Draw N Plot subroutines in your own program though. That does have some possibilities.

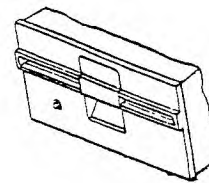


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ADDING A SECOND TI DRIVE...  
(a.k.a. IT WORKS FOR US!)

Helene M. LaBonville & Ellen J. Rule  
121 Camelot Drive - Bedford, NH 03102  
NH 99'ERS USER GROUP



SHUGART

SEARS (Manchester, NH) is currently closing out on their TI99/4A inventory. At this writing they had over 20 internal disk drives (PHP 1250) remaining at \$50 each. They have both the SHUGART 400L's and MPI 51 S' in stock. We wanted a second drive BADLY! Since the cheapest, new, TI external drives were \$135, and our funds were limited, we decided to "fashion" our own.

Armed with copies of five different articles on the subject, we abstracted "the best" and "the easiest" advise. You will need the following parts:

- The bare disk drive.....\$50.00
- An enclosure (vertical mounting) & power supply..... ~ \$42.00  
(One of our members sells power supplies for \$15,  
and we found an enclosure at a flea market for next to nothing.)
- A 15" drive cable with two 34-pin edge card connectors....\$6.00 (we had one)
- A 4 position DIP SWITCH (RS# 275-1304A)....\$1.60
- A replacement resistor pack\*....FREE from TI

TWO DRIVE CONFIGURATION		
	INTERNAL	EXTERNAL
#1.*	SHUGART	SHUGART
#2.	MPI	SHUGART
#3.	MPI	MPI

\*On multiple drive set-ups, you must replace the termination resistor pack on all SHUGART drives except the last drive in the series. If the SHUGART is to be used with other TI drives (MPI's), install the SHUGART as the last drive in the series. A call to TI-CARES will get you a FREE replacement resistor pack (a 270 ohm resistor soldered onto pins 5 and 10 of a 14-pin DIP header). You may choose to just add a 270 ohm resistor between those two pins in the DIP socket itself. Our drives cost US less than \$75 to assemble.

Only configuration #1 requires the replacement resistor pack. The INTERNAL drives in configurations #2 and #3 DO NOT require modification. Since we opted for configuration #1 (for aesthetic reasons), we had to replace the termination resistor pack on the internal drive. Because drive 1 gets most of the workout we also decided to use our newest drive as drive #1. In any event, if you opt for dual drive configuration #1, you must replace the termination resistor pack with a 270 ohm resistor pack:

- >Turn off the Peripheral Expansion System and disconnect the power cord from the back of the unit. CAUTION - WAIT TWO MINUTES AFTER TURNING OFF THE UNIT FOR POWER TO DISCHARGE BEFORE PROCEEDING.
- >Remove the top of the PES by depressing the latches on the back edge of the top and pulling up.
- >Remove the four screws holding the internal drive in place and gently slide the unit out of the compartment. You need not disconnect the cables that attach the unit to the PES and controller card unless you decide to replace the drive with the newer one.
- >Locate the termination resistor pack, noting the position of pin 1 in relation to the drive. Using a very small pocketknife blade or a small screwdriver tip, CAREFULLY pry the resistor up and out of the DIP socket. Take care not to bend the pins in case you need to use the resistor pack later.
- >Insert the new resistor pack with pin 1 (the number "1" is either molded in or represented by a notch) occupying the same position that pin 1 of the termination pack occupied.
- >Reinstall the disk drive, expansion system top, and power cord in the reverse order of the procedures above.

Because many of you may not have received the special cables or an adaptor board with your TI disk controller card, lost them, or have a CorComp Card, we have adopted John Hamilton & Ron Rutledge's (Central Iowa UG) method for adding a second drive... replacing the shunt pack with a DIP SWITCH, thus dispensing with the need for special cabling and adaptor boards. The shunt pack is a workhorse. It controls the following:

- Pins 1-14 ... Head Select - head is loaded by drive select signal
- Pins 2-13 ... Drive Select 1 - selects drive as #1
- Pins 3-12 ... Drive Select 2 - selects drive as #2
- Pins 4-11 ... Drive Select 3 - selects drive as #3
- Pins 5-10 ... Multiplex - means multiple drive configuration
- Pins 6- 9 ... Door Lock - means drive in use when door is closed
- Pins 7- 8 ... Head Motor - head is loaded by motor signal



The TI drives all come as Drive #1. The adaptor boards and "special cables" are "configured" to side-step the shunt pack and select the proper drive in multi-drive set-ups. Many of our members have encountered problems with the TI method. The Hamilton-Rutledge method has worked for us since day one (over two months). I even used this method to configure a TI SHUGART Drive to my RS Color Computer, and it is working great!

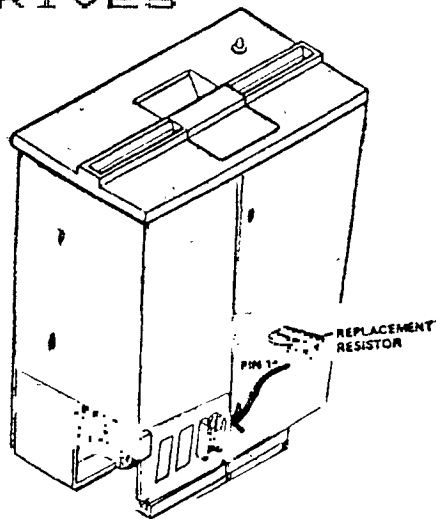
For the external drive then, we recommend that you first remove the thin aluminum housing that covers the drive. This allows for more airflow to occur, next:

- >Fasten the disk drive to the enclosure floor.
- >Attach the 4-pin polarized plug from the power supply to the 4 pins on the drive's board, then attach the grounding wire from the ps to the rear of the drive. CAREFULLY replace the shunt pack with the DIP SWITCH. As this is your second drive, position #1 should be ON, #2 should be OFF, #3 ON, and #4 should be OFF.
- >Attach one end of the drive cable to the edge card on the drive (note that there is a "key" in the connector which mates with the "hole" in the edge card). Connect the other end DIRECTLY to the disk controller card.
- >Now secure the enclosure cover in place.
- >Test the drives by cataloging a disk on each of them.

We must acknowledge the following people who have provided us with the basis for this article: Ed Lawson and Richard Bailey of the N Hamp. 99'ER UG, John Hamilton and Ron Rutledge of the Central Iowa UG, and John Worthington of MANNERS.

## INTERNAL DRIVES

SHUGART  
INTERNAL  
DRIVES  
REQUIRE  
PEPLACEMENT  
RESISTOR



## SUPPLIERS

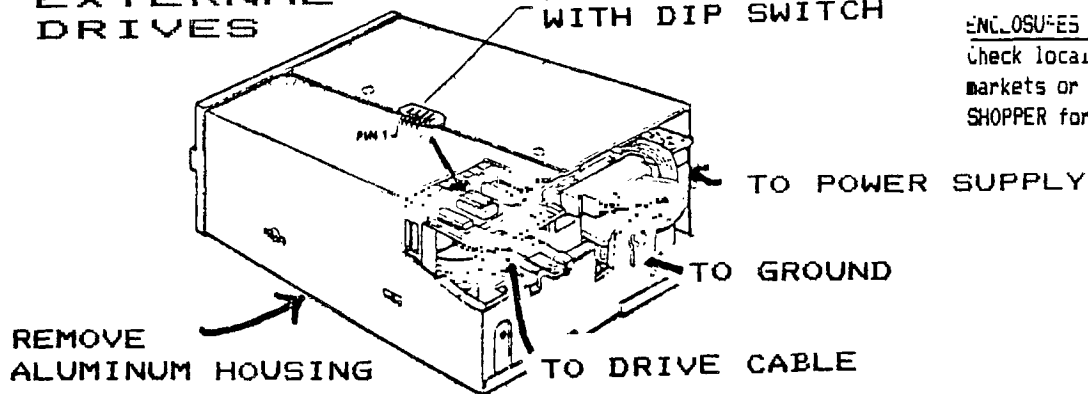
TI DISK DRIVES \$50  
SEARS  
Mall of N Hampshire  
Manchester, NH 03103  
Contact: Marie Doyon  
(603)669-8280 EXT257

POWER SUPPLIES \$15  
Richard Bailey  
68A Church Street  
Gonic, NH 03867  
(603)332-7855

DRIVE CABLES \$7  
Helene M. LaBonville  
121 Camelot Drive RFD5  
Bedford, NH 03102  
(603)472-3369

## EXTERNAL DRIVES

REPLACE SHUNT PACK  
WITH DIP SWITCH



ENCLOSURES w/ POWER SUPPLIES  
Check local dealers, flea  
markets or the COMPUTER  
SHOPPER for best deal!

Please note that the supplier prices DO NOT include shipping and handling. We can arrange for shipment of all products together (except enclosures) if you like. For further information please call or write Helene.

ADDING 8K OF RAM AND  
BATTERY BACK-UP TO YOUR  
EDITOR/ASSEMBLER CARTRIDGE

Richard J. Bailey  
58A Church Street  
Gonic, N. H. 03867  
NH99ER USER GROUP

John Clulow and Ron Gries came up with an excellent modification for the E/A cartridge. They wrote an article in the June, 1985 LEHIGH newsletter on how to add 8K (8Kx8) of RAM to the E/A cartridge. This opens all sorts of possibilities, some of which they mention in their article. There are other applications for this memory that I have mentioned in another article in this newsletter.

I have taken this modification to the next logical step (that John and Ron suggested) and that is to add battery back-up to the 8K of RAM. The circuit I've used is a modification of the back-up circuit T.I. used in the Mini Memory cartridge and the caution on page 6 of the Mini Memory manual applies to this modification as well. When removing or inserting the modified E/A cartridge with a program stored in the added 8K, the console should be switched OFF to prevent the possibility of any data being lost or altered. I have inserted and removed the modified cartridge with a stored program when the computer was ON and most of the time the program was not destroyed. Any program should be backed-up on disk, just in case.

I will describe the entire modification of adding the 8K and battery back-up here because I changed the way the 8K RAM was added to the board. You should read both their article and mine to decide which way you want to add the 8K. If you want to know how the back-up circuit works, read the following explanation and refer to the schematic.

When the cartridge is powered by the console the +5 volts will reverse bias the two diodes connected to the battery, effectively disconnecting the battery from the circuit. When the power is turned off, the two diodes from the battery are forward biased allowing the battery to supply power to pin 28 and bringing pin 28 high for the low power standby mode. The 2N3904 is used as an inverter to allow the battery to bring pin 28 high during standby but bringing the junction of the 1K and 3.3K resistors low during line operation. During back-up the two diodes connected to +5 volts are reverse biased and the 2N3904 is off. The total drain on the battery is less than 100 microamps with the 6264LP-15 and less than 1 microamp with the 5564PL-15. Either RAM will give a battery life of several years. If you don't use the low power version of the 6264, battery life could be decreased by a factor of 20.

**WARNING!! Proceed at your own risk. I have made this modification to my own cartridge, and it worked. Neither John, Ron, or I are responsible if your cartridge is destroyed.**

First get a Munchaus, Parsec, or other module that has one 24 pin chip and space for up to 4 16 pin GROMs. These cartridges have plated "pins" on both sides of the

edge connector, and more importantly, most of the runs needed to add the 8K of RAM. Desolder and remove all chips on this board. Add one 16 pin socket in the location nearest the 24 pin chip. This is for the E/A GROM and makes it easier if you want to undo the modification in the future. Also add a 16 pin socket to the original E/A board and save it for the same reason.

The added 8K chip is a Hitachi 6264LP-15 or Toshiba 5564PL-15. These are Low Power chips with the 5564PL-15 being the superior of the two with 1/100th of the current drain of the 6264LP-15 in the stand-by mode. The 6264LP-15 is much more readily available and the battery will supply either chip for years. If you are going to use battery back-up, make sure that you get the low power version of these chips.

Put the 28 pin chip in the 24 pin location with the index toward the top of the board and the "extra" pins toward the top of the board. Mark where you must drill four #60 holes for these pins. After the holes are drilled, use a 1/4 inch drill bit and remove the copper ground plane on both the front and back side of the board. Do this countersinking by hand otherwise you may end up with 1/4 inch holes through your board. Note that the run near the old pin 24 on the upper right hand corner of the old 24 pin chip will be cut almost through by the countersinking operation and you will have to cut and remove the section of this run for 1/4th of an inch on either side of where it passes near the pins and replace this section of run with a piece of #26 solid teflon insulated wire soldered in place. All pin references for now on will be for the 28 pin chip.

Modify the top side of the board first as shown in the pictorial. Cut the foil between the two pads near pins 22-23 and move the capacitor to the right pair of holes. Insert a 1K resistor between the bottom left pad and the ground run. Insert a 220 picofarad capacitor between pin 28 and the ground run. Solder the two leads in the ground run pad. Add wire from pin 28 to the logo pad that you will be using for a tie-point. Add wire from pin 27 to edge connector pin 3 and pin 2 to edge connector pin 7 making sure they don't cross and pinch under the 6264LP-15 chip. Add a .1mf capacitor from pin 28 to the ground plane feed-through hole. Also into pin 28 push the cathode end of a 1N914 or 1N4148 diode. Push a large sewing needle in these holes to open them slightly if the chip and parts don't fit. Solder a 100 ohm resistor to the anode end and sleeve these components and leads so they can't short out. Add the other components (less battery) using existing feed-through holes in the 5 volt run and ground plane. Note that some components just have their leads soldered together and are free-standing. Make sure that none of these leads short out.

Now modify the back of the board. Cut the runs near pins 28 and 23. Insert the 6264LP-15 with the index notch toward the top edge of the board. Solder pins 5 and 17 to hold the chip in place. Add a bare wire jumper from pin 22 to the pad immediately to its left. The

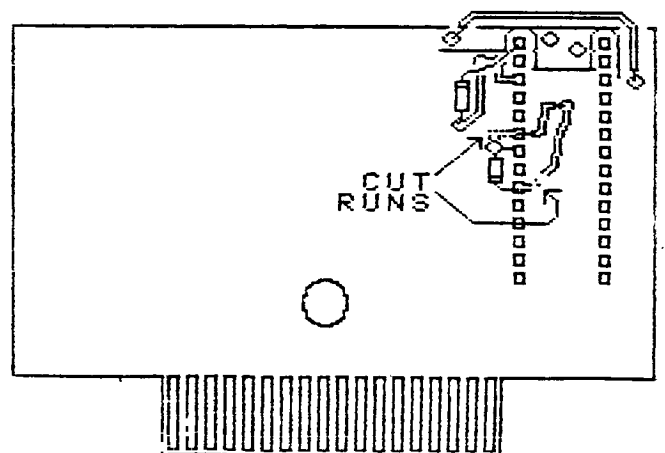
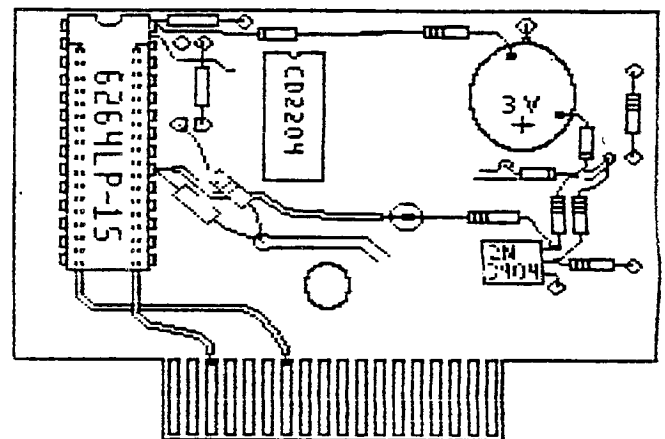
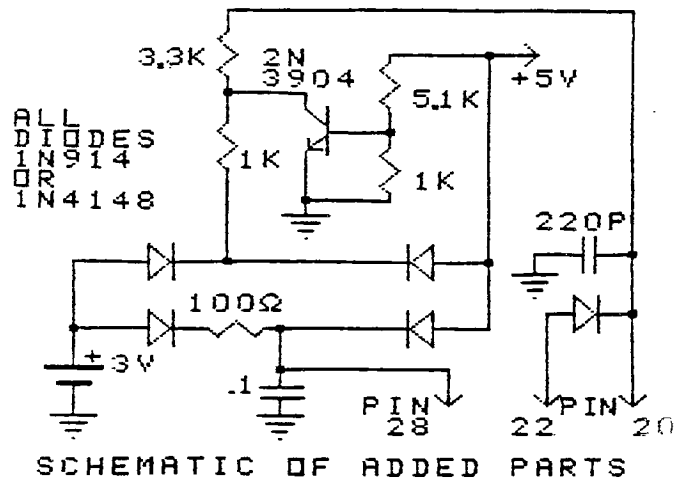
ground plane near the top of the board has been severed by the countersinking operation so a jumper must reconnect it as shown. Pin 23 must be jumpered to the run that originally went to pin 28. Add diode between pin 28 and pad near pin 22. Add diode between pin 28 and run going to pin 26. This diode is shown positioned slightly different in the pictorial for clarity so mount it in the most direct way on the actual board.

All components, except battery, should now be on the board. Double check all components for location and polarity, especially where component leads come through pin holes, and any diodes going to the battery. Now consult the article by me for replacing the Mini Memory battery for instructions for soldering to the battery and the warning with it. Solder a piece of #26 wire to the negative side of the battery with insulation extending 1/16 inch beyond the edge of the battery. Now use one layer of double-back tape over this terminal. Cut a slit in the tape so the solder and wire are not covered by tape. Now put another layer of double-back tape over the first, covering the wire. Push the wire through a cleared ground plane feed-through hole, and stick the battery to the circuit board. The tape should extend well beyond the edge of the battery so there is no chance of it shorting out. Now carefully, following the battery soldering instructions in the other article, solder the two diodes to the positive terminal (case) of the battery as shown. Measure the voltage on pins 28 and 28 with a high impedance voltmeter. Both pins should read about .2 volt lower than the battery's 3 volts. Reassemble the cartridge making sure the two wires soldered onto the edge connector pins don't interfere with the spring-loaded protector if you have the black case cartridge; or if you have the white case, cut grooves in the case where the wires interfere with its closure.

You are now ready to try the modified cartridge. If you have the CARTBUSTER disk, this is a good check. Take one of your ATARISOFT or similar cartridges and store it on disk. Read it back to the RAM in the E/A cartridge. Quit then press enter to see that you now have 3 choices, the last being the name of the cartridge that you saved. Turn the system off or remove the cartridge and reinsert it to see if the 3rd choice is still there. If it is the modification is complete and you now have an added 8K of battery backed-up RAM.

As with my other articles, all drawings and schematics were done with GRAPHX. If you need more information on this excellent graphics program, contact Helene.

EDITORS NOTE: CARTBUSTER is available thru the NH99UG LIBRARY. The June 1985 LEHIGH VALLEY NEWSLETTER was made available thru the UG Newsletter Exchange Program and copies are available from the NH99UG Archives. If anyone has spare MUNCHMAN or PARSEC modules for sale please contact Richard Bailey at the address above.



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TIPS FROM THE TIGERCUB

#23

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TIGERCUB SOFTWARE  
156 Collingwood Ave.  
Columbus, OH 43213

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The entire contents of Tips from the Tigercub Nos. 1 through 14, with more added, are now available as a full disk of 50 programs, routines and files for just \$15.00 postpaid!

Nuts & Bolts is a diskfull of 100 (that's right, 100!) XBasic utility subprograms in MERGE format, ready for you to merge into your own programs. Contents include 13 type fonts, 14 text display routines, 12 sorts and shuffles, 9 data saving and reading routines, 9 wipes, 8 pauses, 6 music, 2 protection, etc., and now also a tutorial on using subprograms, all for just \$19.95 postpaid!

And I have about 140 other absolutely original programs in Basic and XBasic at only \$3.00 each! (plus \$1.50 per order for cassette, packing and postage, or \$3.00 for diskette, PPM) I will send you my descriptive catalog for a dollar, which you can then deduct from your first order.

Several different routines have been published which will extract and save a specified series of lines out of a program, but this one by George Steffen of the L.A. 99ers is certainly the

best.

```
1 !SUBROUTINE EXTRACTOR by G
eorge F. Steffen. SAVE in ME
RGE format. MERGE into any p
rogram (with line # starting
above 8). RUN to extract
2 !selected lines. Deletes i
tself. Then BE SURE to SAVE
the selected lines in MERGE
format because the remaining
lines are still in memory!
3 CALL CLEAR :: CALL INIT ::
INPUT "Line numbers of rout
ine to be saved: First,Last?
":L,M :: G=256 :: CAL
L PEEK(-31952,H,I,J,K)
4 C=INT(M/6):: D=M-C*6 :: F=
(J-6)*6+K :: FOR E=(H-6)*6+1
TO F STEP 4 :: CALL PEEK(E,
A,B):: IF A=C AND B=D THEN 6
5 NEXT E :: PRINT "LINE";M;
"NOT FOUND!" :: STOP !@P-
6 H=INT(E/6):: I=E-(6*H):: H
=H+6 :: C=INT(L/6):: D=L-C*6
:: FOR E=E+4 TO F STEP 4 ::
CALL PEEK(E,A,B):: IF A=C A
ND B=D THEN 8 !@P-
7 NEXT E :: PRINT "LINE";L;
"not found!" :: STOP !@P-
8 E=E+3 :: J=INT(E/6):: K=E-
(6*J):: J=J+6 :: CALL LOAD(-
31952,H,I,J,K):: STOP !@P-
```

The enhancements to my Menu Loader, published in Tips #22, contained an error. Please change line 413 to read -

```
413 LINPUT #2:M$ :: PRINT M$
:: IF EOF(2)THEN 416
```

Some folks were interested in the idea of a program that writes a program, so let's write a program that will write a program to list the token codes that you need to use to write a program that will write a program -

```
100 OPEN #1:"DSK1.TOKENLIST"
,OUTPUT,DISPLAY ,VARIABLE 16
3 :: FOR N=129 TO 254 :: L1=
INT(N/256):: L2=N-256*!L1
110 PRINT #1:CHR$(L1)&CHR$(L
2)&CHR$(L3)&CHR$(N)&CHR$(0)
:: NEXT N
120 PRINT #1:CHR$(255)&CHR$(
```

255):: CLOSE #1 :: END

Key that in and SAVE it just in case, then RUN it. When READY, type NEW, then MERGE DSK1.TOKENLIST. Now LIST it and you will see a list of ASCII codes 129 through 254 and their token meanings. Delete lines 171 through 175, 185, 198, 226 through 231, and 242. Change the definition of 199 to QUOTED STRING, of 200 to UNQUOTED STRING, and add line 255 END OF FILE.

You don't need all those exclamation points, so change the program to a DIS/VAR 80 file by LIST "DSK1.TOKENLIST". Then key in this little routine.

```
100 OPEN #1:"DSK1.TOKENLIST"
:: OPEN #2:"PIO"
110 LINPUT #1:A$ :: PRINT #2
:SEG$(A$,1,4)&SEG$(A$,6,LEN(
A$)):: IF EOF(1)<>1 THEN 110
120 CLOSE #1 :: CLOSE #2 ::
END
```

RUN it, and print out a list of all the token codes. More on this next month - if someone buys a few programs so that I can afford another month.

Now that we've done about all that we can with the Menu Loader, here is another version to use on your finalized library disks of programs. It lacks the features that you will no longer need, but will list your programs by their full names, up to 24 characters long.

```
100 !NAMELOADER by A. Kludge
/M. Gordon/T. Boisseau/J. Pe
terson/etc.
110 CALL CLEAR :: CALL SCREE
N(5):: FOR S=1 TO 14 :: CALL
COLOR(S,7,16):: NEXT S :: C
ALL VCHAR(1,31,1,96):: CALL
COLOR(0,2,16)
120 OPTION BASE 1 :: DIM P6$(
99),M$(99)
```

130 ! List the full names of the programs on the disk in the DATA statements, in the sequence in which they are listed by an ordinary disk cataloger program

```
140 !Then SAVE this program
under the filename LOAD
150 DATA
160 DATA
170 DATA
180 DATA
190 DATA END
200 FOR J=1 TO 99 :: READ M$(
J):: M$(J)=SEG$(M$(J),1,24)
210 IF M$(J)="END" THEN M$(J
)=" " :: GOTO 230
220 NEXT J
230 IMAGE ##
240 DISPLAY AT(1,4):"TIGERCU
B NAMELOADER"
250 D$="DSK1." :: OPEN #1:D$
,INPUT ,RELATIVE,INTERNAL ::
INPUT #1:P$
260 FOR X=1 TO 99 :: IF X/26
<>INT(X/26)THEN 290
270 DISPLAY AT(24,1):"Type #
of choice or Enter 0" :: AC
CEPT AT(24,27)VALIDATE(DIGIT
)SIZE(-3):K :: IF K=0 THEN 2
80 :: IF K>0 AND K<NN+1 THEN
390 ELSE 270
280 X=1
290 I=I+1 :: IF I>127 THEN K
=X :: GOTO 370
300 INPUT #1:P$ :: NN=NN+1
310 IF LEN(P$)=0 THEN 350
320 DISPLAY AT(X+3,2):USING
230:NN+1 :: DISPLAY AT(X+5,6):"
Terminate"
360 DISPLAY AT(X+6,1):" C
hoice?" :: ACCEPT AT(X+6,16)
SIZE(2)VALIDATE(DIGIT):K ::
IF K<NN AND K<NN+1 THEN 38
0
370 IF K=NN+1 THEN CALL CLEA
R :: CLOSE #1 :: END
380 !IF K<1 OR K>99 OR LEN(P
6$(K))=0 THEN 350
390 CLOSE #1
400 CALL INIT :: CALL PEEK(-
31952,A,B):: CALL PEEK(A#256
```

```

+B-65534,A,B):: C=A*256+B-65
534 :: A=D$&P$&(K):: CALL L
OAD(C,LEN(A$))
410 FOR I=1 TO LEN(A$):: CAL
L LOAD(C+I,ASC(SEG$(A$,I,1)
):: NEXT I :: CALL LOAD(C+I,
0)
420 CALL VCHAR(1,3,32,672)::
CALL SCREEN(8):: FOR S=0 TO
14 :: CALL COLOR(S,2,1):: N
EXT S :: DISPLAY AT(12,2):"L
OADING ";M$(K)
430 RUN "OSK1.1234567890"

```

Last month I forgot to have anything for the kids, or anything in Basic, so -

```

100 CALL CLEAR
110 REM by Jim Peterson of
Tigercub Software
120 PRINT TAB(1);"****AUTOMA
TIC MOUSE MAZE****": : : "
  Choose your mouse and:"wa
tch it try to find its way"
130 PRINT "through the maze.
": " When one of the mice
has": "taken 50 extra steps,
the": "cat gets it!"
140 PRINT : : "Touch any key"
150 CALL KEY(0,K,ST)
160 IF ST<1 THEN 150
170 CALL CLEAR
180 CALL CHAR(120,"0078FEFFF
E78")
190 CALL CHAR(121,"1038387C7
C7C7C38")
200 CALL CHAR(122,"387C7C7C7
C383810")
210 CALL CHAR(123,"001E7FFF7
F1E")
220 CALL CHAR(128,"001E61816
11E")
230 CALL CHAR(129,"384444444
4242410")
240 CALL CHAR(130,"102828444
4444438")
250 CALL CHAR(131,"007886818
678")
260 CALL SCREEN(5)
270 T1=610
280 T2=610
290 CALL CHAR(136,"FFFFFFF
FFFFFF")
300 CALL COLOR(14,16,16)
310 CALL COLOR(13,2,16)
320 CALL COLOR(12,2,16)
330 R=10
340 GOSUB 1460

```

```

350 R1=10
360 C=2
370 C1=2
380 CALL HCHAR(R,C,136,2)
390 C=C+1
400 M=120
410 M2=128
420 RANDOMIZE
430 A=(INT(2*RND)+1)*2
440 B=INT(10*RND)+1
450 ON B GOSUB 470,470,470,4
70,510,510,550,550,590,590
460 GOTO 420
470 IF C+A>30 THEN 630
480 CALL HCHAR(R,C,136,A)
490 C=C+A
500 RETURN
510 IF R+A>20 THEN 540
520 CALL VCHAR(R,C,136,A)
530 R=R+A
540 RETURN
550 IF R-A<2 THEN 580
560 CALL VCHAR(R-A+1,C,136,A
)
570 R=R-A
580 RETURN
590 IF C-A<3 THEN 620
600 CALL HCHAR(R,C-A+1,136,A
)
610 C=C-A
620 RETURN
630 CALL HCHAR(R,C,136)
640 C=C+1
650 IF C<31 THEN 630
660 R2=R
670 C2=C
680 CALL HCHAR(R1,C1,M)
690 CALL HCHAR(R2,C2,M2)
700 Y=Y+1+(Y=2)*2
710 IF Y=2 THEN 1020
720 CALL HCHAR(R1,C1,136)
730 ON M-119 GOTO 800,900,74
0,850
740 IF C1=31 THEN 950
750 CALL GCHAR(R1,C1+1,6)
760 IF 6=32 THEN 850
770 C1=C1+1
780 M=120
790 GOTO 950
800 CALL GCHAR(R1-1,C1,6)
810 IF 6=32 THEN 740
820 R1=R1-1
830 M=121
840 GOTO 950
850 CALL GCHAR(R1+1,C1,6)
860 IF 6=32 THEN 900
870 R1=R1+1
880 M=122
890 GOTO 950
900 CALL GCHAR(R1,C1-1,6)

```

```

910 IF 6=32 THEN 800
920 C1=C1-1
930 M=123
940 GOTO 950
950 CALL HCHAR(R1,C1,M)
960 IF (C1=31)*(C2=2) THEN 13
20
970 IF C1<31 THEN 700
980 T2=T2-10
990 CALL SOUND(50,T2,5)
1000 IF T2=110 THEN 1340
1010 GOTO 700
1020 CALL HCHAR(R2,C2,136)
1030 ON M2-127 GOTO 1040,120
0,1090,1150
1040 CALL GCHAR(R2+1,C2,6)
1050 IF 6=32 THEN 1090
1060 R2=R2+1
1070 M2=129
1080 GOTO 1250
1090 IF C2=2 THEN 1250
1100 CALL GCHAR(R2,C2-1,6)
1110 IF 6=32 THEN 1150
1120 C2=C2-1
1130 M2=128
1140 GOTO 1250
1150 CALL GCHAR(R2-1,C2,6)
1160 IF 6=32 THEN 1200
1170 R2=R2-1
1180 M2=130
1190 GOTO 1250
1200 CALL GCHAR(R2,C2+1,6)
1210 IF 6=32 THEN 1040
1220 C2=C2+1
1230 M2=131
1240 GOTO 1250
1250 CALL HCHAR(R2,C2,M2)
1260 IF (C2=2)*(C1=31) THEN 1
320
1270 IF C2>2 THEN 700
1280 T1=T1-10
1290 CALL SOUND(50,T1,5)
1300 IF T1=110 THEN 1370
1310 GOTO 700
1320 CALL HCHAR(1,1,32,760)
1330 GOTO 330
1340 GOSUB 1460
1350 PRINT "THE CAT GOT THE
WHITE MOUSE": :
1360 GOTO 1390
1370 GOSUB 1460
1380 PRINT "THE CAT GOT THE
BLACK MOUSE": :
1390 PRINT "TO PLAY AGAIN, T
OUCH ANY KEY"
1400 CALL KEY(0,K,ST)
1410 IF ST<1 THEN 1400
1420 T1=610
1430 T2=610
1440 CALL HCHAR(1,1,32,760)

```

```

1450 GOTO 330
1460 CALL HCHAR(23,1,32,32)
1470 PRINT CHR$(120);(610-T1
)/10;TAB(20);CHR$(128);(610-
T2)/10
1480 RETURN

```

Did you know that ACCEPT AT(1,0) will accept a full line of 28 characters? Did you know that ACCEPT AT(R,0)SIZE(-28) and Enter will accept everything on row R? And did you know that ACCEPT M\$ will accept a string of 255 characters?

Need a filler, so -

```

100 !MUSICAL BARGRAPH by Jim
Peterson
110 CALL CLEAR :: CALL SCREE
N(5):: FOR J=2 TO 14 :: X=J-
(J>4):: CALL COLOR(J,X,X)::
NEXT J
120 DIM M$(13),N(13):: M$="(
00@HPX'hpX"&CHR$(128)&CHR$(1
36):: FOR J=1 TO 13 :: M$(J)
=SEG$(M$,J,1):: DISPLAY AT(J
+6,1)SIZE(1):M$(J):: NEXT J
130 X=110 :: FOR J=1 TO 13 :
: N(J)=X*1.059463094^(J-1)::
NEXT J
140 A=INT(13*RND+1):: B=INT(
25*RND+1):: DISPLAY AT(A+6,2
)SIZE(20):RPT$(M$(A),B):: CA
LL SOUND(B*40,N(A),0,N(A)*2+
4,0,N(A)*4+6,0)
150 DISPLAY AT(A+6,2):" ::
GOTO 140

```

MEMORY FULL

Jim Peterson



**ANOTHER SOURCE!**

Innovative Electronics and Computing of Denver, Colorado has sent us a dealer's price list of some of their products. This list included a parallel cable that is supposed to be compatible with the TI. I called the company and was impressed right from the start. They took my order on a Thursday afternoon (C.O.D.) and 8 days later I had it! The cable is well made but required swapping a few lines (more about that later). IEC's letter states that they will continue to support the TI 99/4(A) computer and that we should watch for software and hardware in the future. Their list of cables and assorted hardware is impressive and available to all club members, of course.

Concerning the parallel cable - imagine how happy I was to take my printer apart and reassemble it, only to find that the cable didn't work? Fortunately, our club enjoys a wealth of hardware and software knowledge. I got the following pin-outs from Mike Brodsky and they work perfectly:

PIO PRINTER	PIO PRINTER
-----	-----
1->->-1	9->->-9
2->->-2	10->->-11
3->->-3	11->->-16
4->->-4	12->->-N/C
5->->-5	13->->-N/C
6->->-6	14->->-N/C
7->->-7	15->->-N/C
8->->-8	16->->-36

N/C = NO CONNECTION

To convert your Impact printer to parallel, remove the serial card as instructed on page 53 of the printer manual. Remember, you had to remove a grounding wire; you should see a bare metal post sticking straight up from the back of the parallel card (near the Centronics connector). Attach the grounding strap to this post and you are ready to go!

These pin-outs differ from the original cable on lines 11 (originally sent to 19), 13 (orig. to 13), and 16 (orig. to 16). The cable is easy to take apart and correct; 5 minutes work with a pair of needle nose pliers will do the trick.

EDITORS NOTE: We have contacted Joseph Miller president of Innovative Electronics concerning this problem. We sent him a copy of this article and questions! Specifically we asked if this cable was known to work with some printers and not with others. We also were puzzled by the the amount that was charged for this item. The NH99UG has received several dealers' pricing sheets from IEC during the last year, but when our Prez ordered, he was charged the retail price! It has been over three weeks since we sent our inquiry. We have had no response as yet!?!

REPLACING YOUR MINI MEMORY  
BATTERY FOR UNDER \$2.00

Richard J. Bailey  
68A Church Street  
Gonic, N. H. 03867  
NH99ER USER GROUP

Apparently some people have checked with T.I. and found that it would cost up to \$35 to replace the battery in their Mini Memory. However for those brave souls who are willing to replace the battery themselves, it can be done for \$1.79. To find if your battery needs to be replaced, measure the battery voltage, it should be 3 volts, if it's much less than that, replace it.

The battery you need is a Radio Shack CR2032 (CAT#23-162). These cells have a shelf life of between 5 and 10 years and should last almost that long in the circuit. The case is the positive terminal just like the original but unlike the original, the CR2032 doesn't have leads and these must be carefully soldered on.

**WARNING!! Lithium batteries can be destroyed by heating them and certain types can explode!!!!**

If you don't think you're competent to make this modification, don't try, you might destroy your Mini Memory, or worse.

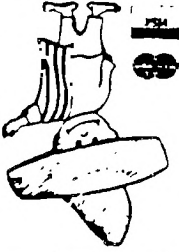
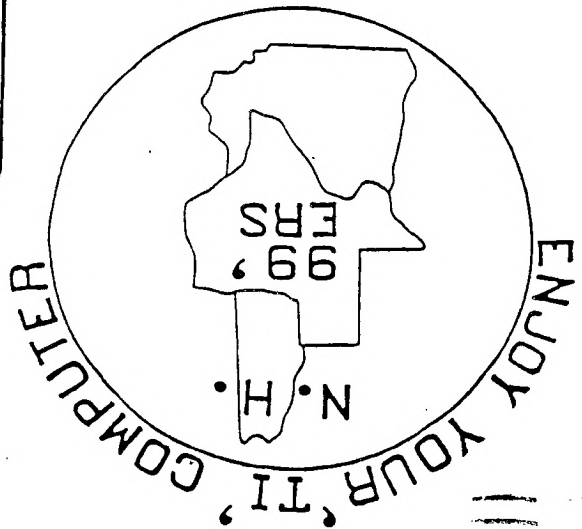
Scrape the center of the case where you are going to solder a solid #20 (or thereabouts) wire. A lead from a 1 or 2 watt resistor is ideal. Melt a small glob of solder onto the end of the wire and quickly solder it to the battery case. This is best done with a 100 watt soldering gun. Make sure the gun is hot before you try to solder the wire on. soldering should take 1 second. Have a helper with a wet paper towel ready to press on the battery as soon as you remove the soldering gun. The insulation between terminals may be thermal plastic and could deform allowing the battery to short if you aren't quick. Cut the soldered lead close to the resistor body and flip the battery over and solder a lead on the other side, making sure that it doesn't touch the positive terminal. Make sure that this lead points 180 degrees away from the other lead so the battery will mount the same way as the original battery. Bend the leads so they will fit into the slots for the original battery. Before you remove the original, note that the positive lead is connected toward the outside of the board. Quickly solder the replacement in the same way. Check the voltage across the battery. If it reads 3 volts, you're all set.

**FOR SALE**

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