

THE "ZENOBBOARD"..... (A new piece of hardware for the TI-994A)

by Eric Zeno (West Penn 99'ers) December, 1988

(written by John F. Willforth)

Have you had your console lock-up after you had just about finished keying in a long XBasic program, or have you had a game running under XBasic just stop when you were about to get your all time best score, or has a utility stopped as you were just about done entering the last of the names and addresses? The "ZENOBBOARD" (as I call it) some reference to "ZUCKERBOARD" will accept the chips from your XBasic cartridge, as well as a 32K Byte Static Ram chip, and a battery backed clock circuit and the chips from your speech synthesizer. It will also have GROM chip locations, so you can install your most used GROM based cartridges right in your console. The Extend Basic is a very common cause of lockups, and can now be installed inside the console, almost eliminating lockups. Included, you'll get

the installation instructions to aid in the installation of this board inside the console and the above mentioned items on this board.

Eric plans to offer this board for less than \$15. The intent here is to find out if there is enough genuine interest or need for the board for him to continue. If you would like to see one of these, and would support it write or call Eric at the address below.

Specifications:

- * Fits inside console above CPU board and solders directly to back of GROM conn., with just a few wires to the CPU board.
- * Requires no additional power.
- * Includes RESET circuit
- * Can be expanded or configured as the user requires.
- * Supports 32K STATIC RAM
- * Supports Battery-backed CLOCK
- * Supports SPEECH SYNTHESIZER
- * Supports EXTENDED BASIC
- * Supports additional switch selectable GROM
- * Do-It-Yourself low cost

>>> SOME TECHNICAL ASSEMBLY REQUIRED<<<

DO not order at this time, because the idea is quite attainable, but there may not be enough demand to complete the project. Write/call:

ERIC ZENO (412) 371-4779
 414 HIGHLAND RD.
 PITTSBURGH, PA 15235 (SASE Please!)

NOTE: I didn't have a more recent drawing of the board at this printing, but I didn't want to delay passing this new hardware effort to you until January. Eric needs to know soon so that he can take advantage of the long winter nights to finish the board and get it out to you.

JFW

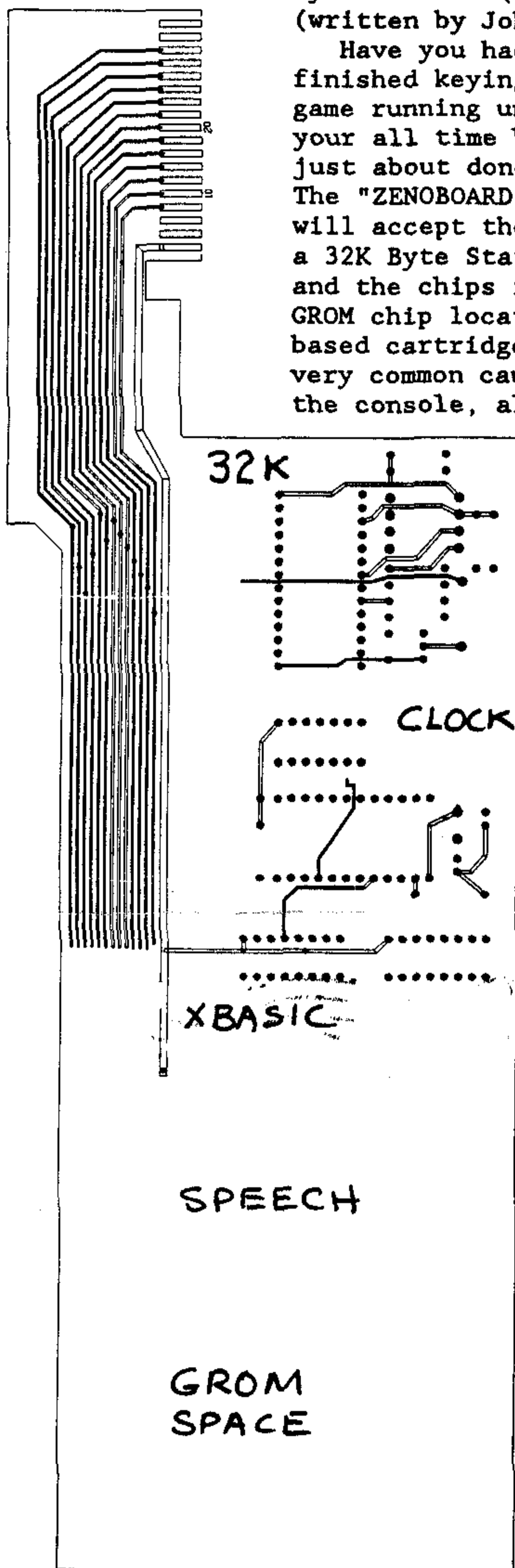


FIG. 1 THE ZENOBBOARD

IMPACT/99

BY JACK SUGHRUE
Box 459
EAST DOUGLAS, MA 01516

LOSING & GAINING

MUCH HAS BEEN LOST AND GAINED IN OUR TI WORLD COMMUNITY - PROBABLY MORE THAN IN THOSE COMPUTER WORLDS WHERE THE COMPUTER IS STILL BEING MANUFACTURED AND/OR COMMERCIALY SOFTWARED, HARDWARED, AND TEXTWARED.

WE 99ERS HAVE HAD TO SUFFER WITH MASS EXODUS AFTER THE ORPHANING AND THEN WITH THE STEADY EMIGRATION SINCE. EACH TIME ONE OF OUR RESIDENTS LEAVES, THOUGH, OUR WORLD GETS SMALLER AND SMALLER. IT'S A WORLD THAT HAS NO SPACE LEFT FOR BACKSTABBING OR POLITICAL INTRIGUE OR POISONOUS PARANOIA. THERE JUST AREN'T THAT MANY OF US LEFT TO CONTINUE THE INFIGHTING AND OPEN HOSTILITY THAT HAVE DRIVEN SOME OF OUR BEST CITIZENS FROM OUR RANKS. NOR CAN OUR REMAINING NUMBERS CONTINUE TO PIRATE COMMERCIAL SOFTWARE AND EXPLOIT FAIRWARE AUTHORS. WE'VE HEARD IT ALL BEFORE: HOW COMMERCIAL SOFTWARE KEEPS GETTING ON BBSs; HOW FAIRWARE AUTHORS, FOR THE MOST PART, RECEIVE NOTHING AT ALL FROM BBS DOWNLOADS OR USER LIBRARY DUBS; HOW COMMERCIAL AND FAIRWARE MONEY IS GAINED ALMOST EXCLUSIVELY THROUGH DIRECT-MAIL ORDERS BY PEOPLE WITH NO USER-GROUP AFFILIATION. SIMPLY PUT, USERS WHO HAVE ACCESS TO MATERIALS BEFORE PAYING FOR THEM DON'T. EVEN THOUGH THE PRICES FOR TI STUFF HAS REMAINED THE LOWEST IN THE ENTIRE INDUSTRY. THERE'S SOMETHING SUICIDAL IN THAT APPROACH.

AND, YET, WHILE IT LASTS, THERE'S STILL AN AWFUL LOT OF GOODIES OUT THERE FOR OUR MACHINE, INCLUDING SOME GREAT NEWSLETTERS. BELONGING TO A USER GROUP, EVEN IF ONLY BY MAIL, IS ONE OF THE BEST WAYS TO GUARANTEE THE FUTURE. SUPPORT OF ALL THE SOFTWARE, TEXTWARE, AND HARDWARE THAT IS PRESENTLY BEING CREATED FOR US IS THE OTHER WAY.

BUT, AS I SAID EARLIER, ALL THIS HAS BEEN SAID MANY TIMES BEFORE BY LOTS MORE INFLUENTIAL 99ERS THAN MYSELF. STILL....

AND SPEAKING OF LOSSES, OUR TI WORLD COMMUNITY SUFFERED ONE OF ITS BIGGEST LOSSES WHEN RON ALBRIGHT RECENTLY DECIDED TO STEP DOWN FROM HIS ACTIVE INVOLVEMENT WITH TI AFTER SEVEN-PLUS PRODUCTIVE YEARS.

HE "FOLDED UP HIS TENT" AS CO-EDITOR (WITH JONATHAN ZITTRAIN) OF THE TI FORUM IN COMPUTER SHOPPER. THIS MONTHLY GIANT MAGAZINE HAS BEEN THE FLAGSHIP OF HAPPENINGS FOR ALL COMPUTERS. RON AND JON HAVE MADE CS AN IMPORTANT PART OF 99ING. EACH MONTH THEY TELL US NEWS, GIVE US REVIEWS, STIMULATE SHARING, PROMOTE PRIDE IN OUR LITTLE WONDER.

JON, WHO I'VE HAD THE PLEASURE OF MEETING AT ONE OF THE FAIRES, IS A YOUNG, DYNAMIC WRITER WHO IS REMAINING ABOARD TI FORUM.

I'VE NEVER HAD THE OPPORTUNITY TO MEET RON, THOUGH I FEEL I'VE KNOWN HIM FOR YEARS. HIS DECISION - WHICH APPARENTLY INVOLVES NUMEROUS FACTORS HE DID NOT HAVE THE SPACE IN HIS COLUMN TO DISCUSS - IS LIKE THE LOSS OF A CLOSE FRIEND. RON SEEMED TO BE A VOICE FOR LOTS OF US. AS HE GREW WITH THE 99, HE TOOK US ALONG FOR THE RIDE. WE GREW WITH HIM. EACH TIME HE FELL ON HIS FACE HE SHARED THOSE EFFORTS WITHOUT SHAME SO WE COULD LEARN FROM HIS MISTAKES. WHEN HE LEARNED SOMETHING NEW, HE WAS LIKE A LITTLE KID SHARING HIS JOY WITH US ALL.

FROM NEWSLETTER EDITOR TO REGULAR WRITER FOR MICROPENDIUM, RON ALWAYS SEEMED TO BE THERE WHEN WE NEEDED HIM.

HE WAS ALSO THERE TO EXPLAIN WHAT HAPPENED TO ALL OF US AFTER THE TI PULLOUT WITH HIS WONDERFULLY LUCID BOOK, THE ORPHAN CHRONICLES. OC NOT ONLY TOLD US ALL THAT HAPPENED BUT PREDICTED OUR FUTURE ACCURATELY BY GIVING US HOPE. AND IT PROVIDED AN IMMEDIATE LIST OF OPTIONS. FOR MOST OF US OC WAS THE LIFELINE WE NEEDED WHEN WE NEEDED SOMETHING DESPERATELY.

LATER, HE WROTE THE ORPHAN SURVIVAL MANUAL WHICH WAS THE EXTENSION OF OC THAT SHOWED THE MATURITY OF OUR MACHINE AND OF RON WITH THAT MACHINE. THIS BOOK GAVE US MATERIALS TO WORK WITH. VERY SPECIFIC, IT WAS DRAWN FROM SOURCES THROUGHOUT THE WORLD TO GIVE OWNERS A PACKAGE THEY COULD DEAL WITH - IN SHORT, A SURVIVAL MANUAL.

ALTHOUGH I DON'T HAVE A MODEM, I UNDERSTAND MOST OF THE SHARING AND HELP OF THE KIND RON GENERATED IN HIS WRITINGS WAS CONTINUED AND EXPANDED BY HIM ON THE BULLETIN BOARDS. HIS GENEROSITY AND PATIENCE WERE LEGENDARY. THERE AREN'T TOO MANY PEOPLE AMONG 99ERS WHO HAVE GIVEN SO MUCH HELP AND SUPPORT TO SO MANY.

OR, AS RON SAID IN HIS FINAL COLUMN, "I LEARNED WHAT KIND OF PEOPLE COMPUTER ENTHUSIASTS ARE. I AM NOT TALKING ABOUT THOSE WHO SIMPLY USE COMPUTERS. THESE RUN THE GAMUT OF PEOPLE - FROM GOOD TO BAD - JUST AS CAR DRIVERS AND CUISINART OWNERS DO. I AM TALKING ABOUT, WELL, THE HACKERS. PERHAPS NO GROUP OF PEOPLE OUTSIDE A MONASTERY HAVE SUCH QUALITIES OF UNSELFISHNESS, GENEROSITY, AND CLOSENESS WITH KINDRED SPIRITS. THE FRIENDS I HAVE MADE AMONG TI OWNERS WILL CONTINUE TO BE SO LONG AFTER THE LAST COMPUTER CHIP HAS CRACKED AND THE POWER IS TURNED OFF. FOR THESE REASONS AND MANY MORE, I WILL ALWAYS BE A 99ER."

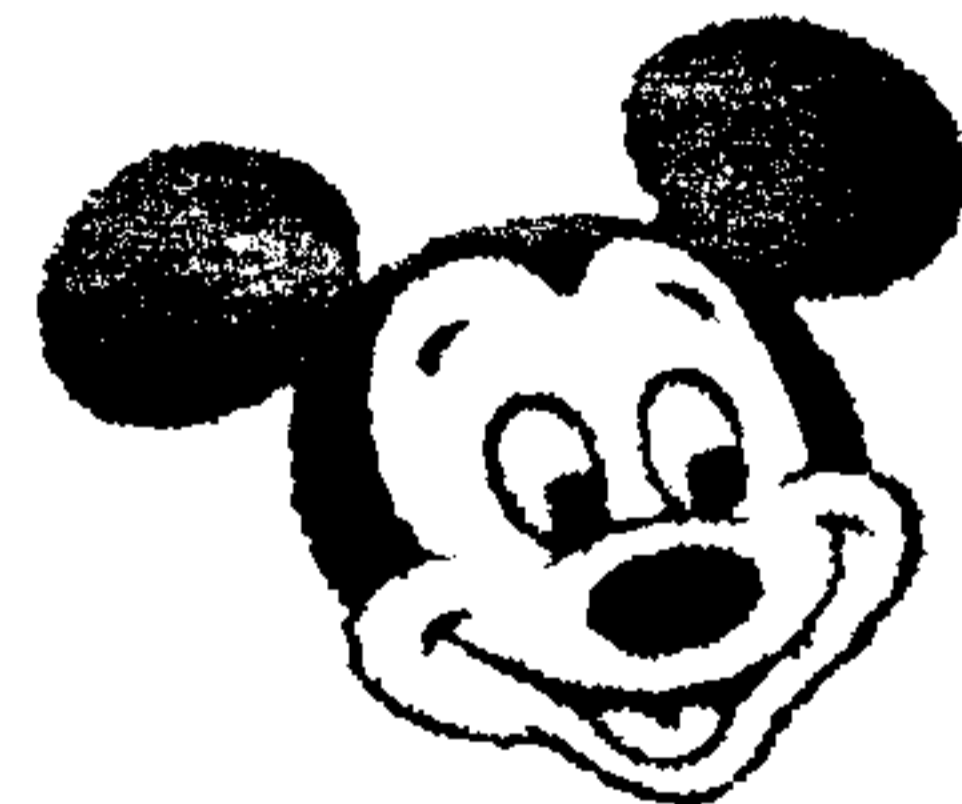
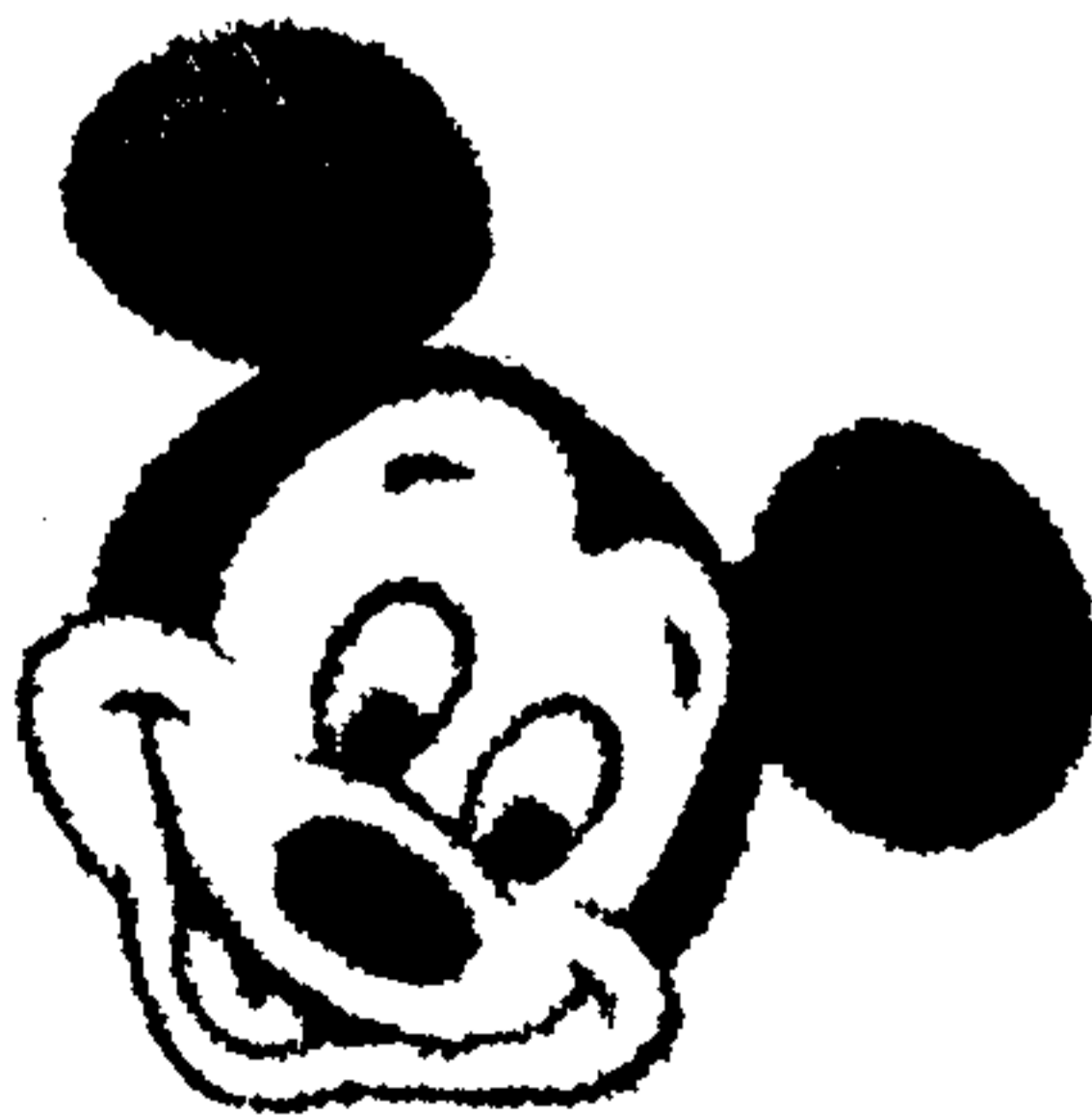
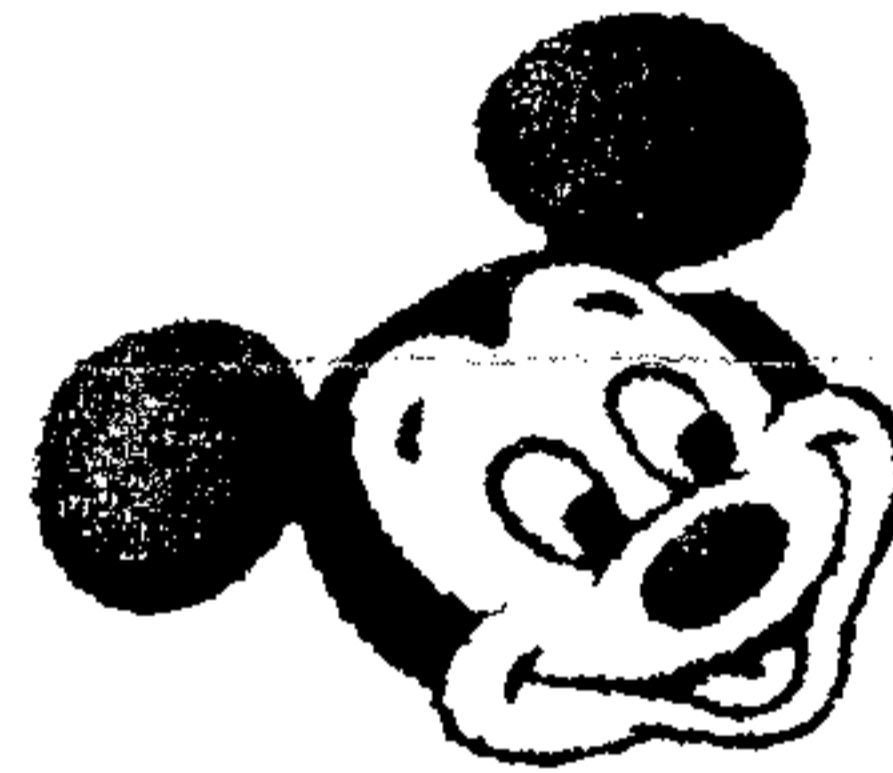
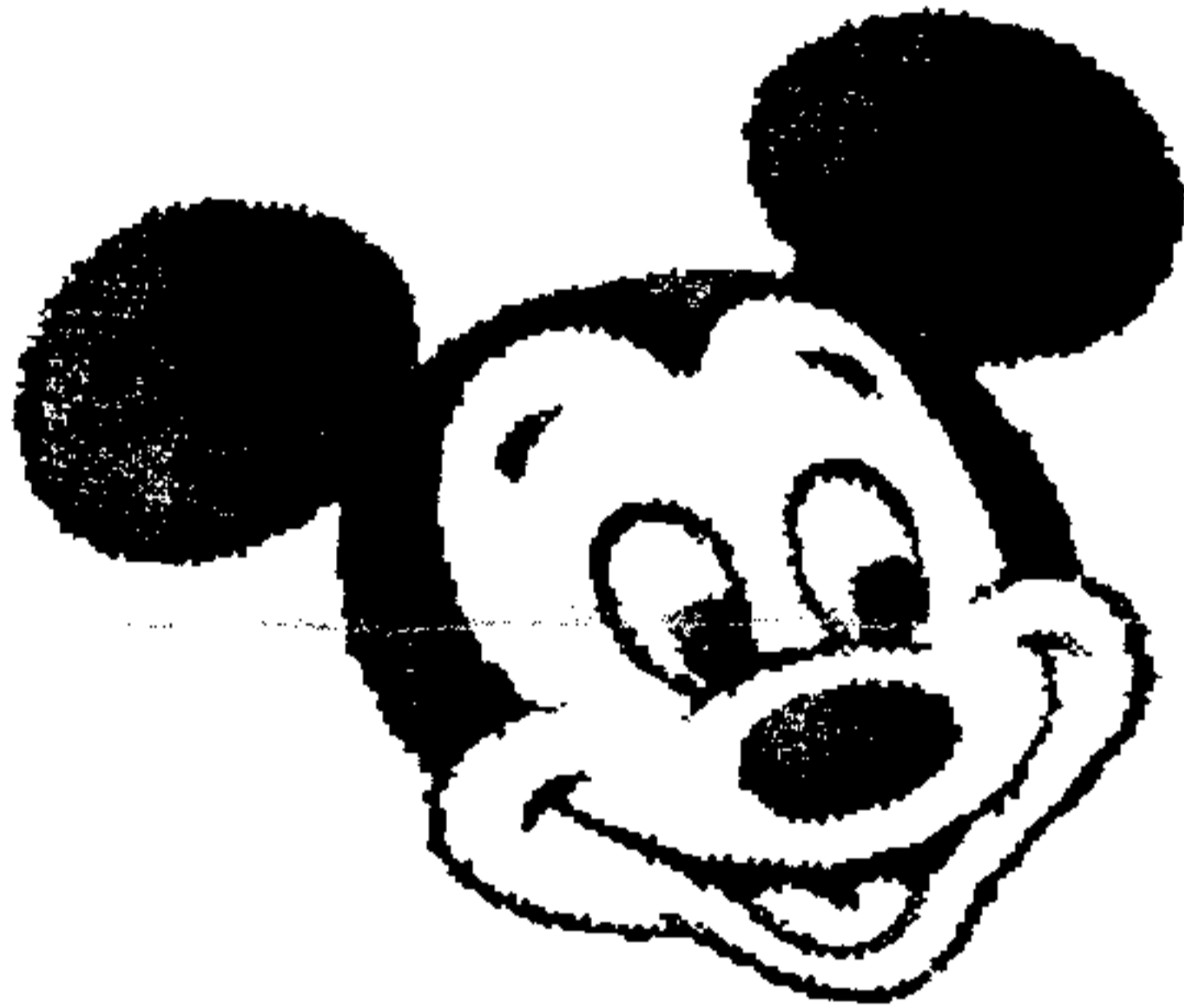
SO LONG, RON. YOU'VE DONE A HECK OF A JOB. KEEP IN TOUCH. WE'LL ALL MISS YOU.

.....
THE UNENVIABLE POSITION OF BEING RON'S REPLACEMENT HAS GONE TO ONE OF THE FEW TIERS CAPABLE OF HANDLING IT: BARRY TRAVER (OF DISKAZINE AND CONVENTION SPEAKER FAME). LIKE RON, BARRY IS ONE OF THE MOST DEDICATED 99ERS IN EXISTENCE. HIS TI "CAREER" BEGAN WAY BACK WHEN HE WROTE PROGRAMS FOR THE OLD 99 MAGAZINE AND HAS CONTINUED AND FLOURISHED SINCE.

ON THE TOO FEW OCCASIONS WHEN I'VE TALKED WITH HIM, I FOUND HIM TO BE KNOWLEGABLE, CARING, WISE, AND SENSITIVE. AND, THOUGH THE WORD HAS UNFORTUNATELY ALMOST DISAPPEARED FROM OUR LANGUAGE, A GENTLEMAN.

BARRY SEEMS ALWAYS TO GIVE EVERYBODY THE TIME AND ATTENTION THEY ASK FOR - AND THEN SOME. I DON'T KNOW HOW HE DOES IT, BUT HE IS ABLE TO JUGGLE LOTS OF DIFFERENT LIVES WITH EASE AND APLOMB. HE HAS HAD SOME VERY SERIOUS EYE PROBLEMS THAT WOULD HAVE DEVASTATED MOST OF US, BUT I'VE NEVER HEARD HIM COMPLAIN. AS A MATTER OF FACT - AS I SIT HERE WRITING THIS ARTICLE -, I HAVE NEVER HEARD A SINGLE COMPLAINT ABOUT HIM AMONG TIERS WORLD-WIDE. ON THE CONTRARY, I HAVE HEARD NOTHING BUT THE HIGHEST PRAISES OF BARRY BY EVERYONE WHO KNOWS HIM OR HAS ANY DEALINGS WITH HIM. AND THAT IS HIGH PRAISE, INDEED, IN A COMMUNITY THAT HAS TENDED TO BE DIVISIVE AND PAROCHIAL EVEN AT THE BEST OF TIMES.

SO I'M SURE BARRY WILL DO A GREAT JOB AS RON'S REPLACEMENT. HE, TOO, IS A GOOD WRITER AND AN ASTUTE COMPUTER BUFF. WE ALL WISH YOU GOOD FORTUNE, BARRY.



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This one is explained in lines 180-190. I think that it will run on any Gemini printer.

```
100 DIM B(25,12),B$(25),CH$(12),L$(12)
110 GOTO 150
120 S,K,T$,C$,V,J,A,CH$( ),X,X$,B$( ),B(X,J),T,M,Q$,L$( ),C,C1$,C2$,L,M$
130 CALL CLEAR :: CALL COLOR :: CALL SCREEN :: CALL CHAR :: CALL KEY :: CALL NUMTH
140 !@P-
150 !SEGMENTED BAR GRAPH
    by Jim Peterson 10/87
160 CALL CLEAR :: FOR S=1 TO 12 :: CALL COLOR(S,2,8):: NEXT S :: CALL SCREEN(5):: DISPLAY AT(3,10):"TIGERCUB" :: DISPLAY AT(5,6):"SEGMENTED BAR GRAPH"
170 CALL CHAR(95,"3C4299A1A199423C"):: DISPLAY AT(7,12):"_ 1987" :: DISPLAY AT(9,2):"For free distribution but no":"price or copying fee may be":"charged."
180 DISPLAY AT(14,2):" Will output to a Gemini":"printer a horizontal bar-":"graph of up to 25 bars, each":"segmented into up to 12"
190 DISPLAY AT(18,1):"values , with a title for":"each and optionally with a":"table of identification of":"the segment symbols."
200 DISPLAY AT(24,8):"" :: DISPLAY AT(24,8):"PRESS ANY KEY" :: CALL KEY(O,K,S):: IF S=O THEN 200
210 ON WARNING NEXT
220 DISPLAY AT(12,1)ERASE ALL:"GRAPH TITLE?" :: ACCEPT AT(14,1):T$ :: T$=RPT$(" ",17-LEN(T$)/2)&T$ :: C$=CHR$(27)
230 DISPLAY AT(16,1):"HOW MANY SEGMENTS PER BAR?" :: ACCEPT AT(16,27)VALIDATE(DIGIT)SIZE(2):V :: IF V=0 OR V>12 THEN 230
240 !@P+
250 DATA 239,229,168,251,173,175,184,236,169,250,160,207
260 !@P-
270 FOR J=1 TO V :: READ A : CH$(J)=CHR$(A):: NEXT J
```

```
280 DISPLAY AT(3,1)ERASE ALL:"Type END when finished"
290 X=X+1 :: IF X>25 THEN 330
300 CALL NUMTH(X,X$):: DISPLAY AT(12,1):"Title of "&X$&" bar?" :: ACCEPT AT(14,1):B$(X):: IF B$(X)="END" OR B$(X)="end" THEN 330
310 FOR J=1 TO V :: CALL NUMTH(J,X$):: DISPLAY AT(16,1):X$&" segment value?" :: ACCEPT AT(18,1)VALIDATE(NUMERIC):B(X,J):: T=T+B(X,J):: NEXT J
320 M=MAX(M,T):: T=0 :: GOTO 290
330 X=X-1 :: DISPLAY AT(20,1):"Print labels? Y/N" :: ACCEPT AT(20,19)VALIDATE("YN")SIZE(1):Q$ :: IF Q$="N" THEN 350
340 FOR J=1 TO V :: CALL NUMTH(J,X$):: DISPLAY AT(22,1):X$&" label?" :: ACCEPT AT(24,1):L$(J):: NEXT J
350 C=120/M :: C1$=C$&"B"&CHR$(1)&C$&"G"&C$&"E" :: C2$=C$&"B"&CHR$(3)
360 OPEN #1:"PIO",VARIABLE 255 :: PRINT #1:C$&"@" :: PRINT #1:C$&"E"&C$&"G"&C$&"M"&CHR$(6)
370 PRINT #1:CHR$(14)&T$&CHR$(20):"":RPT$(CHR$(229),70):" :: PRINT #1:C$&"3"&CHR$(10)
380 FOR J=1 TO X :: PRINT #1:B$(J)&C2$ :: FOR L=1 TO V : M$=M$&RPT$(CH$(L),INT(B(J,L)*C+.5)):: NEXT L
390 PRINT #1:RPT$(CHR$(232),LEN(M$)):: PRINT #1:M$ :: PRINT #1:M$ :: PRINT #1:RPT$(CHR$(231),LEN(M$))
400 M$="" :: PRINT #1:C1$;:: NEXT J :: IF Q$="N" THEN STOP
410 PRINT #1:"":""
420 FOR J=1 TO V :: PRINT #1:C2$&RPT$(CHR$(232),10):: PRINT #1:RPT$(CH$(J),10)&C1$&"&L$(J):: PRINT #1:C2$&RPT$(CH$(J),10):: PRINT #1:RPT$(CHR$(231),10):: NEXT J
430 !@P+
440 SUB NUMTH(N,N$):: IF FLAG=1 THEN 520 :: FLAG=1 :: RESTORE 480
450 GOTO 480
```

```

ONE$( ), TEEN$( ), TEN$( ),
N, N$
470 !@P-
480 DATA first, second, third,
fourth, fifth, sixth, seventh, e
ighth, ninth, tenth
490 DATA eleventh, twelfth, th
irteenth, fourteenth, fifteent
h, sixteenth, seventeenth, eigh
teenth, nineteenth
500 DATA twenty, THIRTY, FORTY
, FIFTY, SIXTY, SEVENTY, EIGHTY,
NINETY
510 FOR J=1 TO 10 :: READ ON
E$(J):: NEXT J :: FOR J=1 TO
9 :: READ TEEN$(J):: NEXT J
:: FOR J=2 TO 9 :: READ TEN
$(J):: NEXT J
520 IF N<11 THEN N$=ONE$(N):
: SUBEXIT
530 IF N<20 THEN N$=TEEN$(N-
10):: SUBEXIT
540 IF N/10=INT(N/10) THEN N$
=SEG$(TEN$(N/10), 1, LEN(TEN$(
N/10))-1)&"ieth" :: SUBEXIT
550 N$=TEN$(INT(N/10))&"-"&O
NE$(N/10-INT(N/10))*10)
560 !@P+
570 SUBEND

```

And a little something educational -

```

100 DIM M$(100)
110 GOTO 150
120 S, J, M$( ), A$, Z$, K, W$( ), X,
Y, ADV$, A, Q$
130 CALL CLEAR :: CALL COLOR
:: CALL SCREEN :: CALL CHAR
:: CALL KEY :: CALL ADVERB
:: CALL SOUND
140 !@P-
150 CALL CLEAR :: FOR S=0 TO
12 :: CALL COLOR(S, 2, 8):: N
EXT S :: CALL SCREEN(S):: DI
SPLAY AT(3, 2): "ADJECTIVE TO
ADVERB V.1.3"
160 CALL CHAR(64, "3C4299A1A1
99423C"):: DISPLAY AT(5, 6): "
@ Tigercub Software":: " For
free distribution with no
charge or copying fee."
170 FOR J=1 TO 100 :: READ M
$(J):: A$=A$&CHR$(J):: NEXT
J :: Z$=A$ :: CALL KEY(3, K, S
)
180 W$(1)=" If adjective end
s in Y, change the Y to
ILY." :: W$(2)=" If adjectiv
e ends in C, add ALLY."

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190 W$(3)=" If adjective end
s in LL, just add Y."
200 W$(4)=" If adjective end
s in LE, preceded by a con
sonant, drop the E and ad
d Y."
210 W$(5)=" If the word ends
in E preceded by a con
sonant, preceded by a vow
el, just add LY."
220 W$(6)=" This word is an
exception to the rule - the
adverb is WHOLLY."
230 W$(7)=" If the adjective
does not end in C, E, LL or
Y, always just add LY."
240 W$(8)=" This is an excep
tion to the rule. The prefer
red adverb form is DRYLY."
250 W$(9)=" If the adjective
ends in E preceded by a vo
wel, drop the E and add LY
."
260 W$(10)=" If the adjectiv
e ends in E preceded by a co
nsonant other than L, ad
d LY."
270 RANDOMIZE :: X=INT(RND#L
EN(Z$)+1):: Y=ASC(SEG$(Z$, X,
1)):: Z$=SEG$(Z$, 1, X-1)&SEG$
(Z$, X+1, 255):: IF LEN(Z$)=0
THEN Z$=A$
280 ACCEPT AT(24, 1): M$(Y)
290 CALL ADVERB(M$(Y), ADV$, A
)
300 DISPLAY AT(12, 1): " Type
the adverb form of -" :: DIS
PLAY AT(15, 1): M$(Y):: DISPLA
Y AT(18, 10): "" :: ACCEPT AT(
15, 15)BEEP: Q$
310 IF Q$=ADV$ THEN DISPLAY
AT(18, 10): "CORRECT!" :: GOTO
240
320 CALL SOUND(100, 110, 5, -4,
5):: DISPLAY AT(20, 1): W$(A):
"" :: GOTO 300
330 !@P+
340 DATA DUE, COOL, SOLE, STOIC
, FRANTIC, COMIC, ABLE, FULL, POO
R, HANDY, SORE, SOCIAL, PENAL, SL
OW, HIGH, LOW
350 !@P-
360 DATA FRISKY, PLAYFUL, HEAL
THY, ROUGH, BUSY, SILLY, SICK, SM
ART, SORE, FAIR, ANGRY, BARE, TIR
ED, WISHFUL, ACTUAL
370 DATA HASTY, LONE, HECTIC, O
FFICIAL, MAGIC, MAGICAL, MATHEM
ATIC, LOGIC, TRAGIC, PATHETIC, T
RAUMATIC

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```

380 DATA DRAMATIC,AUTOMATIC,
AROMATIC,EQUAL,SERIAL,BASIC,
USUAL,FAVORABLE,UNSTABLE,LEG
IBLE
390 DATA HECTIC,LIVE,WARY,VI
SIBLE,TERRIBLE,HORRIBLE,VIVI
D,FANCY,EASY,VILE,WICKED,BLO
ODY,SHODDY
400 DATA NOBLE,HAPPY,LEGAL,M
ERRY,JOLLY,CRAZY,CASUAL,CARE
FUL,FOOLISH,FAMOUS,GAY,GUILT
Y
410 DATA HOPEFUL,HATEFUL,TIM
ID,BRAVE,BEAUTIFUL,DRY,NICE,
LARGE,PAINFUL,SINFUL,SORROWF
UL,SIMPLE,WILLFUL
420 DATA MENTAL,MORAL,PALE,W
HOLE,HUNGRY,FINAL,FORMAL,TRU
E,AMPLE,DOUBLE
430 !@P+
440 SUB ADVERB(M$,ADV$,A)::
L=LEN(M$):: E$=SEG$(M$,L,1)::
: F$=SEG$(M$,L-1,2):: G$=SEG
$(M$,L-1,1):: P$=SEG$(M$,1,L
-1):: H$=SEG$(M$,L-2,1)
450 IF ASC(SEG$(M$,1,1))<97
THEN A$="ALLY" :: I$="ILY" :
: L$="LY" :: Y$="Y" :: V$="A
EIOU" ELSE A$="ally" :: I$="
ily" :: L$="ly" :: Y$="y" ::
460 IF M$="WHOLE" THEN ADV$=
"WHOLLY" :: A=6 :: SUBEXIT
470 IF M$="DRY" THEN ADV$="D
RYLY" :: A=8 :: SUBEXIT ELSE
IF F$="LL" OR F$="ll" THEN
ADV$=M$&Y$ :: A=3 :: SUBEXIT
480 IF E$="C" OR E$="c" THEN
ADV$=M$&A$ :: A=2 :: SUBEXI
T ELSE IF E$="Y" OR E$="y" T
HEN ADV$=P$&I$ :: A=1 :: SUB
EXIT
490 IF E$<>"E" AND E$<>"e" T
HEN 530
500 IF G$="L" OR G$="l" THEN
IF POS(V$,H$,1)<>0 THEN ADV
$=M$&L$ :: A=5 :: SUBEXIT EL
SE ADV$=P$&Y$ :: A=4 :: SUBE
XIT
510 IF POS(V$,G$,1)<>0 THEN
ADV$=P$&L$ :: A=9 :: SUBEXIT
520 IF POS(V$,SEG$(M$,L-2,1)
,1)=0 THEN ADV$=M$&L$ :: A=1
0 :: SUBEXIT ELSE ADV$=M$&L$
:: A=5 :: SUBEXIT
530 ADV$=M$&L$ :: A=7 :: SUB
END

100 !MOCKINGBIRD TINYGRAM by
Jim Peterson. Tap your
tune on the 1 to 0 keys

```

```

(tuned A through C)
110 !Then press any other
key to hear it repeated
120 DATA 220,247,262,294,330
,349,392,440,494,523
130 FOR J=1 TO 10 :: READ N(
J):: NEXT J :: J=0 :: DIM T(
50,2)
140 CALL KEY(5,K,S):: IF S=0
THEN 140
150 ON ERROR 190
160 CALL KEY(5,K,S):: IF K=-
1 THEN 160 :: K=K-(K=48)*10
:: T(J,1)=N(K-48):: CALL SOU
ND(-999,T(J,1),0)
170 IF K=K2 THEN T(J,2)=T(J,
2)+1 :: GOTO 160
180 K2=K :: J=J+1 :: GOTO 16
0
190 FOR X=0 TO J-1 :: CALL S
OUND((T(X,2)+1)*400,T(X,1),0
,T(X,1)*1.01,0):: NEXT X ::
J=0 :: GOTO 140

```

A little subprogram to add a bit of variety to your "PRESS ANY KEY" routine.

```

1 CALL CLEAR :: CALL PRESSKE
Y(24)
30000 SUB PRESSKEY(R)
30001 C=C+1 :: IF C=16 THEN
30002 :: DISPLAY AT(R,1):" "
:: DISPLAY AT(R,C):"PRESS AN
Y KEY" :: DISPLAY AT(R,C):"p
ress any key" :: CALL KEY(O,
K,S):: IF S=0 THEN 30001 ELS
E 30003
30002 C=C-1 :: IF C=0 THEN 3
0001 :: DISPLAY AT(R,1):" " :
: DISPLAY AT(R,C):"PRESS ANY
KEY" :: DISPLAY AT(R,C):"pr
ess any key" :: CALL KEY(O,K
,S):: IF S=0 THEN 30002
30003 DISPLAY AT(R,1):" " ::
SUBEND

```

And a new way to wipe the screen -

```

1 CALL CORNERWIPE(30)
29000 SUB CORNERWIPE(CH):: F
OR T=1 TO 24 :: CALL HCHAR(T
,3,CH,T+4):: CALL HCHAR(25-T
,32-T,CH,T):: NEXT T :: CALL
CLEAR :: SUBEND

```

MEMORY FULL

Jim Peterson

CONVERTING THE VERSION 2.2 CONSOLE

 By John Drennen, West Penn 99'ERS

Getting around the Version 2.2 console has not been much of a problem with fully equipped systems. One could use the Corcomp Disk Controller Card(\$150) to bypass the V2.2 operating system and run non-TI cartridges. The GRAM KRACKER(\$190)by MG can also run non-TI cartridges by using a non-v2.2 operating system in its gram 0. The other GRAM CARDS might also be used, but I am not sure. The Corcomp Grom-Buster(\$30) has been the most attractive alternative for the console only users.

All of the above work, but why not get to the heart of the problem: GROM 0 (CD2155NL). By ordering the CD2155NL chip from TI, you can upgrade your V2.2 console to the standard console. On most of the consoles, this chip is in a socket, but I have come across a few consoles in which this chip is soldered. This is all that has to be done.

The part number is 1015960-1155. The cost from TI is \$3.80 + TAX + \$3.00 SHIPPING. The phone number is 1-806-741-2265.

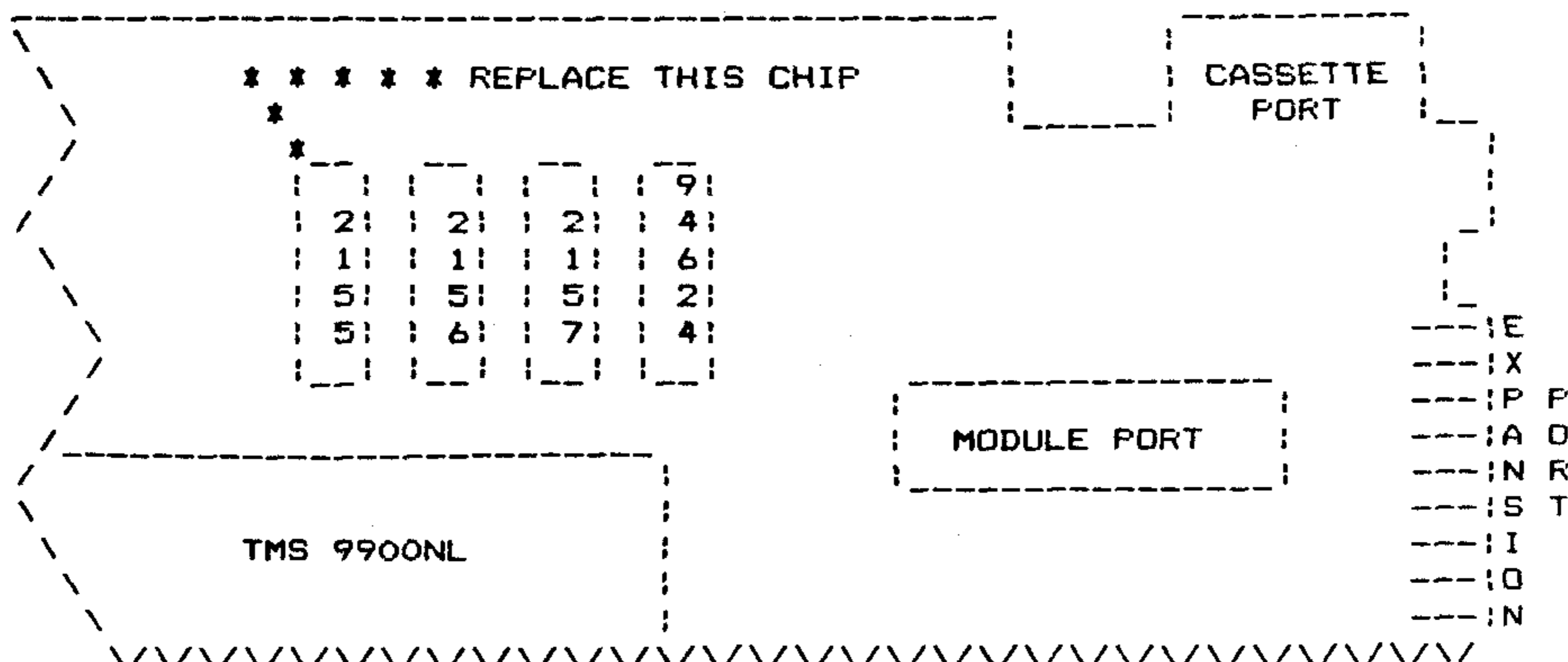
I have loaded the following modules and programs to confirm that this modification is complete and compatible with all software and hardware:

MINER 2049er(a side port module), PACMAN, DONKEY KONG, WORD WRITER, FDM 99, JUNKMAN JR., SUPER DUPER, PLATO, TUNNELS OF DOOM, ADVENTURE, MINIMEMORY, PERSONAL RECORD KEEPING, EDITOR ASSEMBLER, MULTIPLAN, TI-WRITER, EXTENDED BASIC, PAINT N PRINT, BIG FOOT, HOME CONTROL, Q*BERT.

DM1000, NIGHT MISSION, STRUCTURAL ENGINEERING LIBRARY, ALL STAR BASEBALL, CUBIT, OLD DARK CAVES, ADVANCED DIAGNOSTICS, DISKASSEMBLER.

I have been using my converted console for about a month with no problems, either software or hardware. The hardware tested includes: TI and Corcomp disk controller cards, speech synthesizer, Gram Kracker, X-10 Powerhouse, Axiom Parallax, cassette recorder, Mechatronic Epromer.

The picture below will show you which chip to replace. The chip may be marked CD2155 8327 DCHY. The 8327 is the DATE CODE.



JANUARY 10, 1989 HAPPY NEW YEAR TO ALL!

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+++++++	Jack Sughrue	476/7630

JANUARY MEETING. This meeting will feature Jack Sughrue's demo of the Jim Peterson NUTS N' BOLTS UTILITIES. This should be a very interesting demo. We also have received a disk from Jim Peterson, alias The Tigercub, ^{with} nine new Tips articles; Numbers 46 thru 54. I will start publishing these this month. Jim has also sent his latest catalog, it is on disk, and it may be copied at any meeting. Corson will have some new information for us about the TI world in general. Dan Rogers will continue with the newly restarted Assembly S.I.G. Please remember to bring your renewal checks with you if you have received a notice that your dues are due.

DECEMBER MEETING. President Corson Wyman called the meeting to order with fourteen members present. Corson gave a quick review of the Chicago Fair, it seems to have lost some of its lustre. Jack Sughrue informed us of a proposition from the Western New York 99ers' which would have the two groups compile and market a set of disks containing all Adventure type games for the T.I. computer. The members present expressed a willingness to help in the duplication of disks, approximately five per set. This will be our major fund raiser for the year. We expect to have the disks ready for sale by the time of the April Fayah. Jack demoed the Configure Program for Funnelweb and the Assembly S.I.G. had its first meeting.

RAFFLE. Each month we have a raffle and the dollar donation per ticket helps to cover the monthly fee to rent the hall. This month's raffle will have a TI programming book, two educational game carts and at least one other item.

MONTHLY SALES. At each meeting you have the opportunity to buy and/or sell new or used hardware, software, books and original programs. Please have prices marked on any items you have to sell.

LIBRARY NOTICE. Please return any items borrowed from our library. If you can not come to a meeting or give these items to someone who will be at the meeting, please mail any library items to the group address which is listed on the cover of this newsletter. There are no late fees, we don't care how long they have been out, please return these items.

REPRINTS. Reprints of any items in this newsletter is permitted as long as credit is given to M.U.N.C.H.

ARTICLES. I am always looking for articles for this newsletter, anything which interests you will probably interest other members of the TI community, so please share your ideas and opinions with all of us.

