

March

# PUG PERIPHERAL

VOLUME 9 MARCH 1986 NO. 3

NEXT Meeting of the PUG.

March 16 1986 at the south campus of the community college of allegheny county. General meeting starts at 6:30 PM.

The scheduled classes are

- 3:00-4:00 Multiplan Dave Gzesh
- 3:00-4:00 Beginners Class Roy Carlson
- 4:00-5:00 Ti-Writer Norm Rokke
- 4:00-5:00 Advanced Xbasic Darren Leonard
- 5:00-6:00 TI-Forth Scott Coleman
- 5:00-6:00 Basic Jonathan Zittrain

All classes subject to last minute change. Incidentally, those of you who didn't see our display at century three missed something. One thing of particular interest was Norm Rokke's use of TI-writer to do graphics. He had printed out a periodic table, callenders and a page of isomers of carbolxycylic acid. Norm has done more with Ti-writer than anyone else i've seen. Norm, if you are reading this, would you bring these to the meeting so that they may be on display at the counter?

The march meeting is election time. If you can't make it to the meeting, use the mail in ballot inside this newsletter. If you don't vote, don't grope. Unfortunately, for those of you who don't particularly like me, I am running unopposed for president so I openly and honestly suspect that I might win. Looks like Clayton will remain treasurer for the next year. Come and vote!!!

The \$5 raffle this month is for a GRAM KRACKER!!!! Tickets are \$5 for one or \$15 for 4 tickets. We will draw the lucky winner when we sell 50 tickets. We usually sell that many so I expect to be drawing the winner around 8:00. Winner need not be present. Tickets are available through Darren Leonard only. If you cannot make the meeting, give me a call. Dean, quit smiling!

PUG BBS-->(412) 271-1142 to get an I.D. number, drop a postcard with your name, phone, address and system configuration to PUG BBS at the club's P.O. Box. We have duel sysops and good software for downloads.

Viewtron of Pittsburgh will be giving a demo of their service at this coming meeting. Viewtron is a mainframe service similiar to Compuserve. Free 1-hour trial packages will be available.

How many of you would be interested in seeing a demo of the Atari 520ST at the April meeting. I think it would be interesting and unless anyone donates their car to the PUG, we may proceed with this. Dick are you still there?

The TI-Exchange center in coraopolis is closing as of Mar 15 1986. Their current phone number is 771-8112. After Mar 14 you will have to send all defective or damaged material to texas for repair. I vehemently reccommend that you don't putoff a trip to the airport unless you don't mind the postage costs and 4 week waiting periods. The address in texas is :

Texas Instruments Inc  
Attn: Repair Service  
2305 N. University Ave  
Lubbock Texas 79415

Use you head and insure anything you send that is valuable, also try to package as securely as possible.

We will have Donuts and Coffee and Tea available at the next meeting just as we have had in the past. I am not sure if most of the people come for the donuts, the TI or to hear me babble, but just as long as you come I don't really mind.

See you March 16-->DFL

What's new in Sapphire Software?

TI-Monopoly- From australia comes this exciting assembly monopoly game. Great graphics and realistic game play. You'll love this one!

Midnight Mason- From the people who gave us Micro pinball comes this great and well written assembly game. Kids love it, adults will find the game smooth, with fast response and thoroughly enjoyable to play.

Micro-Pinball- This is a must have. 100% pure assembly give unsurpassed realism. The ball behaves as if it were under the influence of gravity. We couldn't keep people away from this one at the show. Norm even became addicted to this one. If you feel that you have been slacking off lately as a parent, get this one for your kids and all will be forgotten(not really, but so much for wishfull thinking). Don't miss this one!!!!!!!

Funnel- donated and demonastrated by Marty Kroll Jr at the last meeting is an exceedingly useful conglomeration of utilities that include diskmanagers, copiers and a few other goodies. All are menu-driven and load from one extended basic loader. Guarenteed to please.

The February Disk of the Month was the biggest steal imaginable. I am not going to tell you what is on it, I will say that there are 2 assembly games plus about 4 other programs including a tunnels of doom game. There are a few left for the incredibly low low \$5!!!

The file tranfer utility allows you to transfer adventures from one medium to another. Disk to cassette or visa versa. NOT TO BE USED TO PIRATE ILLEGAL COPIES, this is to allow you to make back up copies for your use only. Clydes loader will load assembly language program files through extended basic and is a must if you do not have an Editor Assembler handy. Spotshot and Cubitx are both excellent assembly games.

The TI-writer loaders are 3 loaders plus support files that are greatly improved versions of TK writer.

C is a new generation programming language that features a TRUE COMPILER and is almost as fast as assembly. Come with a printed manual.

The universal dissasebler be Renee LeBlanc is an example of the excellent quality of fairware software. It will allow many new features, but the most appealing is the ability to dissassemble directly from disk! If you use this one, please send Renee a contribution, this man can write some excellent material. Please send a contribution to Renee or any other Fairware author of a program that you use. Seriously, if you expect new software-->DONATE!!!!

I have just a few ti-artists left. Give me a quick(and painless) call at 885-1502 if you want one!

Did you know that if you donate a fairware,public domain or program that you written to sapphire software, I will give you any disk available in that month's newsletter(except forth) in exchange. If your don't find anything appealing in the SS library, I will find something to appease you.

If you bought a disk #14 or a copy of Marty's cataloguer program you may have realized that there is a bug in that version that causes it to lock up when it starts sorting. If you want the new version, with several new features, peel off you label and mail it to me with \$1.50 and I will send you the complete disk with all sourse codes and all existing printer versions. At your option you may bring your old disk to the meeting and see me there.

Remember, the more sapphire software you buy, the larger the newsletter, the better the raffle prizes and more new sapphire software that will be available to YOU. When I take office next month my first official act will be to delete all the expired duesletter only members we are supporting. Newsletters will no longer be freely passed out at meetings(if you are a member they will still be there). If we are not worth \$12 a year to you, then you are not worth anything to us. Effective April 1986 all members whose dues have not been renewed since march of 1985 will be deleted! Amnesty is over, renew today if you want to remain with us. Otherwise-->Adios

->DFL

32K MEMORY EXPANSION

Send Self Adressed Stamped envelope to:

( SEM-KIT FORM )

John D. Wilforth  
RD #1 Box 73a  
Jeannette PA 15644

- \* 32K of STATIC RAM. (using 8 x 8k 6264LP-15).
- \* Physical dimentions. (1 1/16" x 2" x 1").
- \* Operates exactly the same as the T.I. Expansion Memory. (412)527-6656
- \* Installs in the small space directly behind the game port.
- \* Requires the soldering of the unit to the pin extensions on the back of the game port connector, soldering 5 wires to two chips on the main board, and the removal of some plastic inside the top cover. (approximate total time 30 min.)
- \* Tools needed: 15 to 25 watt soldering iron  
6 " fine resin core solder  
knife (EXACTO type)  
phillips screw driver  
small pair of pliers

Many other projects are on the drwing board.

I'm planning to manufacture this unit, if there is sufficient interest. The cost should be between \$35. and \$45. plus shipping. If you might be interested, please submit your name, address, and phone number so I can contact you.

NAME	ADDRESS	PHONE	QUANTITY	COMMENTS
------	---------	-------	----------	----------

John Willforth is in the process of having some circuit boards etched for a specifically designed internal memory expansion unit. Assembly will be increadibly simple. John is looking for support. The finiacial outlay to get 100(the bare-get it,bare-minimuim) is about \$500. The more interest in this project, the lower the individual cost. Please send a self addressed STAMPED envelope to John if you are interested.

Other tentive projects include, a 156K ram disk that fits inside the console, a 16k minimemory that would beable to dump most non-grom modules, internal speech for less than \$35, RS232's and disk controllers that fit inside the console. If you want to see some of these innovations materialize>>>please give John Wilforth all the support you can. I have had the chance to tryout some of these prototypes and they work perfectly and are compatable with all software that we can think of.

Other newsletter editors please read

Please reprint the top of this page in your newsletter. It will benefit your members ultimately.

Current Pug Officers

President	Roy T Carlson	481-5927	Call an officer today!
Treasurer	Clayton Coleman	271-7908	
Librarian	Dennis Senay	463-3093	
Vice President	Jonathan Zittrain	731-4895	
Corresponding Secty	Nancy Senay	463-3093	
Recording Secretary	Herb Riech	531-9023	

LD61X

By Rich Renth

This program was written in response to a request for a "Mastermind" type program. The object is to put the correct colors in the proper order. Instructions are in the program. This is a challenging game for all ages. Enjoy!! (Editors Note; This program is available in the club library on disk and cassette. Thanks Rich!)

```

110 CALL CLEAR
120 CALL SCREEN(B)
130 PRINT "<C>olor or <B>lac
k & white"
140 INPUT "ENTER YOUR LETTER
CHOICE >":AN$
150 IF AN$="C" THEN 170
160 CALL SCREEN(16)
170 CALL CLEAR
180 PRINT TAB(10);"L O B I X
": "the object of the game
is to guess the proper or
der and color of the four p
egs that"
190 PRINT "the computer will
hide under the question mark
s at the top. the fou
r pegs are all a different c
olor, picked"
200 PRINT "from the six colo
rs. the computer will hel
p you each time you ente
r your four color guesses
, by telling"
210 PRINT "you just how many
colors are right and how man
y of them are in the ri
ght row. you can have up t
o ten attempts"
220 PRINT "to guess the prop
er order and color of the
hidden pegs": " : " PRESS
ANY KEY TO START GAME"
230 CALL KEY(0,K,S)
240 IF S<1 THEN 230
250 DATA 00000000FF,00000000
FF10101,00000000F010101,0000
00001F10101,10101010F,10
1010101F
260 DATA 10101010FF10101,101
010101010101,10101010FF,1010
10101F10101,10101010F010
101,FF81BDA5A5BDB1FF

```

```

270 DATA 9,11,3,14,16,6
280 DATA 007B444478504844,00
44442810101010,003C40405C444
438,0044444428281010,004
444445454542B,00782424382424
78
290 FOR X=35 TO 46
300 READ A$
310 CALL CHAR(X,A$)
320 NEXT X
330 IF AN$="B" THEN 370
340 FOR X=96 TO 136 STEP 8
350 CALL CHAR(X,"FFFFFFFF
FFFF")
360 NEXT X
370 FOR X=9 TO 14
380 READ Y
390 CALL COLOR(X,Y,1)
400 NEXT X
410 IF AN$="C" THEN 470
420 FOR X=96 TO 136 STEP 8
430 READ A$
440 CALL COLOR(X/8-3,2,1)
450 CALL CHAR(X,A$)
460 NEXT X
470 RANDOMIZE
480 FOR X=1 TO 4
490 A(X)=INT(RND*6+1)
500 FOR Y=1 TO X-1
510 IF A(X)=A(Y) THEN 490
520 NEXT Y
530 NEXT X
540 CALL CLEAR
550 PRINT TAB(11);"%$%$%$%$%Z
RIGHT"
560 PRINT CHR$(96);"R ED";TA
B(11);"%$%$%$%$%"
570 PRINT CHR$(136);"B LUE";
TAB(11);"%($+#+#+#' COL' RDW"
580 PRINT CHR$(128);"W HITE"
;TAB(11);"%$%$%$%$%Z"
590 PRINT CHR$(112);"G REEN"
;TAB(11);"%$%$%$%$%"
600 PRINT CHR$(120);"V IOLET
";TAB(11);";,)#)#)#)-"
610 PRINT CHR$(104);"YELLOW
";TAB(11);"%$%$%$%$%"
620 PRINT TAB(11);";,)#)#)#)-
"
630 PRINT TAB(11);"%$%$%$%$%
"
640 PRINT TAB(11);";,)#)#)#)-
"
650 PRINT TAB(11);"%$%$%$%$%
"
660 PRINT TAB(11);";,)#)#)#)-
"
670 PRINT TAB(11);"%$%$%$%$%
"
680 PRINT TAB(11);";,)#)#)#)-
"
690 PRINT TAB(11);"%$%$%$%$%
"

```

```

700 PRINT TAB(11);";,)#)#)#)-
"
710 PRINT TAB(11);"%$%$%$%$%
"
720 PRINT TAB(11);";,)#)#)#)-
"
730 PRINT TAB(11);"%$%$%$%$%
"
740 PRINT TAB(11);";,)#)#)#)-
"
750 PRINT TAB(11);"%$%$%$%$%
"
760 PRINT TAB(11);";,)#)#)#)-
"
770 PRINT "COLOR?";TAB(11);
"%$%$%$%$%"
780 PRINT TAB(11);"%($+#+#+#'
";
790 IF AN$="C" THEN 810
800 CALL VCHAR(2,3,32,6)
810 FOR C=14 TO 20 STEP 2
820 FOR R=5 TO 23 STEP 2
830 CALL HCHAR(R,C,46)
840 NEXT R
850 NEXT C
860 FOR C=14 TO 20 STEP 2
870 CALL HCHAR(2,C,63)
880 NEXT C
890 R=23
900 W=0
910 B=0
920 FOR C=14 TO 20 STEP 2
930 GOSUB 1080
940 CALL HCHAR(R,C,K*8+88)
950 IF A(C/2-6)<>X THEN 970
960 B=B+1
970 FOR X=1 TO 4
980 IF A(X)<>X THEN 1000
990 W=W+1
1000 NEXT X
1010 NEXT C
1020 CALL HCHAR(R,24,W+48)
1030 CALL HCHAR(R,29,B+48)
1040 R=R-2
1050 IF B=4 THEN 1340
1060 IF R<5 THEN 1340
1070 GOTO 900
1080 CALL HCHAR(R,C,88)
1090 CALL HCHAR(23,10,95)
1100 CALL KEY(0,K,S)
1110 CALL HCHAR(R,C,32)
1120 CALL HCHAR(23,10,32)
1130 IF S<1 THEN 1080
1140 CALL HCHAR(23,10,K)
1150 IF (K=82)+(K=89)+(K=71)
+(K=86)+(K=87)+(K=66) THEN 11
90
1160 CALL SOUND(-50,220,0)
1170 CALL SOUND(250,110,0)
1180 GOTO 1080
1190 CALL SOUND(-50,880,0)
1200 CALL SOUND(-50,988,4)
1210 IF K>82 THEN 1230

```

```

1220 K=1
1230 IF K<89 THEN 1250
1240 K=2
1250 IF K<71 THEN 1270
1260 K=3
1270 IF K<86 THEN 1290
1280 K=4
1290 IF K<87 THEN 1310
1300 K=5
1310 IF K<66 THEN 1330
1320 K=6
1330 RETURN
1340 FOR X=1 TO 4
1350 CALL HCHAR(2,X*2+12,A(X
)*8+88)
1360 NEXT X
1370 L=11
1380 M$="WELL YOU "
1390 GOSUB 1700
1400 IF B<4 THEN 1480
1410 M$="MADE IT"
1420 GOSUB 1700
1430 M$="IN ONLY"
1440 GOSUB 1700
1450 M$="&STR$(ABS((R+1)/2
-12))&" TRIES"
1460 GOSUB 1700
1470 GOTO 1540
1480 M$="MIGHT MAKE"
1490 GOSUB 1700
1500 M$="IT NEXT"
1510 GOSUB 1700
1520 M$="TIME"
1530 GOSUB 1700
1540 L=L+2
1550 M$="PLAY"
1560 GOSUB 1700
1570 M$="AGAIN"
1580 GOSUB 1700
1590 M$="Y/N?"
1600 L=L+1
1610 CALL KEY(0,K,S)
1620 CALL HCHAR(20,5,32)
1630 CALL HCHAR(20,7,32)
1640 GOSUB 1700
1650 L=20
1660 IF S<1 THEN 1610
1670 IF K=89 THEN 470
1680 IF K<78 THEN 1610
1690 END
1700 FOR X=1 TO LEN(M$)
1710 C=ASC(SEG$(M$,X,1))
1720 CALL HCHAR(L,X+2,C)
1730 NEXT X
1740 L=L+1
1750 RETURN

```

TIPS FROM THE TIGERCUB

#31

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TIGERCUB SOFTWARE  
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Columbus, OH 43213

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Tips from The Tigercub, a full disk containing the complete contents of this newsletter Nos. 1 through 14, 50 original programs and files, just \$15 postpaid.

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VOCABULARY AND READING  
MUSICAL EDUCATION  
KALEIDOSCOPES AND DISPLAYS

For descriptions of these send a dollar for my catalog!

A few people have asked for a program that they could use to encode personal messages on a BBS. considering the current legal threats to BBS's, I doubt that a SysOp will allow coded messages, but here is a coder/decoder to create code that should be quite difficult to crack. First we need another of those programs that write a program -

```
100 !CODEPRINT by Jim Peters
on - creates a random code in
a MERGE format program COD
ESTRING to be MERGED into CO
DEMAKER
110 FOR J=1 TO 254 :: M%=M%&
CHR$(J):: NEXT J
120 FOR J=1 TO 254 :: RANDOM
```

```
IZE :: X=INT(RND*LEN(M%)+1):
: C%=C%&SEG$(M%,X,1):: M%=SE
G$(M%,1,X-1)&SEG$(M%,X+1,LEN
(M%)):: NEXT J
130 OPEN #1:"DSK1.CODESTRING
",VARIABLE 163,OUTPUT :: PRI
NT #1:CHR$(0)&CHR$(1)&"C%&C
HR$(190)&CHR$(199)&CHR$(127)
&SEG$(C%,1,127)&CHR$(0)
140 PRINT #1:CHR$(0)&CHR$(2)
&"C%&CHR$(190)&CHR$(199)&C
HR$(127)&SEG$(C%,128,127)&C
H R$(0)
150 PRINT #1:CHR$(0)&CHR$(3)
&"C%&CHR$(190)&"C%&CHR$(18
4)&"C%&CHR$(0):: PRINT #1:
CHR$(255)&CHR$(255):: CLOSE
#1 :: END
```

And now the coder/decoder -  
100 !TIGERCUB CODEMAKER writ  
ten by Jim Peterson  
110 !The MERGE format progra  
m CODESTRING created by the  
program CODEPRINT must be ME  
RGED into lines 1-3 of this  
program

```
120 DIM A$(254):: DISPLAY AT
(3,6)ERASE ALL:"TIGERCUB COD
EYAKER" :: DISPLAY AT(12,1):
"Do you want to": "(1)Encod
e": "(2)Decode"
130 CALL KEY(0,K,ST):: IF K=
49 THEN 140 ELSE IF K=50 THE
N 290 ELSE 130
140 OPEN #1:"DSK1.CODE",VARI
ABLE 254,OUTPUT
150 DISPLAY AT(5,6)ERASE ALL
:"Type message in segments o
f": "not more than 254 charac
ters": "and Enter. When done,
type"
```

```
160 DISPLAY AT(9,1):"END and
Enter. Type slowly": "to avo
id skipped characters.": "Bac
kspace with FCTN S to": "corr
ect.": "Press any key"
170 CALL KEY(0,K,ST):: IF ST
=0 THEN 170
180 CALL CLEAR :: CALL LONGA
CCEPT(0,M%): IF M%="END" TH
EN 280
190 DISPLAY AT(20,1):"WAIT,
PLEASE - ENCODING"
200 FOR J=1 TO LEN(M%)
210 A$(ASC(SEG$(C%,J,1)))=SE
G$(M%,J,1)
220 NEXT J
230 FOR J=1 TO 254 :: RANDOM
IZE
```

```
240 IF A$(J)="" THEN A$(J)=C
HR$(INT(26*RND+65))
250 CODE%=CODE%&A$(J)
260 NEXT J :: PRINT CODE%
270 PRINT #1:CODE% :: CODE%=
"" :: FOR J=1 TO 254 :: A$(J
)="" :: NEXT J :: GOTO 180
280 CLOSE #1 :: END
290 OPEN #1:"DSK1.CODE",VARI
ABLE 254,INPUT :: CALL CLEAR
:: DISPLAY AT(12,10):"DECOD
ING"
300 LINPUT #1:CODE% :: FOR J
=1 TO 254 :: M%=M%&SEG$(CODE
%,ASC(SEG$(C%,J,1)),1):: NEX
T J :: PRINT M%:: M%=""
310 IF EOF(1)<>1 THEN 300 ::
CLOSE #1 :: END
320 SUB LONGACCEPT(L,M%): X
=0 :: IF L<>0 THEN R=L ELSE
R=R+1
330 M%="" :: C=3 :: CH=140 :
: CALL CHAR(140,RPT$(0,14)
&"FF")
340 CALL HCHAR(R,C,CH):: CH=
CH+5+(CH=160)*25 :: CALL KEY
(0,K,ST):: IF ST<1 THEN 340
350 IF K<>8 THEN 370 :: X=X-
1 :: C=C-1 :: IF C=2 THEN C=
30 :: R=R-1
360 M%=SEG$(M%,1,LEN(M%)-1):
GOTO 340
370 IF K=13 THEN 410
380 X=X+1 :: M%=M%&CHR$(K)::
CALL HCHAR(R,C,K):: IF X=25
4 THEN 410
390 C=C+1 :: IF C=31 THEN C=
3 :: R=R+1 :: IF R=25 THEN C
ALL CLEAR :: R=1
400 GOTO 340
410 R=0 :: SUBEND
```

Here is a simple little game I call Cover-Up. Use the #1 joystick, try to cover the white square with the black square. Press the fire button to speed up, release it to slow down.  
100 CALL CLEAR :: CALL CHAR(96,RPT\$(0,64)):: CALL SPRITE(01,96,5,92,124):: CALL MANGNIFY(4):: CALL SPRITE(02,96,16,100,100)  
110 X=INT(20\*RND)-INT(20\*RND):: Y=INT(20\*RND)-INT(20\*RND):: CALL MOTION(02,X,Y):: T=T+1 :: IF T=250 THEN 300  
120 CALL JOYSPEED(1,1):: CAL L COINC(01,02,0,A):: IF A=-1

```

THEN 130 ELSE 110
130 Z=Z+1 :: DISPLAY AT(1,1)
:Z :: CALL SOUND(-50,500,5)
: GOTO 120
300 CALL DELSPRITE(ALL):: DI
SPLAY AT(12,5):"YOUR SCORE I
S "&STR$(Z):: DISPLAY AT(20,
1):"PRESS ENTER TO PLAY AGAI
N"
310 CALL KEY(0,K,S):: IF S=0
OR K>13 THEN 310 :: T,Z=0
:: GOTO 100
2110 SUB JOYSPEED(N,A):: CA
LL JOYST(N,X,Y):: CALL KEY(N
,K,ST):: S=S+K/9-1 :: S=S+AD
S(S>0):: IF S>30 THEN S=30
2111: CALL MOTION(0A,-(Y*S),
X*S):: SUBEND

```

For a one-handed BREAK, if you can't reach FCTN and 4, try FCTN with J and the space bar together.

If you like to call BBS's, try the TIBBS Spirit of 99 BBS in Columbus, Ohio on (614)451-0880 and leave me a "hello!"

Probably useless info - holding down FCTN and CTRL together and typing 1, 2, 3 and 5 will give ASCII codes 145, 151, 133 and 148, which are the codes obtained from CTRL Q, W, E and T, the keys diagonally below the 1, 2, 3 and 5.

Occasionally someone sends me a program they have keyed in from my newsletter, and asks why it won't run, so I wrote this routine to help find the errors. It is also useful to check whether two copies of a program are identical, but only if they have not been resequenced.

```

100 !CHECKER by Jim Peterson
- to compare two programs a
nd list all differing lines
to the printer
110 DISPLAY AT(12,1)ERASE AL
L:"1st program DSK/filename?
": "DSK" :: ACCEPT AT(13,4):F
10
120 DISPLAY AT(12,1)ERASE AL
L:"2nd program DSK/filename?

```

```

": "DSK" :: ACCEPT AT(13,4):F
20
130 OPEN #1:"DSK"&F10,INPUT
:: DIM M$(500),CH$(500):: OPE
N #2:"PIO",VARIABLE 255 :: P
RINT #2:CHR$(15)
140 X=X+1 :: LINPUT #1:M$(X)
:: M$(X)=M$(X)&" " :: IF EOF
(1)<>1 THEN 140 :: CLOSE #1
:: OPEN #1:"DSK"&F20,INPUT
150 IF EOF(1)=1 THEN 230 ::
LINPUT #1:X$ :: X$=X$&" "
160 FOR Y=1 TO X
170 IF X=M$(Y) THEN CH(Y)=1
:: GOTO 150
180 NEXT Y
190 P2=POS(?" ", " ,!"): P2=S
E6$(X$,1,P2-1)
200 FOR Y=2 TO X :: P1=POS(M
$(Y), " ",!): P1=SE6$(M$(Y)
,1,P1-1)
210 IF P2=P1 THEN PRINT #2
:"1st program = ";M$(Y):"2nd
program = ";X$ :: CH(Y)=1
: GOTO 150
220 NEXT Y :: PRINT #2:"2nd
program = ";X$ :: GOTO 150
230 FOR J=1 TO X :: IF CH(J)
=0 THEN PRINT #2:"1st progra
m = ";M$(J)
240 NEXT J
250 CLOSE #1 :: CLOSE #2

```

Here's a great idea that was printed and reprinted in several newsletters -

At the beginning of a program that will run only in Basic, add the lines -  
1 IF PI=0 THEN (first line of program)  
2 PRINT "YOU ARE IN EXTENDED BASIC": "THIS PROGRAM RUNS ONLY IN BASIC"  
3 STOP

The idea is that PI is a function in XBasic with the value of pi, but is just a variable name in Basic with an undefined value of 0.

The trouble is, it doesn't work! If PI is keyed in from Basic and saved, it is saved in token format as a variable name, and when loaded back into XBasic is still just a variable name. And if PI is saved from XBasic, it is tokenized as a function, loads back into Basic

as an unrecognized function and crashes! Can anyone come up with a way around that?

The above is the answer to the Challenge in Tips #30. Lines 100 and 110 were keyed in and saved from Basic, and loaded back into XBasic, then lines 120 and 130 were keyed in.

Here is a handy PEEK that hasn't been published as widely as most of them -  
100 CALL INIT  
110 CALL PEEK(8192,X)!Thanks to Dale Loftis in the Orange County UG newsletter!  
120 PRINT X !If X=32 you are in Extended Basic; if X=165 you are in Basic with the Editor Assembler or MiniMemory module inserted.

And another 3-D sprite demo, just to make all the Apple polishers jealous. See if you can figure out how it works.

```

100 CALL CLEAR :: CALL SCREE
N(5):: CALL CHAR(100,RPT$( "F
",64)):: CALL MAGNIFY(4):: F
OR S=5 TO 9 :: CALL COLOR(S,
16,1):: NEXT S
110 DISPLAY AT(3,3):"TIGERCU
B SPRITE SHUFFLE" !by Jim Pe
terson
120 DATA 70,116,2,75,121,7,6
9,124,11,70,115,16
130 FOR J=5 TO 8 :: READ P(J
,1),P(J,2),L(J):: CALL SPRIT
E(0J,100,L(J),P(J,1),P(J,2))
:: NEXT J :: W=45
140 DATA 5,6,7,8,8,5,6,7,7,8
,5,6,6,7,8,5
150 RESTORE 140 :: FOR Y=5 T
O 8 :: READ A,B,C,D
160 FOR J=1 TO W :: CALL LOC
ATE(0A,P(A,1)-J,P(A,2),0B,P(
B,1),P(B,2)-J,0C,P(C,1)+J,P(
C,2),0D,P(D,1),P(D,2)+J):: W
=90 :: NEXT J :: GOSUB 100
170 NEXT Y :: GOTO 150
180 FOR J=5 TO 7 :: CALL POS
ITION(0J,P(J+1,1),P(J+1,2))
: NEXT J :: CALL POSITION(00
,P(5,1),P(5,2))
190 T=L(8):: L(8)=L(7):: L(7
)=L(6):: L(6)=L(5):: L(5)=T
200 FOR J=5 TO 8 :: CALL SPR

```

```

ITE(0J-4,100,L(J),P(J,1),P(J
,2)):: NEXT J
210 FOR J=5 TO 8 :: CALL SPR
ITE(0J,100,L(J),P(J,1),P(J,2
)):: NEXT J :: CALL DELSPRIT
E(01,02,03,04):: RETURN

```

Do you need some really REAL BIG letters on the screen? Just type your letter at the beep.

```

100 DIM X$(96):: CALL CLEAR
:: FOR CH=33 TO 89 STEP 8 ::
FOR A=0 TO 7 !REAL BIG LETT
ERS by Jim Peterson
110 CALL CHARPAT(CH+A,X$(CH+A-32))
:: CALL CHAR(CH+A,"0")
:: L=L&RPT$(CHR$(CH+A),3)
: NEXT A
120 FOR T=1 TO 3 :: R=R+1 ::
DISPLAY AT(R,4):L$ :: NEXT
T :: L="" :: NEXT CH
130 CH$(1)=RPT$( "0",16) :: CH
$(2)=RPT$( "F",16)
140 CALL SOUND(100,500,0)
150 CALL KEY(0,CH,S):: IF S=
0 OR CH>96 THEN 150
160 CALL HEX_BIN(X$(CH-32),B
0):: FOR J=9 TO 64 :: CALL C
HAR(J+32,CH$(VAL(SE6$(B0,J,1
)))+1))
170 NEXT J :: GOTO 140
180 SUB HEX_BIN(H$,B0):: HX$
="0123456789ABCDEF" :: BN$="
0001000100010001100100010
10011001110001000100010101
0110011001101011101111"
190 FOR J=LEN(H$) TO 1 STEP -
1 :: X$=SE6$(H$,J,1)
200 X=POS(HX$,X$+1,4)&70 :: NEXT
J :: B0=T0 :: T0="" :: SUBE
ND

```

Thought for the day. The excuses for piracy are exactly the same as the excuses for shoplifting, but you probably won't have to tell them to the judge - in this world, at least.

And that is almost

MEMORY FULL

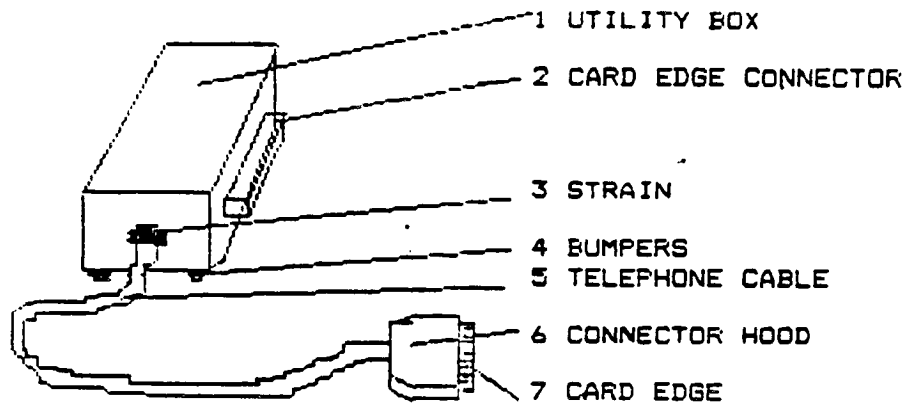
Jim Peterson

EIGHT

CABLE BOX

by Jim Edwards (SFV 99ers)

One feature of the T.I.99 that has never been hard for me to criticize was the physical size and design of the peripheral cable and connector. It always seemed to take up an undeserved portion of desk space. With only a goal in mind and virtually no "hardware saave", I set out to alleviate the problem. It seemed a simple task to build a compact connector that would plug in without disturbing the original components. Actually, the most difficult aspect of the project was rounding up the parts. That proved to be an education. Card edges and their matching connectors have several configurations.. For example 22/44 means that it has 22 conductors on both sides. Spacings vary as well: .10, .125, .156, etc. This refers to the distance between the centers of the conductors. This project requires 44 conductors (22 on a side) with .10 centers. Finding a card edge connector was difficult enough, but finding the male counterpart was impossible. A section was literally cut out of an abandoned board. I found most of the parts at Pacific Radio while the card was found in a card board box at All Electronics. Obviously, the exact parts may vary but be certain of the number of conductors and spacing. Once everything is rounded up, simply solder the wires together making sure to match one end to the other. Optionally, an interrupt switch can be added for those screen dump programs that require one.



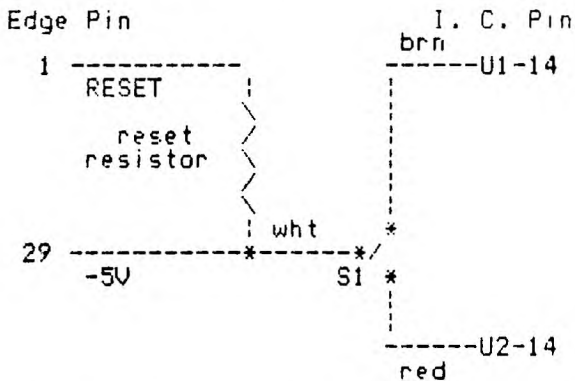
#	PART	MANUFACTURER	PT.#	COST
1	UTILITY BOX	CALRAD	90-785	\$2.10
2	CARD EDGE CONNECTOR	GC ELECTRONICS	41-875	\$4.74
3	STRAIN			.25
4	1/4" BUMPERS	RUSSELL IND.	REC-2075H	\$1.79
5	50 CONDUCTOR TELEPHONE CABLE			
6	CONNECTOR HOOD	GC ELECTRONICS	41-1003	\$2.48
7	CARD EDGE SCAVANGED FROM PC BOARD			\$1.50
				-----
				\$12.86



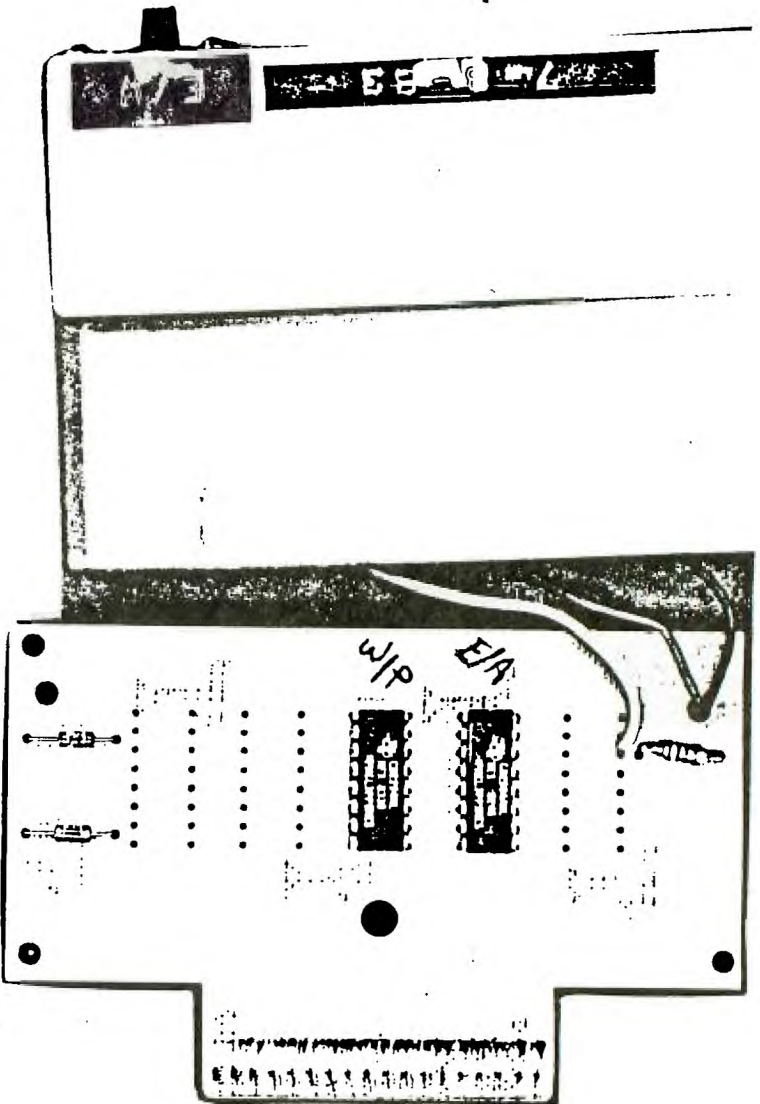
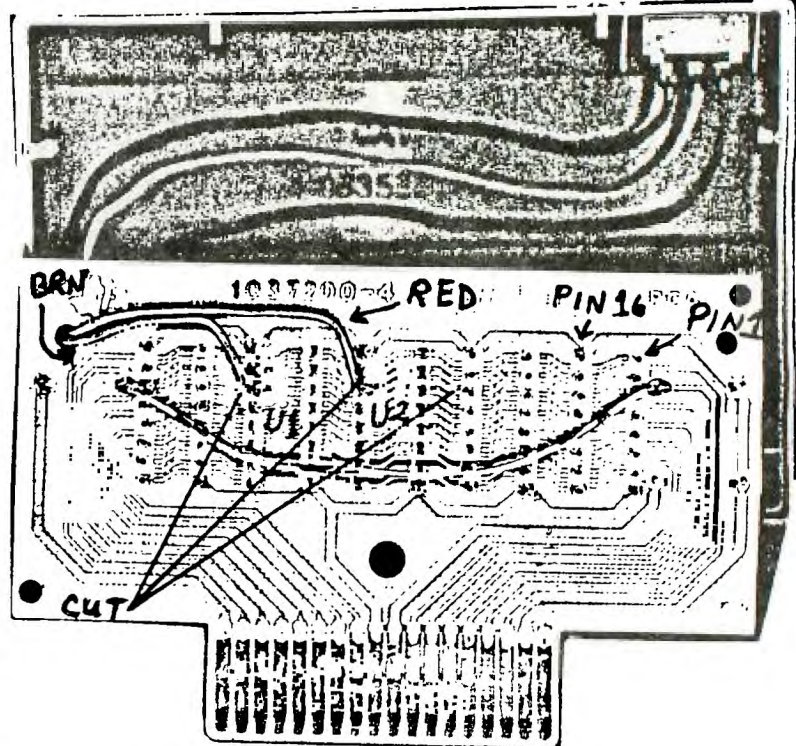
by Jim Ellis

Radio Shack  
275-4074

First, let me say that this project is not for the inexperienced. If you don't have the tools or experience or just not sure you want to tackle it, I'm sure you can find someone with the skill to do it for you at a nominal fee. You can have your own cartridge expander or how to make some modules serve double purpose. I recently got tired of swapping my E/A and TI-writer modules. Even tho' I had an expander, I needed to use one more cartridge than it allowed, so I came up with this little modification. I moved my TI-writer GROM into the Editor Assembler module, cut a few lands, added a s.p.s.t. switch and eureka I had it. These boards are laid out with all pins connected together, i. e. pin 1 to pin 1, etc. So you have to cut open the chip select line (pin 14), solder a wire to each pin 14 that you are using, (in my case two), run the wires to a switch, run a wire from the common terminal of the switch to the reset resistor on the card and its done. Pin 14 originally goes to the reset resistor. Also, you must add a jumper from the reset resistor to pin 29 (-5V), see figure. You need to make (n+1) cuts on the line connecting pins 14 together. E.g. two chips require 3 cuts. Oh, yes, the switch is Radio Shack 275-407, which comes two in a pkg., priced @ 79 cents. If you have any questions leave mail in box 12 on the HUGbbs or call me at 831-5791. If you read diagrams, I included a simple schematic.



With the addition of two more switches it could be made to switch four different programs. Since there are five openings on the board, you could have two-one GROM and one-three GROM programs all in one module. How about that? TI fans!! Later.....





## LEHIGH TECHNICAL GROUP

Sorry for not getting out the last two month's of my projects on hardware, our new Editor made a few changes in the Newsletter and one was to change the closing date for articles. But, no matter...I hope to catch up this month. I think this project will be worth the wait. I have added a few new projects to my list and I will explain some of them in future issues. I would also like to remind you that I would be glad to hear any ideas you might have on hardware development. Contact me at (215)536-1561 > Alan E. Jurin

## \*\* HARDWARE PROJECT PART I \*\*

In October if you recall, I recommended using a wire with 25 conductors instead of the 15 conductor that was actually needed to separate our keyboard from the console. This month we will expand the keyboard a little bit further by adding a command module expander, which allows us to select any module from the keyboard enclosure. (NOTE: In part III of this project I will show you how to make a modification to this system to use with a Computer which does not have a remote keyboard.) This system you don't need the expansion system. I've grown very tired of swapping modules and I came up with an alternate solution.

What we will have is a separate box that will hold up to ten modules that can be plugged in at the same time with the convenience of switching each one from the comfort of the remote keyboard. The box can be made with less than ten modules, and the rest can be added later as cost would allow, but it is easier to install all of the connector at one time. The box will plug into the command module port and will not need it's own power supply. It uses a digital circuit to switch from one to another with a minimal amount of wires running from the keyboard to the console.

In theory with different circuitry we could make an expander that could switch 16 different modules, but I doubt anybody could use 16 modules in their system.

To make this work we must switch two sets of terminals on each module so that each module that is not in use will not load down the one we are using. In our keyboard enclosure we install a 4 bit binary counter that is wired to count from 0 to 9 and then repeat, we have a choice of two methods to show us which module we have switched on, the first uses a line of ten LED's in a row with a menu of our module printed along side. This is the type I have on my computer. The other method uses a 7448 BCD to 7-segment LED display/driver, this method will display decimal digits from 0 to 9 showing us which module is activated. On the keyboard enclosure there is also a RESET button that branches the computer to the power up screen, this is what happens when you normally insert a module in the console.

The box I found that seems to work just perfectly for this project is another Radio Shack item, the only disadvantage is Radio Shack has there name embossed across the top...this is not a Tandy project. If you can live with that, the box costs \$2.99 and is a current item. It's designed to hold 15 audio cassettes and this makes it the exact width needed to house our modules. Although the shape of our modules prevents us from using 15 modules, we can use ten by shipping several spacers in the box. Let's get started....Select one end of the box as the front, this end is where the ribbon cable connects to our computer, follow the dimensions in FIG #1, Part A and cut out the hole for the ribbon cable. Next we must trim the tops of some of the dividers in the box to allow clearance for the modules, follow the dimensions in FIG. 1, Part B and then check FIG. #2 to see the correct dividers to trim. I used a pair of side cutting pliers to cut them and then trimmed them neatly with a hobby knife. This completes the modifications to the box.

If you would note in the parts list, I chose to use ribbon cable connectors instead of using PC board connectors to connect our modules, for two reasons, 1 - most people have never etched a printed circuit board and 2 - the ribbon cable is much more forgiving if you don't get the spacing between the modules exactly correct.

The ribbon connectors are of the 20/40 pin variety (try to find a 18/36 pin ribbon connector with .100 inch spacing) they are very reasonable in cost from the source in the parts list. We will only be using 36 conductors so we must block off 2 sets of contacts on the one end using a piece of PC board just wide enough to close them off so we don't insert our module in the wrong pins.

The next thing we must do is decide which type cable to use to connect our expander to our computer, I recommend that you use a cable that is as short as you could live with, but no longer than 3' overall length which includes the 12" of cable in the box. On the prototype I ran into trouble with certain modules such as games which did not work properly for reason I assume was due to timing problems or possibly crosstalk between wires I shortened the cable which cured the problem's on the modules I have (this does not say that all modules will work on the expander I tested the ones I have and do not have any problem's.)

The cable must also be shielded to prevent problems too. On the prototype I used a standard ribbon cable then added my own shielding. Being this is a home brewed project I try to keep costs to a minimum for an individual. The cheapest price I found in all my catalogs for a shielded cable with 40 conductors was about \$3.20 per foot in this article, 50 cond. std. ribbon cable is \$.89 a foot.

What I used for shielding is found in just about everybody's house, the trusty Aluminum foil, this works great and a price that can't be beat. When wrapping the cable with aluminum foil make sure you do a neat job, then wrap the cable with plastic electrical tape which looks good and protects the shielding. We must also shield the inside of the box and between the connectors, but don't do any shielding until we complete the box.

Next take the 50 conductor ribbon cable and count 40 conductors starting from the marking stripe and separating it from the 10 wires left. Use a sharp hobby knife and make two cuts in the same groove, the first lighter to prevent the knife from wandering out.

This will leave us with one 40 conductor cable and one 10 conductor cable. Take the 40 conductor cable and mount the cable connectors, following the dimensions given in FIG #3, make sure you have the connectors mounted perpendicular to the ribbon cable, also making sure number one terminal is located at the marking stripe and is facing towards the front of the box.

Crimp all connectors to the ribbon cable at the correct places starting at the back of the box which is the last connector. Making sure that it is perpendicular to the cable, squeeze the connector on to the cable using a large pliers, move the pliers back and forth so not to put too much pressure at one spot, which might break the clamp on the back, also make sure that the first conductor is on the first prong on the connector. Press the clamp done till you hear the clamp snap into place.

To mount the rest of the connectors I used two different spacers made to the dimensions in FIG 3, and I placed them between the connectors when I crimped the rest. This way all the connectors are perpendicular and spaced correctly to fit the box.

Next take the 10 cond. ribbon cable that we have left, cut this cable in half so that we have two pieces of 10 cond. cable. This will be used to connect each of the two terminals that we use to switch each module. Take two magic markers of different colors (I used red and blue and will refer to these colors when explaining the procedures). Mark one edge of each cable the full length and do the same with the other cable with the other color.

Next we must remove the clamps from the back of the connectors that we just put on so that we can attach our 10 cond. cables that are used for switching. Slide a piece of small solid wire in the front of the conn. to release the catch and pry off each clamp on all the conn. Next turn cable over so the connectors are facing down, count starting at the marking stripe which is conductor #1, till you reach conductor #30, mark this with a felt tip pen the full length of the wire which will be in the box, next do the same with cond. #33.

Now take a sharp hobby knife and cut on either side of these two wires being very careful not to cut into the wire itself, start cutting at the last connector and end approximately 1/2" beyond the first connector which is the one at the front, peel each of these wires starting at the back connector so that we have a connector pin empty at position #30 & #33. This is where our 10 cond. cables will attach.

Next lay the two 10 cond. ribbon cables on top of each other with the marking stripe facing the same direction as the 40 cond. cable. Connect the wires to the connector following FIG 4, note the red wires shown are connected to the lower ribbon cable the same way as the one shown. make sure to start with the last connector first (which is the wire at the stripe). This leaves most of the cable that is left, towards the front of the box. Lay the wires over the connector where we cut the other wires out and reinstall the connector clamp and snap in position. I marked on the 40 conductor cable the colors that corresponds to the 10 cond. cables so I would not get confused. This about completes our work needed in the box itself.

Next lets discuss the switching circuit in our expanded keyboard. I used a preched from Radio Shack #276-150 which does a nicer job than wire wrap on the component diagram the two sides of the board connections are shown. The right & left board are just flipped right to left. Note there are different connections on both sides of the board and there are three capacitors on the foil side of the board.

\*\*\*\*\* WARNING \*\*\*\*\*

Neither I nor Lehigh 99'er Computer group can assume any responsibility for any loss or damage which may arise from you following what is presented in these articles. I test these projects out on my own equipment and I accept the risk that it might be damaged. Any modification that you make are AT YOUR OWN RISK. > Alan E. Jurin

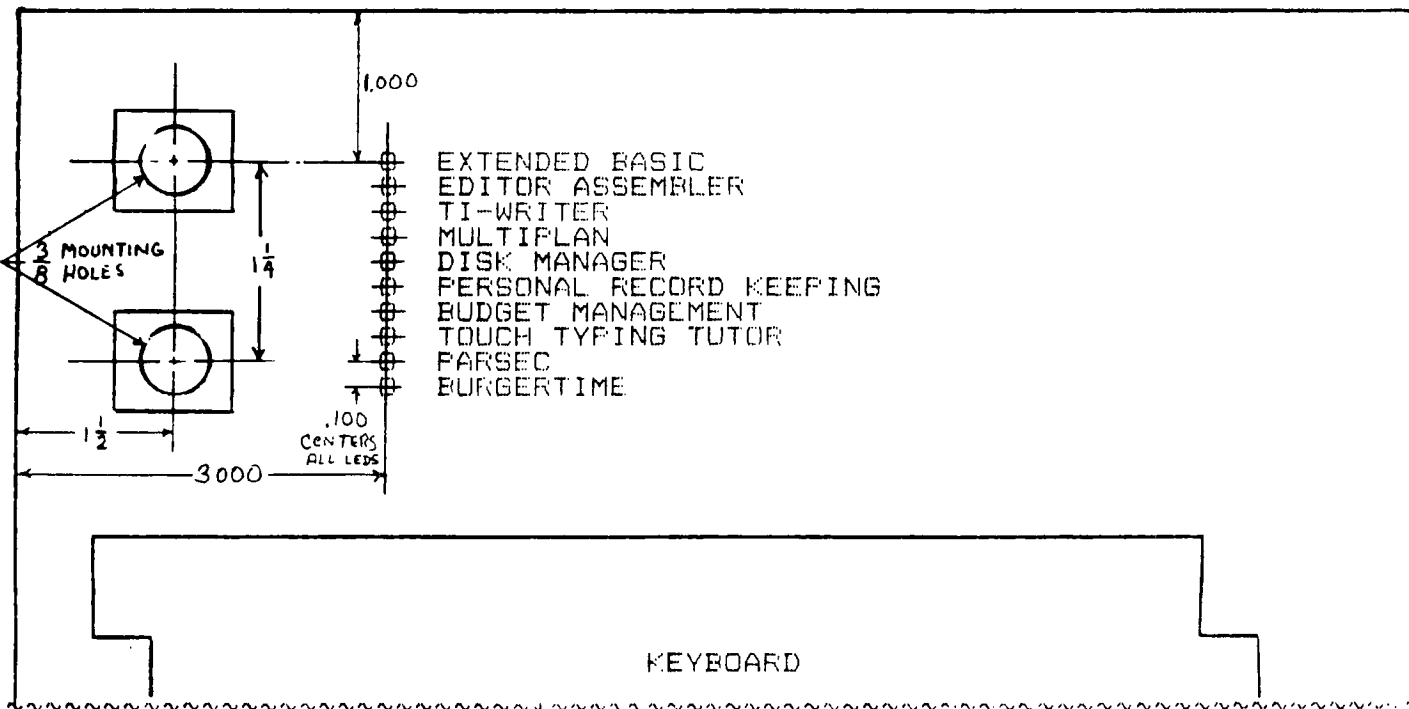
Make sure you get the components in the proper direction according to the notch or stripe on the ICs. The wires that connect from the 7441 to the LED array can be the extra length of lead that is on the LEDs, but you must use insulation over the wires that cross to prevent shorts. The LEDs fit through the holes that are drilled in FIG. 5, don't solder the leads of LEDs to the circuit board until the board is in position with all LEDs fitting through the proper holes, this prevents any alignment problems.

The ICs on the board fit flush against the keyboard enclosure and this gives us the proper spacing for the LEDs, I do not recommend using sockets for these ICs for this reason otherwise I would recommend using them. The board is fastened to the keyboard enclosure using a hot glue gun, this is the easiest way and allows us to have the face of the enclosure clear of screws. Mount the two momentary switches at the position in FIG. 5, don't overtighten the nut on the back of the switches they break very easily. (This comes from first hand experience.)

Make sure you clean the PC board with alcohol or an eraser before doing any soldering, also clean rosin off after you are done soldering using isopropyl alcohol.

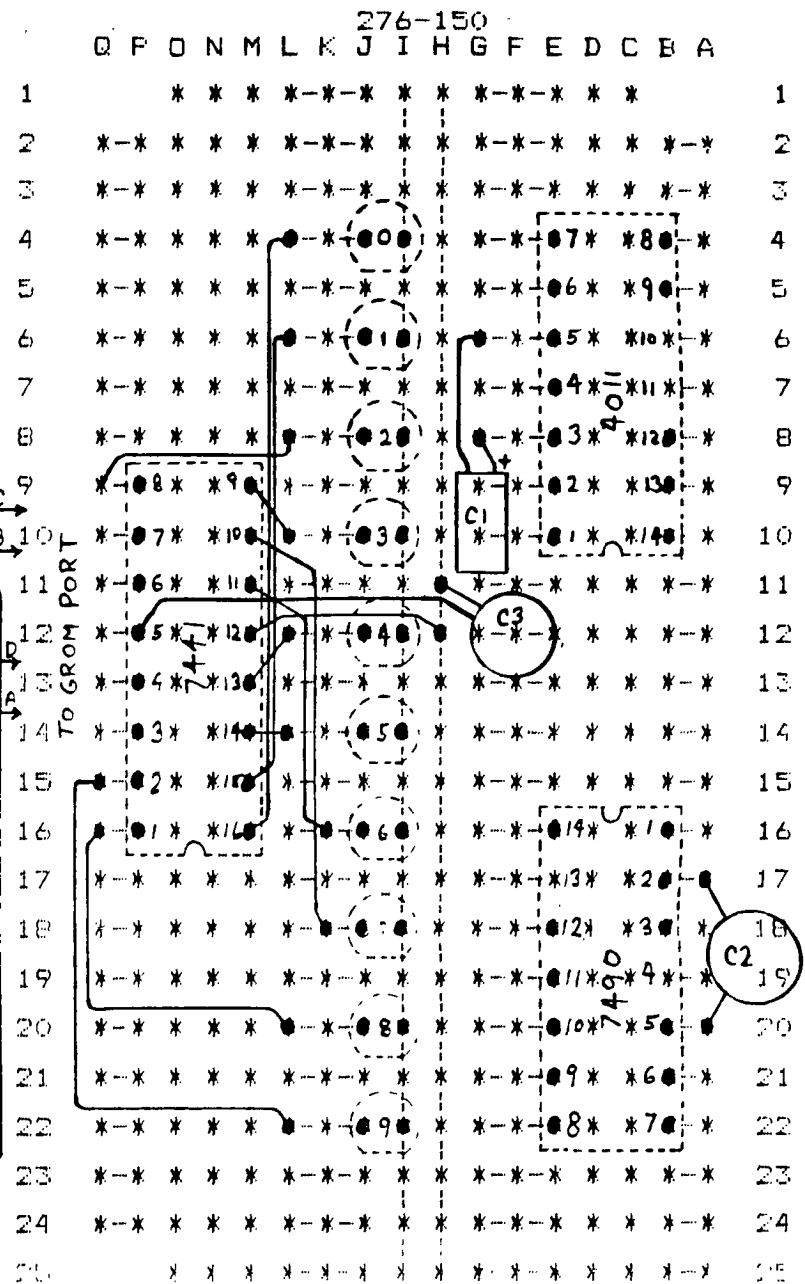
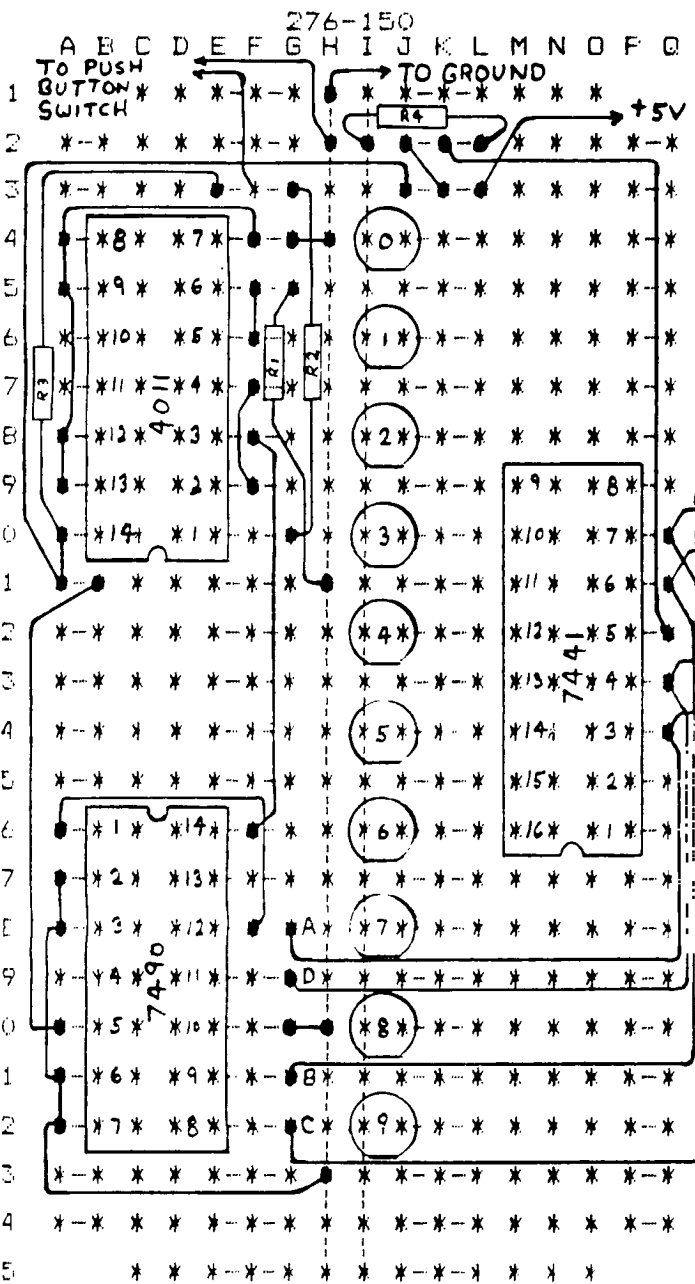
Thats about all for this month, next month PART II we will build the circuitry board to control the individual module and install the shielding on the module. PART III we will build the connection for the Grom Port and I will discuss the building of the connection for those people that do not want a console with with a separate keyboard.

>1986 Alan E. Jurin



VIEW FROM COMPONET SIDE OF BOARD

VIEW FROM FOIL SIDE



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

8	16	0	INF/A1	1	14	15V	INF/B	1	14	INF/C
9	15	1	INF/A2	2	13	INF/A1	RD/1	2	13	NC
7	14	5	OUT/A	3	12	INF/C2	RD/2	3	7 12	QA
D	4	4 13	OUT/B	4	11	OUT/C	NC	4	9 11	QD
+5V	5	1 12	INF/B1	5	10	OUT/D	+5V	5	10	GND
B	6	11	INF/B2	6	9	INF/D1	RG/1	6	9	QB
C	7	10	GND	7	8	INF/D2	RG/2	7	8	QC
2	0	9		3						

Connections are made at heavy dots only NOT AT CROSSINGS

NOTE: The chips have either a notch or stripe (or both) which shows us where pin #1 is located, it is the same place on all these chips. Asterisks on boards are the location of the holes the vertical and horizontal lines connecting some of the holes signifies a connecting circuit trace which is on the board.

# adventure realm

Last month as you well know I reviewed adventure #8: *Pyramid of Doom*. Now this month I think that it is only fitting to review the other "pyramid" type adventure game on the market-- *Infidel*.

As the game opens you awake on your bunk in the recently deserted exploration camp-- deserted because you made the workers work on one of their religious holidays. Now it's up to you all alone to find the lost pyramid and all of its wealth. (Sounds like to beginning of *Pyramid of Doom* doesn't it?) Finally after wandering around in the desert and finally using the map (included in the game package), you find the lost pyramid and its entrance. Now the game really gets fun!

Once you have entered the pyramid you find a torch and oil for it; also you see four flights of stairs all of which lead to a different area of puzzles. The first thing that you will probably stumble across and have problems with are the hieroglyphs that you will find. They are just regular characters like "--: !!" for example, which tell you how to solve certain problems in the game. The only problem with these are that nowhere in the game are they translated; this is up to you. I thought that this was quite fun myself, but for other people it might be quite a challenge. Each set of characters stands for a word or idea, and the only way to translate them is to collect a couple of sentences and figure out the words that they have in common. You then have to guess at the remaining words in the sentence and try out what it says (and hope that it's right).

Deeper into the pyramid you will come to a few puzzles that you must solve. To me, these are not the ordinary adventure puzzles but are very interesting and well created puzzles that every adventurer dreams about solving (well... maybe). The types of puzzles that you will come across are similar to the ones that Indiana Jones had to deal with. Such things as falling walls and ceilings, poisoned darts coming out of walls, and a whole slew of other kinds of "neat" traps intended to stop any ancient tomb robber (like you!). These puzzles, I found, were not very hard-- you knew what had to be done in order to solve them-- but doing it by telling the computer what to do was a different story. That brings us back to this month's subtitle: "A Weekend Adventure" Because this adventure is not that difficult, I feel confident to say that a fairly good adventurer could solve it in a weekend's time (without even calling me once for hints!)

That's all I really have to say about *Infidel*. It's a very interesting and well written adventure packed with ancient Egyptian lore

that is just perfect for that snowy weekend when you have nothing to do and nowhere to go.

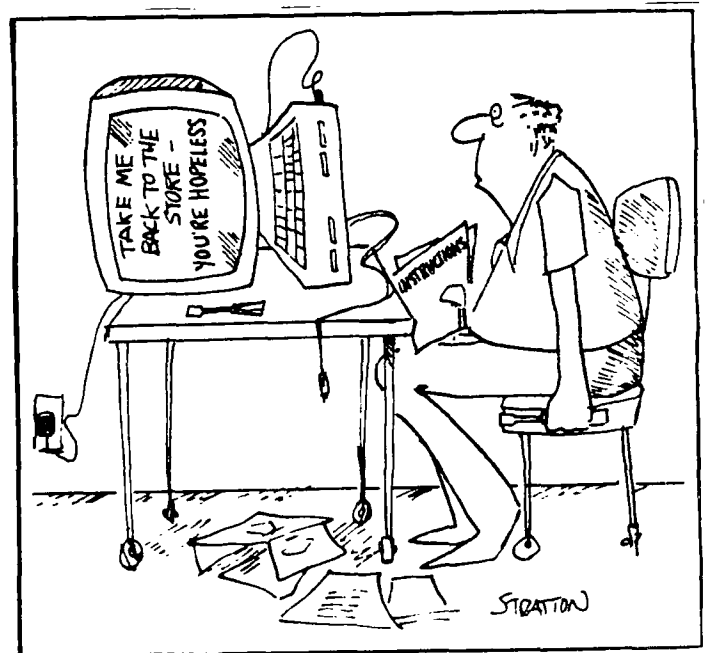
Next month I will talk about the new "Adventure Editor" out on the market which allows you to change in any way you like any of the Scott Adams adventures and also (this is the good part) to make your own adventures for the Adventure command module.

Have fun with your adventures and...

...let the adventure spirit be with you...

Need help with any adventure? Then call me and I will be glad to give you some help.

Keith  
(412) 469-1713



Believe it or Not *Com*

At the last PUG meeting, John Wilforth installed 32K of memory into a ti console in just 12 minute with 20 spectators observing.

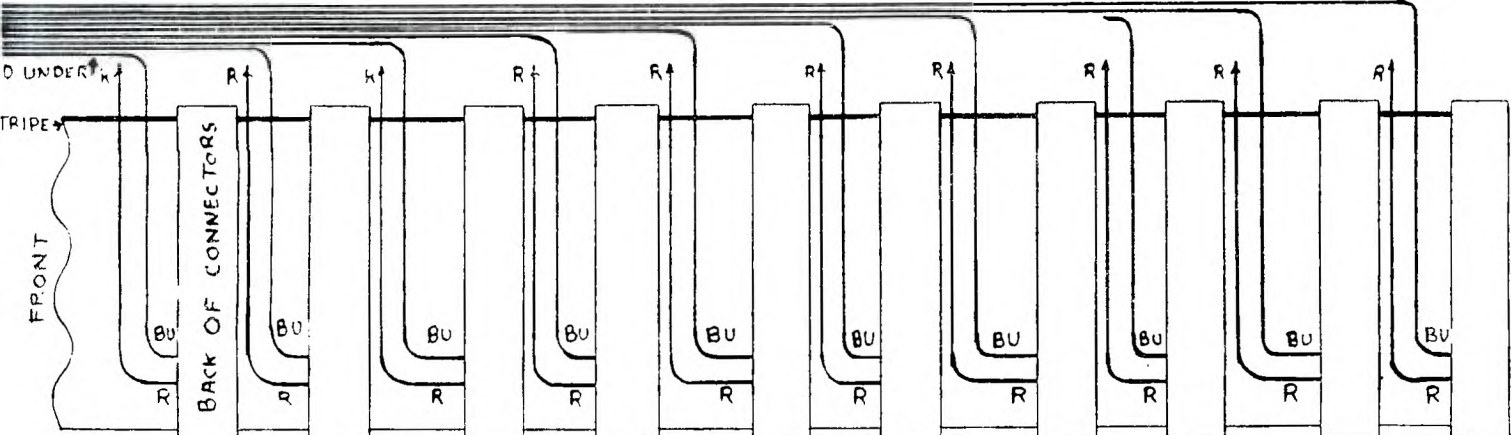
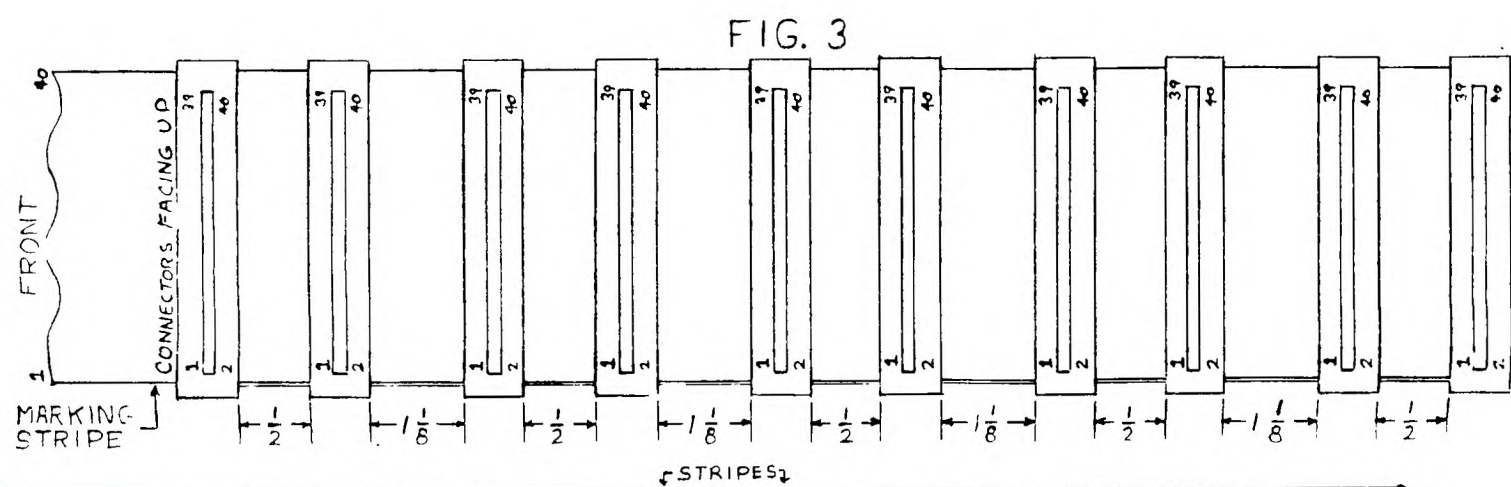
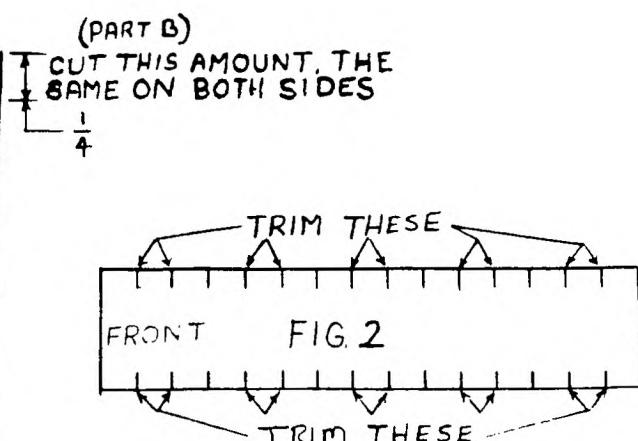
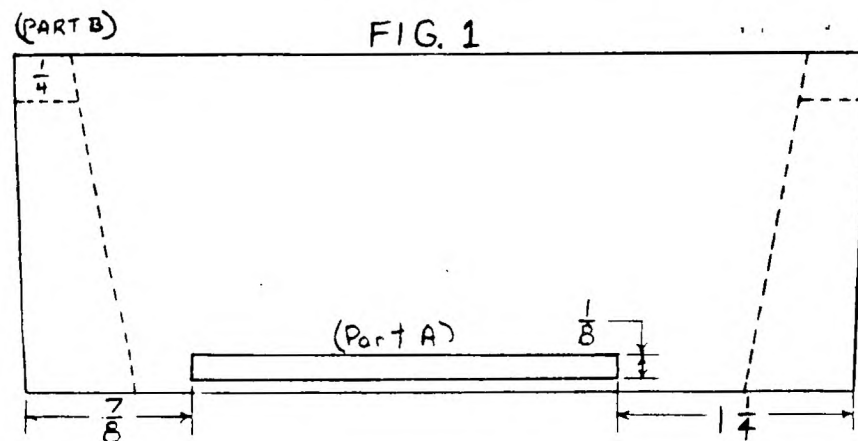


FIG 4 NOTE: RED WIRES CONNECT TO LOWER RIBBON

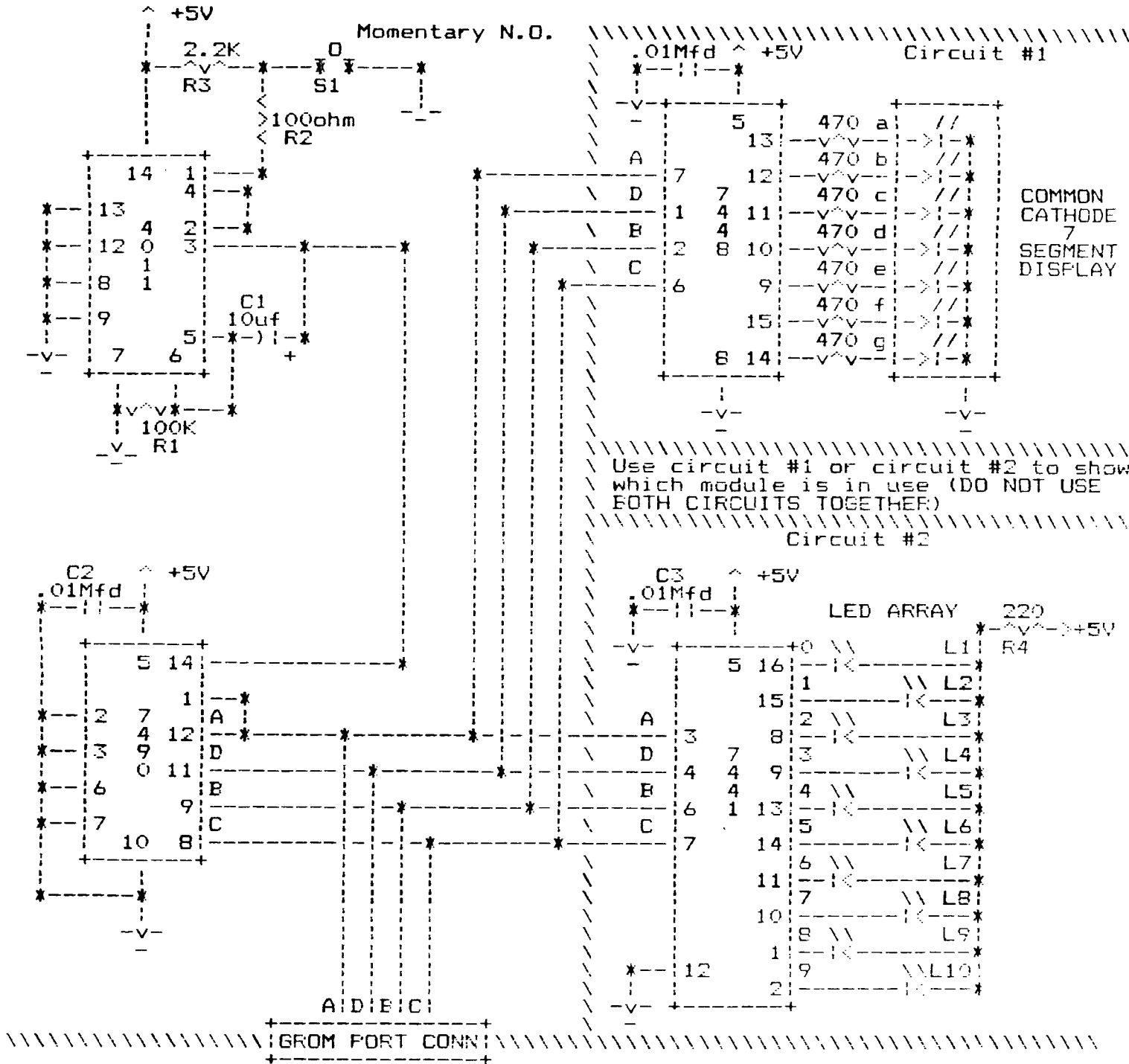
- PARTS LIST:
- Radio Shack Items 1 - #274-150 PC Board
  - 2 - #275-156 Momentary N.O. switch
  - 1 - 44-665 Cassette tray
- Jameco Electronics, 1355 Shoreway Rd., Belmont, CA 94002  
 \$20.00 min order. Send your name and address to them and they will send a catalog.
- 100ft - 30 AWG wire #130B
  - 3ft - 50 Cond Ribbon Cable #171-50
  - 10 - XC209R 11 LED's
  - 2 - DC .01/50 Disc Capacitors .01mfd
  - 1 - R10/50 Radial lead Electrolytic Capacitor
  - 1 - SN7441N BCD to decimal decoder/driver
  - 1 - SN7490N Decade counter (binary)
  - 1 - CD4011 Quad 2-input NAND Gate
  - 1 - 2.2K Resistor 1/4 watt
  - 1 - 100 Ohm Resistor 1/4 watt
  - 1 - 100k Resistor 1/4 watt
  - 1 - 220 Ohm Resistor 1/4 watt

HI TEK SALES, 119R Foster Street, Peabody, MA 01961-3357  
 10 - 3U0277 40 pin, .100 centers side edge card connector \$ 3/5.00 or \$1.88 each

I normally order quite often from Jameco and other suppliers and I also stock alot of these items, if you find that you have to purchase certain items in quantity, and don't feel you can use the extra amount, you can purchase some of the items needed from me, I might be willing to make up a kit of these items if enough people are interested, and if it would be worthwhile to me, if you are interested drop me a line at Alan E. Jurin, P.O. Box 613, Trumbauersville, PA 18970

>1986 Alan E. Jurin

DISPLAY CIRCUIT MODULE EXPANDER



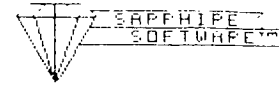
\*\*\* SCHEMATIC NOTES \*\*\*

- 1.- All resistors are in Ohms unless marked otherwise.
- 2.- (WARNING 4011 NAND GATE IS A CMOS CHIP, VERY STATIC SENSITIVE, MAKE SURE YOU ARE GROUNDED WHEN HANDLING THIS CHIP, DO NOT TOUCH THE PINS AND USE A SOLDERING IRON WITH A GROUNDED TIP.)
- 3.- All asterisks are either a corner of a circuit run or a connection between three wires.
- 4.- Circuit symbols used BELOW:

--v^v-- resistor  
 --||-- capacitor (Non polarized)  
 ^ power supply symbol  
 -v- ground symbol  
 + capacitor (polarized)



# sapphire software



X-xbasic	E-editor/asm	SAPPHIRE SOFTWARE BONANZA	M-minimemory	T-ti-writer	PRICE	CHECK
#	PROGRAM NAME	DESCRIPTION	CARTRIDGE			
1)	PUG WRITER	TI-WRITER LOADER & FILES	XB		\$10	----
2)	UPDATES	TI-WRITER AND MULTIPLAN	T,MP		\$5	----
3)	TI-FORTH	LANGUAGE AND MANUAL	E,M		\$15	----
4)	FORTH GAMES	SEVERAL GOOD FORTH PROGRAMS	E & FORTH		\$10	----
5)	TI-RUNNER	ARCADE GAME WITH 50 SCREENS	E,M		\$10	----
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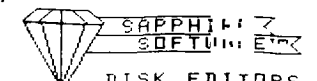
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