

Ohio Scientific's [SMALL SYSTEMS JOURNAL]

Section 1. All OSI Computers

Hobbit Quiz	2
Decimal Hex	3
Hex→Decimal	3
Amazin	4-5
Decision Maker	6
Least Squares	7
Hex→Decimal→Octal	8
Binary Tutor	8
Resistor	9-10

Section 2. C1P Only

Night of the Living Volkswagen	11
Santa and Eight Reindeer	12

Section 3. C2-4P and C2-8P Video

Raindrops and Willy the Wiggle	13
Function Grapher	14
Bouncer	15
Random Square	15
Othello	16
Chessboard	17
Word Processor	18-19
Trax	20
Star Wars	21-23
Graphics V	23
Escape	24-25

Section 4. ASCII Keyboards

Breakout	26
Torpedo	27
Stellar Pursuit	28-29
N.Y. Taxi	29-30

Section 5. C3 Systems

Memory Dump	31
Printer Patch	32
Back Space	32
Report Writer	33-35
Locate File	35
Cash Flow	36-39

Section 6. Special Hardware

Joystick	40
Set Time of Day	41
Digital Clock	42
Flasher	43
Theme	43
Keys	43
Plane Banner	44
AC	44
Machine Code Kaleidoscope	45-46
Random Square	46
Blackjack	47-48
Telecom Test	49
Little Guy	50-51

Section 7. Advanced Topics

Copier	52
Program Conversions	53
USR(X) Color Background	54
Memory Test	54

Section 8. OS-65D Utilities

Directories	55
BEXEC*	55
CHANGE	56
CREATE	57-58
DELETE	58
DIR	59
DIRSRT	60
RANLST	61
RENAME	61
SECDIR	62
SEQLST	62
TRACE	62
ZERO	63

Between these covers you will find a wide variety of software ranging from business applications to games and hardware utilities and much more. These widely varied programs highlight many different aspects of OSI's computer systems. The individual program descriptions were limited in order to allow the maximum amount of software for you the user.

HOBBIT QUIZ ----

This program will run on all machines. It is a short quiz about Tolkien's book "THE HOBBIT".

```
3 NR=4:NQ=4
5 FORI=1TO30:PRINT:NEXT
10 FORI=1TO9:READQ$:PRINTQ$:NEXT
11 FORI=1TO14:PRINT:NEXT
12 GOSUB1000
15 FORI=1TONQ
17 FORIO=1TO30:PRINT:NEXT
20 READQ$,RA,A$(1),A$(2),A$(3),A$(4),D$(1),D$(2),D$(3),D$(4)
30 PRINTQ$:PRINT:PRINT:FORJ=1TONR:PRINTJ")",A$(J):NEXT
35 PRINT:INPUT"WHAT IS YOUR ANSWER":A
40 IF A>NR OR A<0 THEN PRINT"WHAT?":GOTO35
45 IFA=RATHEN100
47 FORL=1TOWC:IF W(L)=A THEN PRINT"NO, YOU TRIED "A$(A)":PRINT:GOTO30
48 NEXTL
50 PRINTD$(A):PRINT"TRY AGAIN"
55 WC=WC+1:IF WC=NR THEN WC=0
60 W(WC)=A
65 GOTO35
100 PRINT:PRINT"RIGHT! "A$(A)" IS CORRECT. ":PRINTD$(A)
110 GOSUB1000
120 FORL=1TONR:W(L)=0:NEXT
200 NEXTI
210 PRINT:PRINT"YOU WON!"
220 PRINT"YOU HAVE ANSWERED ALL "NQ" QUESTIONS CORRECTLY.
230 INPUT"Do you want to play again":Q$
240 IF LEFT$(Q$,1)="Y" OR LEFT$(Q$,1)="y" THEN CLEAR:GOTO3
250 PRINT:PRINT"THANK YOU FOR PLAYING WITH ME. GOOD-BYE.
400 END
500 DATA"THIS IS A QUESTION AND ANSWER GAME ABOUT THE HOBBIT, BY
510 DATAJ. R. R. TOLKIEN, "
520 DATAI WILL ASK YOU QUESTIONS ABOUT THE BOOK. YOU WIN WHEN YOU
530 DATAHAVE GOTTN ALL THE QUESTIONS RIGHT. IF YOU NEED HELP ASK
540 DATAYOUR TEACHER. REMEMBER THAT A COMPUTER IS NOT VERY SMART.
550 DATAAFTER ALL I AM ONLY A MACHINE!, "
560 DATAWHEN YOU ARE READY TO BEGIN TYPE 'R' AND THEN PUSH 'RETURN'.
600 DATAWHICH ONE DO YOU THINK IS THE MAIN CHARACTER?
605 DATA2, FRODO, BILBO, GANDALF, BARD
610 DATA"NO, FRODO IS ONLY IN THE LORD OF THE RINGS BY TOLKIEN. "
615 DATA BILBO IS THE ONLY ONE WHO IS IN EVERY CHAPTER.
620 DATA"GOOD GUESS, BUT GANDALF IS NOT IN THE STORY AS MUCH AS BILBO"
630 DATA"BARD SHOOTS SMAUG, BUT HE DOES NOT DO MUCH ELSE. "
650 DATAWHAT KIND OF CREATURE WAS BILBO?
660 DATA3, DWARF, DRAGON, HOBBIT, ELF
670 DATA"NICE TRY, BUT BILBO WAS EVEN SMALLER THAN A DWARF. "
680 DATA"SMAUG IS THE NAME OF THE DRAGON. BILBO IS NOT A DRAGON! "
690 DATA THE BOOK IS CALLED THE HOBBIT BECAUSE OF BILBO BAGGINS
695 DATA"NO, ELVES ARE TALL AND ARE NOT USEUALLY THIEVES"
700 DATAWHICH ONE CAN TURN INTO A BEAR?
705 DATA1, BEORN, ELROND, BILBO, THORIN
710 DATA BEORN COMES TO THE BATTLE OF FIVE ARMIES IN THE BEAR-SHAPE
715 DATA"NO, ELROND IS THE HALF-ELF WHO READS THE SWORDS
720 DATA"NO, BILBO IS A HOBBIT! "
725 DATA"NOT QUITE. THORIN IS THE KING OF THE DWARVES. "
730 DATAWHO STEALS THE BIG GEM CALLED THE ARKENSTONE?
735 DATA3, GANDALF, GOLLUM, BILBO, BALIN
760 DATA"NO, NOT GANDALF THE WIZARD.
765 DATA"NOT REALLY. GOLLUM IS THE MONSTER WHO PLAYS THE RIDDLE GAME"
770 DATA BILBO GIVES THE ARKENSTONE TO THE ELF-KING. "
775 DATA"SORRY. BALIN IS THE DWARVES' OLD WATCHMAN. "
1000 PRINT:PRINT
1002 INPUT"TYPE 'R' TO GO ON":R$
1005 IF R$<>"R" THEN PRINT"WHAT?":GOTO1000
1010 RETURN
```

DECIMAL TO HEXADECIMAL CONVERTER ----

This program will run on all machines. It converts decimal numbers to hexadecimal numbers.

```
5 PRINT"DECIMAL TO HEXADECIMAL CONVERTER"
10 INPUT X
12 PRINT"=";
15 B=4096
20 A=X/4096:GOSUB 30
21 B=256
22 A=X/B:GOSUB 30
23 B=16
24 A=X/B:GOSUB 30
25 B=1
26 A=X/B:GOSUB 30
28 GOTO 150
30 IF A>0 THEN A=INT(A)
40 X=X-(B*A)
50 IF A<10 THEN PRINTA;
60 IF A=10 THEN PRINT"A";
70 IF A=11 THEN PRINT"B";
80 IF A=12 THEN PRINT"C";
90 IF A=13 THEN PRINT"D";
100 IF A=14 THEN PRINT "E";
110 IF A=15 THEN PRINT"F";
120 IF A>15 THEN PRINT"TOO LARGE"
130 RETURN
150 PRINT:GOTO10
```

HEXADECIMAL TO DECIMAL CONVERTER ----

This program will run on all machines. It converts hexadecimal numbers to decimal numbers.

```
3 FORI=1TO20:PRINT:NEXT
5 PRINT"HEXDECIMAL TO DECIMAL CONVERTER"
7 FORI=1TO5:PRINT:NEXT
10 FORI=1TO4
20 PRINT"DIgit ";I::INPUT A$(I)
30 IF A$(I)="A"THEN A(I)=10:GOTO100
40 IF A$(I)="B"THEN A(I)=11:GOTO100
50 IF A$(I)="C"THEN A(I)=12:GOTO100
60 IF A$(I)="D"THEN A(I)=13:GOTO100
70 IF A$(I)="E"THEN A(I)=14:GOTO100
80 IF A$(I)="F"THEN A(I)=15:GOTO100
90 A(I)=VAL(A$(I))
100 IF A(I)<0ORA(I)>15ORA(I)<>INT(A(I))THEN20
110 NEXT
120 PRINT:PRINT
200 PRINTA(1)*4096+A(2)*256+A(3)*16+A(4)
210 PRINT:PRINT:PRINT:PRINT:GOTO10
300 END
```

AMAZIN ----

This program will run on all machines (Note: you must use smaller mazes if programmed on a C1P.). It will generate a maze to the dimension specified. The generated mazes will always have at least one correct path.

```
50 PRINT"AMAZIN"
60 PRINT
70 PRINT"THIS PROGRAM TAKES A LONG TIME ON LARGE MAZES
80 PRINT"MAXIMUM SIZE IS 23 BY 23
100 LET A=2
110 DIM W(25,25),V(25,25)
111 FOR I=0 TO 25
112 FOR J=0 TO 25
113 W(I,J)=0:V(I,J)=0
114 NEXT J
115 NEXT I
120 PRINT "YOUR WIDTH": INPUT H:PRINT "AND LENGTH": INPUT V
122 PRINT
130 IF H<2 GOTO 132:IF H>23 GOTO 132:IF V<2 GOTO 132:IF V>23 GOTO 132
131 GOTO 150
132 PRINT "MEANINGLESS DIMENSIONS. TRY AGAIN."
140 PRINT
141 GOTO 120
150 PRINT
151 PRINT
160 LET Q=0
161 LET Z=0
162 LET X=INT(RND(A)*H+1)
163 FOR I=1 TO H
170 IF I=X THEN 173
171 PRINT ":";;
172 GOTO 180
173 PRINT ":";;
180 NEXT I
190 PRINT ":";
191 LET C=1
192 LET W(X,1)=C
193 LET C=C+1
200 LET R=X
201 LET S=1
202 GOTO 260
210 IF R>H THEN 240
211 IF S>V THEN 230
220 LET R=1
221 LET S=1
222 GOTO 250
230 LET R=1
231 LET S=S+1
232 GOTO 250
240 LET R=R+1
250 IF W(R,S)=0 THEN 210
260 IF R-1=0 THEN 530
261 IF W(R-1,S)<>0 THEN 530
270 IF S-1=0 THEN 390
280 IF W(R,S-1)<>0 THEN 390
290 IF R=H THEN 330
300 IF W(R+1,S)<>0 THEN 330
310 LET X =INT(RND(A)*3+1)
320 IF X=1 THEN 790
321 IF X=2 THEN 820
323 IF X=3 THEN 860
330 IF S>V THEN 340
331 IF Z=1 THEN 370
332 LET Q=1
333 GOTO 350
340 IF W(R,S+1)<>0 THEN 370
350 LET X=INT(RND(A)*3+1)
360 IF X=1 THEN 790
361 IF X=2 THEN 820
362 IF X=3 THEN 810
370 LET X=INT(RND(A)*2+1)
```

```

380 IF X=1 THEN 790
391 IF X=2 THEN 820
390 IF R=H THEN 470
400 IF W(R+1,S)>0 THEN 470
401 IF SOV THEN 420
410 IF Z=1 THEN 450
411 LET Q=1
412 GOTO 430
420 IF W(R,S+1)>0 THEN 450
430 LET X=INT(RND(A)*3+1)
440 IF X=1 THEN 790
441 IF X=2 THEN 860
442 IF X=3 THEN 910
450 LET X=INT(RND(A)*2+1)
460 IF X=1 THEN 790
461 IF X=2 THEN 860
470 IF SOV THEN 490
480 IF Z=1 THEN 520
481 LET Q=1
482 GOTO 500
490 IF W(R,S+1)>0 THEN 520
500 LET X=INT(RND(A)*2+1)
510 IF X=1 THEN 790
511 IF X=2 THEN 910
520 GOTO 790
530 IF S-1=0 THEN 670
540 IF W(R,S-1)>0 THEN 670
541 IF R=H THEN 610
542 IF W(R+1,S)>0 THEN 610
550 IF SOV THEN 560
551 IF Z=1 THEN 590
552 LET Q=1
553 GOTO 570
560 IF W(R,S+1)>0 THEN 590
570 LET X=INT(RND(A)*3+1)
580 IF X=1 THEN 820
581 IF X=2 THEN 860
582 IF X=3 THEN 910
590 LET X=INT(RND(A)*2+1)
600 IF X=1 THEN 820
601 IF X=2 THEN 860
610 IF SOV THEN 630
620 IF Z=1 THEN 660
621 LET Q=1
622 GOTO 640
630 IF W(R,S+1)>0 THEN 660
640 LET X=INT(RND(A)*1)
650 IF X=1 THEN 820
651 IF X=2 THEN 910
660 GOTO 820
670 IF R=H THEN 740
680 IF W(R+1,S)>0 THEN 740
681 IF SOV THEN 700
690 IF Z=1 THEN 730
691 LET Q=1
692 GOTO 830
700 IF W(R,S+1)>0 THEN 730
710 LET X=INT(RND(A)*2+1)
720 IF X=1 THEN 860
721 IF X=2 THEN 910
730 GOTO 860
740 IF SOV THEN 760
750 IF Z=1 THEN 780
751 LET Q=1
752 GOTO 770
760 IF W(R,S+1)>0 THEN 780
770 GOTO 910
780 GOTO 1000
790 LET W(R-1,S)=C
800 LET C=C+1
801 LET V(R-1,S)=2
802 LET R=R-1
810 IF C=H+V+1 THEN 1010
811 LET Q=0
812 GOTO 260
820 LET W(R,S-1)=C
830 LET C=C+1
840 LET V(R,S-1)=1
841 LET S=S-1
842 IF C=H+V+1 THEN 1010
850 LET Q=0
851 GOTO 260
860 LET W(R+1,S)=C
870 LET C=C+1
871 IF V(R,S)=0 THEN 880
872 LET V(R,S)=3
873 GOTO 890
880 LET V(R,S)=2
890 LET R=R+1
900 IF C=H+V+1 THEN 1010
902 GOTO 530
910 IF Q=1 THEN 960
920 LET W(R,S+1)=C
921 LET C=C+1
922 IF V(R,S)=0 THEN 940
930 LET V(R,S)=3
931 GOTO 950
940 LET V(R,S)=1
950 LET S=S+1
951 IF C=H+V+1 THEN 1010
952 GOTO 260
960 LET Z=1
970 IF V(R,S)=0 THEN 980
971 LET V(R,S)=3
972 LET Q=0
973 GOTO 1000
980 LET V(R,S)=1
981 LET Q=0
982 LET R=1
990 LET S=1
991 GOTO 250
1000 GOTO 210
1010 FOR J=1 TO V
1011 PRINT "I";
1012 FOR I=1 TO H
1013 IF V(I,J)<2 THEN 1030
1020 PRINT " ";
1021 GOTO 1040
1030 PRINT " I";
1040 NEXT I
1041 PRINT
1043 FOR I=1 TO H
1045 IF V(I,J)=0 THEN 1060
1050 IF V(I,J)=2 THEN 1060
1051 PRINT ":" ;
1052 GOTO 1070
1060 PRINT ":--";
1070 NEXT I
1071 PRINT ":" ;
1072 NEXT J
1074 END

```

A DECISION MAKER ----

This program will run on all machines. It calculates the best choice from a group of items you are considering, taking into consideration factors specified by you.

```

100 REM A DECISION MAKER
110 REM WRITTEN BY PHIL FELDMAN AND TOM RUGG - APRIL 1977
120 DIM F$(10),L$(10),F(10),M(10,10),V(10),Z(10):PRINT
130 Y$="Y":PRINT" I CAN HELP YOU MAKE DECISIONS BY CHOOSING THE"
140 PRINT"BEST POSSIBILITY FOR YOU OUT OF SEVERAL ALTERNATIVES."
150 PRINT"ALL I NEED TO DO IS ORGANIZE INFORMATION YOU ALREADY HAVE"
160 PRINT:PRINT" WHICH OF THESE BEST DESCRIBES THE TYPE OF"
170 PRINT"DECISION YOU HAVE TO MAKE?":PRINT
180 PRINT"1 - CHOOSE AN ITEM FROM SEVERAL ALTERNATIVES"
190 PRINT"2 - CHOOSE A COURSE OF ACTION FROM SEVERAL ALTERNATIVES"
200 PRINT:INPUT"WHICH TYPE (1 OR 2) DO YOU HAVE TO MAKE?":C
210 IF C<1 OR C>2 THEN 200
220 PRINT:IF C=1 THEN PRINT" WHAT TYPE OF ITEM IS IT THAT YOU"
230 IF C=1 THEN PRINT"NEED TO DECIDE UPON":INPUT S$
240 IF C=2 THEN S$="COURSE OF ACTION"
250 PRINT:PRINT" I WILL NOW NEED A LIST OF EACH ";S$
260 PRINT"THAT YOU ARE CONSIDERING. PLEASE INPUT THEM ONE AT A
270 PRINT"TIME. THE ORDER IS NO PARTICULAR IMPORTANCE."
280 PRINT:INPUT" FIRST, HOW MANY ARE THERE ALTOGETHER":L0
290 IF L0<2 AND L0>10 THEN 310
300 GOSUB 890:GOTO 280
310 PRINT:FOR I=1 TO L0:PRINT:PRINT"NUMBER ";I;" PLEASE"
320 INPUT L$(I):NEXT I:PRINT
330 PRINT"O.K. THIS IS THE LIST UNDER CONSIDERATION":PRINT
340 FOR I=1 TO L0:PRINT I;TAB(5);L$(I):NEXT I:PRINT:GOSUB 900
350 IF S$=Y$ THEN 250
360 PRINT:PRINT" HOW HOW MANY DIFFERENT FACTORS ARE IMPORTANT"
370 PRINT "TO YOU IN CHOOSING A ";S$:INPUT F0
380 IF F0<1 AND F0>10 THEN 400
390 GOSUB 890:GOTO 360
400 PRINT:PRINT" I NEED A LIST OF EACH OF THESE FACTORS"
410 FOR I=1 TO F0:PRINT:PRINT" FACTOR NUMBER ";I:INPUT F$(I):NEXT
420 PRINT:PRINT" NOW LOOK AT THE FOLLOWING LIST OF FACTORS YOU"
430 PRINT"HAVE PROVIDED AND DECIDE WHICH IS THE MOST IMPORTANT"
440 PRINT:FOR I=1 TO F0:PRINT I;TAB(5);F$(I):NEXT
450 PRINT:PRINT" WHICH FACTOR (BY NUMBER) IS MOST IMPORTANT?"
460 PRINT"(INPUT 0 IF YOU WISH TO CHANGE THE LIST":INPUT F2
470 IF F2=0 THEN 360
480 IF F2<1 OR F2>F0 THEN 450
490 PRINT:PRINT" O.K. SUPPOSE WE HAVE A SCALE OF IMPORTANCE THAT"
500 PRINT"RANGES FROM 0 TO 10. LET'S SAY ";F$(F2)
510 PRINT"HAS A VALUE OF 10 SINCE IT IS AT THE TOP OF THE SCALE. ON"
520 PRINT"THIS SCALE, WHAT VALUE WOULD EACH OF THE OTHER FACTORS"
530 PRINT"HAVE (DECIMAL NUMBERS ARE O.K.)?":PRINT:FOR I=1 TO F0
540 IF I=F2 THEN 570
550 PRINT F$(I):INPUT F(I):IF F(I)>0 AND F(I)<=10 THEN 570
560 PRINT" YOUR INPUT IS NO GOOD. TRY AGAIN.":GOTO 550
570 NEXT:I=F2=10:C=0:FOR I=1 TO F0:C=C+F(I):NEXT:FOR I=1 TO F0
580 F(I)=F(I)/C:PRINT:PRINT" NOW CONSIDER HOW EACH ";S$
590 PRINT"RATES WITH RESPECT TO EACH OF THE FACTORS. WE WILL"
600 PRINT"CONSIDER EACH FACTOR SEPARATELY AND THEN RATE EACH"
610 PRINT S$;" IN TERMS OF THAT FACTOR ONLY.":PRINT
620 PRINT"LET'S CONSIDER "L$(1); " TO HAVE A"
630 PRINT"VALUE OF 10 ON EACH SCALE. THEN EVERY OTHER ";S$
640 PRINT"WILL BE GIVEN A NUMBER HIGHER OR LOWER THAN 10"
650 PRINT"ACCORDING TO HOW MUCH BETTER OR WORSE THAN"
660 PRINT L$(1); " YOU THINK IT IS.":FOR I=1 TO F0:PRINT
670 PRINT" CONSIDERING ";F$(I); " ONLY, AND"
680 PRINT"ASSUMING ";L$(1); " HAS A VALUE OF 10."
690 PRINT"WHAT VALUE WOULD YOU GIVE TO EACH OF THE FOLLOWING: "
700 FOR J=2 TO L0
710 PRINT L$(J):INPUT M(J,I):IF M(J,I)>0 THEN 730
720 PRINT" C'MON! NO NEGATIVE NUMBERS. TRY AGAIN.":GOTO 710
730 NEXT J:PRINT:H(1,I)=10:NEXT I:FOR I=1 TO F0:C=0:FOR J=1 TO L0
740 C=C+M(J,I):NEXT J:FOR J=1 TO L0:M(J,I)=H(J,I)/C:NEXT J:NEXT I
750 FOR J=1 TO L0:V(J)=0:FOR I=1 TO F0:V(J)=V(J)+H(J,I)*F(I)
760 NEXT I:NEXT J:FOR I=1 TO L0:Z(I)=I:NEXT C=L0-1:FOR J=1 TO L0
770 FOR I=1 TO C:M1=Z(I):M2=Z(I+1):IF V(M1)>V(M2) THEN 790
780 Z(I+1)=M1:Z(I)=M2
790 NEXT I:NEXT J:C1=Z(1):C2=Z(2):C=100/V(C1):FOR J=1 TO L0
800 V(J)=C*V(J):NEXT:PRINT:PRINT:D=V(C1)-V(C2)
810 PRINT" WELL, YOUR BEST CHOICE SEEMS TO BE ";L$(C1)
820 IF D<10 THEN PRINT" BUT IT'S PRETTY CLOSE."
830 IF D>20 AND D<10 THEN PRINT"BY A FAIR MARGIN."
840 IF D>20 THEN PRINT"BY A GOOD-SIZED MARGIN."
850 PRINT:PRINT" HERE'S THE FINAL LIST WITH ";L$(C1)
860 PRINT"GIVEN A VALUE OF 100 AND THE OTHERS SET ACCORDINGLY"
870 PRINT:PRINT:PRINT"RATING",S$:FOR J=1 TO L0:C=Z(J)
880 PRINT V(C),L$(C):NEXT:END
890 PRINT" THE NUMBER MUST BE BETWEEN 2 AND 10":RETURN
900 INPUT" IS THIS CORRECT (YES OR NO)":A$
910 B$=LEFT$(A$,1):RETURN

```

LEAST SQUARE ----

This program will run on any machine. It calculates the "best fit" straight line through a set of given data points (there must be at least three data points). Then it will give you the equation of the line with the line's deviations.

```

10 REM*** PAUL JOVIAK ***
15 REM**LEAST SQUARE**
20 CLEAR
40 DIMZ(100)
50 DIMX(100):DIMY(100):DIML(100)
60 FORI=1TO100:X(I)=0:Y(I)=0:NEXTI
90 FORI=1TO32:PRINT:NEXTI
100 PRINT"THIS PROGRAM WILL":PRINT"CALCULATE THE EQUATION"
105 PRINT"OF A LINE IN THE FORM":PRINT"OF 'Y=MX+B' FROM DATA"
110 PRINT"POINTS. ":PRINT
115 PRINT"You NEED AT LEAST 3":PRINT"DATA POINTS"
120 PRINT:PRINT:PRINT"How MANY POINTS ARE"
123 INPUT"BEING CONSIDERED":A
125 IF A<3 OR A>100 THEN 115
130 PRINT:PRINT:PRINT:FORI=1TOA
140 PRINT"POINT #";I:INPUT"X,Y";X(I),Y(I)
150 PRINT:PRINT:NEXTI
155 FORI=1TO30:PRINT:NEXT
170 PRINT:PRINT:FORI=1TOA
180 PRINT"POINT #";I
183 PRINT
185 PRINT"X VALUE";X(I)
190 PRINT"Y VALUE";Y(I)
191 PRINT
193 GOSUB200:NEXTI
195 INPUT"LIST AGAIN";Y$:IF LEFT$(Y$,1)="Y" THEN 170
198 GOT0300
200 INPUT"CORRECT";Y$
205 PRINT:PRINT
210 IF LEFT$(Y$,1)="Y" THEN RETURN
220 PRINT X(I);";;Y(I)
225 PRINT:PRINT
240 INPUT"CHANGE TO 'X,Y';X(I),Y(I)"
245 PRINT:PRINT
250 RETURN
300 FORI=1TOA
310 S1=S1+X(I):S2=S2+Y(I)
330 S3=S3+X(I)^2:S5=S5+X(I)*Y(I)
335 S9=S9+Y(I)^2
350 NEXTI
355 S6=S1^2:G=A*S3-S6
356 IF G=0 THEN PRINT"ERROR":GOTO1000
360 M=(A*S5-S1*S2)/G
370 B=(S2-M*S1)/A
400 FORI=1TO32:PRINT:NEXT
500 PRINT"The SLOPE IS":PRINTM
505 PRINT
510 PRINT"The INTERCEPT IS":PRINTB
520 PRINT:PRINT
530 IF M=0 THEN 1000
535 INPUT"READY";Y$
600 FORI=1TOA
610 Z(I)=M*X+B
620 S=S+(Y(I)-Z(I))^2
630 NEXTI
640 Y=SQR(ABS(S/A-1))
650 FORJ=1TOA
660 L(J)=M*X(J)+B
670 S4=S4+(Y(J)-L(J))^2
690 NEXTJ
710 G1=(R-2)*G
720 M1=SQR(ABS(A*S4/G1))
730 B1=SQR(ABS(S4+S3/G1))
735 FORI=1TO20:PRINT:NEXT
740 PRINT"DEVIATIONS. "
745 PRINT
750 PRINT"SLOPE.":PRINTM1
755 PRINT
760 PRINT"INTERCEPT.":PRINTB1
765 PRINT
770 PRINT"Y.":Y
780 R=S5-(S1*S2)/A
790 R1=S3-S1^2/A:R2=S9-S2^2/A
800 R3=R1*R2
810 C=R/(R3^.5)
840 PRINT:PRINT:PRINT"CORRELATION COEFFICIENT":C
900 INPUT"AGAIN";A$
1010 IF LEFT$(A$,1)="Y" THEN 115
49999 END

```

HEXADECIMAL-DECIMAL-OCTAL CONVERTER ----

This program can be run on all machines. It converts hexadecimal numbers to decimal numbers, decimal numbers to hexadecimal numbers, octal numbers to decimal numbers, and decimal numbers to octal numbers.

```
1 REM HEX TO DEC
5 PRINT:PRINT "THIS IS NUMCON":PRINT
10 PRINT:INPUT"HEX ";H$:IFH$="0"THEN100
20 PRINT:D=0
30 X=RSC(LEFT$(H$,1)):X=X-ASC("0"):IFX>9THENX=X-7
40 D=D*16+X:H$=MID$(H$,2):IFH$>"9"THEN30
50 PRINT:PRINTD:PRINT:GOT010
100 REM DEC TO HEX
110 PRINT:HX$="0123456789ABCDEF"
120 INPUT"DEC ";D:IFD=0THEN200
130 H$="":FORI=1TO4:X=INT(D/16):H$=MID$(HX$,D-X*16+1,1)+H$:D=X:
131 NEXT I
140 PRINT:PRINT "$"+H$:PRINT:GOT0120
200 REM OCTAL TO DEC
210 PRINT:INPUT"OCTAL ";OC$:IFOC$="0"THEN300
220 D=0
230 X=RSC(LEFT$(OC$,1)):X=X-ASC("0"):IFX>9THENX=X-7
240 D=D*8+X:OC$=MID$(OC$,2):IFOC$>"9"THEN230
250 PRINT:PRINTD:PRINT:GOT0210
300 REM DEC TO OCTAL
310 PRINT:OCT$="01234567"
320 INPUT"DEC ";D:IFD=0THEN5
330 O$="":FORI=1TO6:X=INT(D/8):O$=MID$(OCT$,D-X*8+1,1)+O$:
340 D=X:NEXT I
350 PRINT:PRINTCHR$(64)+O$:PRINT:GOT0320
```

DECIMAL TO BINARY TUTOR'S AID ----

This program can be run on any machine. It converts decimal numbers to binary numbers.

```
18 REM DECIMAL TO BINARY TUTOR'S AID
20 POWER$=" 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 00"
30 HALFBY$=" 08 04 02 01 03 04 02 01 03 04 02 01 03 04 02 01 "
35 BINARY$="01":BASE=2
38 FORX=1TO3:PRINT:NEXT
40 INPUT"STARTING VALUE ";Y:Y=Y-1
45 Y=Y+1:DECIMAL=Y
50 IFDEC<0 OR DEC>65535 OR DECO>INT(DEC)THENPRINT:PRINT "WHAT":GOTO 40
50 FORI=1TO16:TEMP=INT(DECIMAL/BASE)
100 ANSWER$=" "+MID$(BINARY$,DECIMAL-TEMP*BASE+1,1)+ANSWER$
110 DECIMAL=TEMP:NEXT
150 FORX=15TO0STEP-1
160 PRINTPOWERS$
170 PRINTHALFBY$
180 FORX=1TO48:PRINT TAB(X); "-"; :NEXT:PRINT
190 PRINTANSWER$; " DECIMAL VALUE = ";Y
200 FORX=1TO48:PRINT TAB(X); "-"; :NEXT:PRINT
210 PRINT:PRINT:ANSWER$="":GOT045
```

RESISTOR ---

This program converts to and from the color codes on resistors.
The program will run on all machines.

```
10 INPUT "DO YOU WANT DIRECTIONS"; GS
12 IF ASC(G$)=78 THEN 29
14 PRINT:PRINT:PRINT " A RESISTOR HAS 4 TO 7 COLOR BANDS ON"
15 PRINT:PRINT "IT. THE FIRST 3 ONLY ARE THE RESISTANCE IN OHMS"
16 PRINT:PRINT "THE LAST GIVE INFORMATION ABOUT WATTAGE AND "
17 PRINT:PRINT "VARIANCE.":PRINT " THE CORRECT END TO START IS THE "
18 PRINT:PRINT "OPPOSITE OF THE GOLD AND SILVER BANDS"
19 PRINT:PRINT "AND CAN BE BLACK, BROWN, RED, ORANGE,"
20 PRINT:PRINT "YELLOW, GREEN, BLUE, GREY, OR WHITE."
23 PRINT:PRINT:PRINT
30 PRINT "THE FIRST 2 BANDS ARE THE BIGGEST AND THE"
32 PRINT
35 PRINT "SECOND BIGGEST DIGITS, AND THE THIRD BAND"
37 PRINT
40 PRINT "TELLS THE NUMBER OF ZERO'S AFTER THEM"
42 PRINT:PRINT:PRINT
45 INPUT "COLORS FROM NUMBERS"; GS
47 IF ASC(G$)=89 THEN 250
50 PRINT:PRINT:PRINT:PRINT "COLORS (3 ONLY)"
53 INPUT AS,B$,CS
55 FOR N=1 TO 3
60 IF N>1 THEN 80
65 GS=AS:GOSUB 2000
70 AS=GS
80 IF N>2 THEN 100
85 GS=B$:GOSUB 2000
90 B$=GS
100 IF N>3 THEN 130
105 GS=CS:GOSUB 2000
110 CS=GS
130 NEXT N
140 IF CS="0" THEN CS=" "
145 IF CS=="1" THEN CS="0"
150 IF CS=="2" THEN CS="00"
155 IF CS=="3" THEN CS="000"
160 IF CS=="4" THEN CS="0000"
165 IF CS=="5" THEN CS="00000"
170 IF CS=="6" THEN CS="000000"
175 IF CS=="7" THEN CS="0000000"
180 IF CS=="8" THEN CS="00000000"
185 IF CS=="9" THEN CS="000000000"
186 IF CS=="SILVER" THEN CS="*10^-2"
187 IF CS=="GOLD" THEN CS="*10^-1"
189 PRINT:PRINT:PRINT
190 PRINT AS;B$;CS;" OHMS"
200 INPUT "ANY MORE"; GS
210 IF ASC(G$)=89 THEN 45
215 END
250 INPUT "RESISTANCE IN OHMS"; R
252 IF R<10 THEN 400
255 R0=INT(LOG(R)/LOG(10))
257 S=.03
260 R1=INT(R/10^R0+S)
270 R2=INT((R/10^R0+S-R1)*10)
280 FOR N=1 TO 3
285 IF N>1 THEN 295
290 G=R0-1:GOSUB 3000
```

```

292 R$=G$
295 IF NK>2 THEN 310
300 G=R1:GOSUB 3000
305 R1$=G$
310 IF NK>3 THEN 325
315 G=R2:GOSUB 3000
320 R2$=G$
325 NEXT N
330 PRINT:PRINT:PRINT "IN THIS ORDER, THE COLORS ARE :"
335 PRINT:PRINTR1$,R2$,RS
340 PRINT:PRINT:PRINT
345 GOTO 200
400 IF R<1 THEN 500
420 R1$="BLACK":G=R:R$="BLACK"
425 GOSUB 3000:R2$=G$
430 GOTO 330
500 RL=ABS(INT(LOG(R)/LOG(10)))
505 RS=R*10^RL
506 RS="?????"
507 IF RL=1 THEN RS="GOLD"
508 IF RL=2 THEN RS="SILVER"
510 RV=INT(RS)
515 IF INT(RS*10-RV*10)=0 THEN 570
520 RR=INT(RS*10-RV*10)
525 G=RS:GOSUB 3000
530 R1$=G$:G=RR
535 GOSUB 3000
540 R2$=G$
550 GOTO 330
570 R1$="BLACK":G=RS:GOSUB 3000
575 R2$=G$
580 GOTO 330
2000 REM COLOR FINDER
2005 IF GS="BLACK" AND N=1 THEN GS=" "
2010 IF GS="BLACK" THEN GS="0"
2015 IF GS="BROWN" THEN GS="1"
2020 IF GS="RED" THEN GS="2"
2025 IF GS="ORANGE" THEN GS="3"
2030 IF GS="YELLOW" THEN GS="4"
2035 IF GS="GREEN" THEN GS="5"
2040 IF GS="BLUE" THEN GS="6"
2045 IF GS="VIOLET" THEN GS="7"
2050 IF GS="GREY" THEN GS="8"
2055 IF GS="WHITE" THEN GS="9"
2060 RETURN
3000 REM COLORS FR. #5
3002 RESTORE
3005 FOR I=0 TO G:READ GS:NEXT I
3020 RETURN
4000 DATA "BLACK","BROWN","RED","ORANGE","YELLOW"
4005 DATA "GREEN","BLUE","VIOLET","GREY","WHITE"

```

NIGHT OF THE LIVING VOLKSWAGENS -----

THIS PROGRAM WILL RUN ON THE C1P AND SUPERBOARD II ONLY. YOU ARE DRIVING THE CAR MOVING UP THE SCREEN BUT WATCH OUT THE CARS COMING TOWARD YOU ARE FIRING AT YOU. YOU MOVE RIGHT BY DEPRESSING "2", LEFT BY DEPRESSING "1", AND STRAIGHT BY DEPRESSING BOTH. YOU CAN FIRE BACK BY DEPRESSING THE "3" THE CLOSING NUMBER IS HOW MANY CARS YOU SHOT.

```

1 REM *** ROBERT L.
2 REM *** COPPEDGE
3 KE=57088:POKE530, 1
4 POKEKE, 64
5 INPUTZ1:FORX=1TO35:PRINT:NEXT
6 POKES4117, 32
10 FORX=53355T054219STEP32
20 POKEX, 147:POKEX+5, 146
30 NEXT
35 DP=53996:POKEDP, 0
50 RP=INT(RND(Z1)*4+1)+53355
51 FORY=1TO30:POKERP-RC, 32
52 RP=RP+INT(RND(Z1)*2+1)*32:POKERP, 1
53 FORX=1TOZ:NEXT:Z=Z*. 8788
54 IFRP=DPTHEN60
58 RC=0:GOTO80
60 FORX=1TO150:POKERP, X:NEXT
61 POKERP, 0:Z=75:POKERP-32, 32
62 FORX=1TO500:NEXT
65 GOTO50
80 POKEKE, 64:C=PEEK(KE)
81 IFG=126THEND=-1
82 IFG=190THEND=1
83 IFG=62THEND=-32
84 IFG=254THEND=32
85 IFG=246THEN10000
92 IFPEEK(DP+D)=32THENDP=DP+D:POKEDP-D, 32
93 IFDP<53355THENDP=DP+27*32
94 IFDP>54224THENDP=DP-27*32
95 POKEDP, 0:D=0
100 FI=RND(Z1)*5
110 IFFI>4THEN150
120 GOTO490
150 FORX=1TO24:POKERP+32*X, 139
151 IFRP+32*X=DPTHEN190
160 NEXTX:FORX=1TO24:POKERP+32*X, 32:NEXT
170 GOTO490
190 FORY=1TOX:POKERP+Y*32, 32:NEXT
200 FORX=1TO150:POKEDP, X:NEXT:POKEDP, 32
205 PRINTKI:KI=0
210 CLEAR:RUN
490 IFI>0THEN700
500 H=INT(RND(Z1)*23)+53363
550 H(1)=INT(RND(Z1)*3+13)
600 I=1
700 POKEH, 32:H=H+64
710 POKEH, H(1)
720 IFH>54233THENPOKEH, 32:I=0
800 Q=INT(RND(Z1)*6-6)
801 IFQ=5THENRC=1
802 IFQ=-5THENRC=-1
820 RP=RP+RC
850 IFPEEK(RP)<>32THENRP=RP-RC:RC=0
860 IFRC<>0THENPOKERP-RC, 32
900 NEXT
1000 POKERP, 32:GOTO50
10000 FORX=1TO30:POKEDP-32*X, 140
10010 IFDP-32*X=RPTHENFORY=1TOX:POKEDP-32*Y, 32:NEXT:FORY=1TO150:
11020 IFDP-32*X=RPTHENPOKERP, Y:NEXT:POKERP, 32:KI=KI+1:GOTO50
11030 NEXTX:FORX=1TO30:POKEDP-32*X, 32:NEXTX
11040 GOTO93

```

SANTA AND EIGHT REINDEER ----

THIS PROGRAM WILL RUN ON THE C1P AND SUPERBOARD II ONLY. IT IS
EIGHT TINY REINDEER FOLLOWED BY SANTA AND HIS SLEIGH, WISHING YOU
SEASON'S GREETINGS.

1 REMK. STEPHENS&P. JOVIAK: SANTA: IP
2 DIMY(32):DIMZ(32):DIMW(32):DIMV(32):DIME(27):DIMF(27)
3 I=1: H=4: DIMP(22):DIMO(22)
4 FORX=ITO9: READZ(X): NEXT: FORX=ITO9: READV(X): NEXT
5 FORX=ITO9: READY(X): NEXT: FORX=ITO9: READW(X): NEXT
7 IFH=32THEN11
8 I=I+4: H=H+4: RESTORE: GOTO4
11 GOTO1450
91 FORX=1T03: READA(X): NEXT: FORX=1T05: READB(X): NEXT
92 FORX=1T09: READC(X): NEXT: FORX=1T05: READD(X): NEXT
93 FORX=1T027: READE(X): NEXT: FORX=1T027: READF(X): NEXT
94 FORX=1T022: READP(X): NEXT: FORX=1T022: READQ(X): NEXT
95 FORX=-1T0-12STEP-1: L=K+53943: H=53596+K
102 FORX=1T027: POKEH+E(X), F(X): NEXT
105 FORX=1T05: POKEL-A(X), D(X): NEXT
106 FORX=1T05: POKEL-A(X)-1, D(X): NEXT
110 FORX=1T05: POKEL-A(X)+1, 32: NEXT
115 FORX=1T022: POKEP(X)+H, O(X): NEXT
120 FORX=1T012: POKEL+X, 162: POKEL+X+32, 188: POKEL+X-96, 164: NEXTX
129 POKEL+13, 32: POKEL+45, 32: POKEL-83, 32: L=L-61
130 FORX=1T05: POKEL+X, B(X): NEXT: POKEL+6, 32: L=L+30
182 FORX=1T09: POKEL+X, C(X): NEXT: POKEL+10, 32: IFK=-12THEN1300
1150 FORX=1T022: POKEP(X)+H, 32: NEXT
1200 FORX=1T027: POKEH+E(X), 32: NEXT
1300 NEXTK: RETURN
1450 PRINT: PRINT" O. S. I. COMPUTERS SAY.. ":"FORX=1T020: PRINT: NEXT
1500 FORI=1T050
1510 Q=(54100-53432)*RND(X)+53432
1515 IFPEEK(Q)<>32THEN1510
1520 POKE54117, 32: POKEQ, 46: NEXT
1999 FORC=1T09
2000 FORX=4T032STEP4
3000 L=53856
3001 L=L-(X+6)
3007 FORI=9T012: POKEL+I, 128: NEXT
3008 POKEL-128, 240: POKEL-125, 240
3009 POKEL-95, 240: POKEL-94, 240
3010 POKEL-63, 253
3011 POKEL-33, 227
3020 POKEL-32, 226
3100 FORI=1T08: POKEL+I, 42: NEXT: FORI=2T08: POKEL+I+32, 42: NEXT
3111 POKEL-34, 173
4150 R=-(X+6)
4160 X=X/4
4200 POKEY(X)+R, Z(X): POKEY(X)+V(X)+R, W(X)
4201 POKEY(X)+6+R, Z(X): POKEY(X)+V(X)+6+R, W(X)
4202 FORI=1T0101: NEXT
4210 POKEY(X)+R, 32: POKEY(X)+V(X)+R, 32: POKEY(X)+V(X)+6+R, 32
4211 POKEY(X)+6+R, 32
4300 X=X*4
4510 POKEL-34, 32
4550 POKEL-128, 32: POKEL-125, 32: POKEL-95, 32: POKEL-94, 32
4560 POKEL-63, 32: POKEL-33, 32: POKEL-32, 32
4570 FORI=1T08: POKEL+I, 32: POKEL+I+32, 32: NEXT
4580 IFG=9ANDX=24THEN4600
4581 NEXTX, C
4600 FORI=1T09: POKEL+I, 128: NEXT
5000 COSUB91
7000 DATA 189, 143, 143, 190, 31, 32, 33, 33
7001 DATA 53921, 53921, 53922, 53923
7002 DATA 189, 143, 190, 190
8000 DATA 64, 128, 97, 65, 32, 77, 69, 82, 82, 89, 67, 72, 82, 73, 83, 84, 77, 65, 83
8001 DATA 32, 64, 64, 64
9000 DATA 0, -31, -30, 1, 32, 33, 2, 3, 64, 65, 34, 66, 98, 63, 95, 31, 128, 160
9001 DATA 96, 130, 162, 226, 194, 127, 158, 190, 222
9002 DATA 189, 189, 190, 143, 155, 155, 135, 226, 168, 41, 136, 136, 136, 189, 135
9003 DATA 143, 161, 175, 205, 200, 139, 139, 139, 196, 201, 140, 140
9005 DATA 67, 68, 69, 70, 104, 71, 136, 168, 200, 231, 230
9006 DATA 100, 101, 131, 133, 134, 163, 164, 166, 196, 198, 228
9010 DATA 196, 195, 135, 197, 190, 198, 143, 143, 189, 195, 196
9011 DATA 5, 6, 0, 9, 10, 181, 182, 17, 248, 14, 1
10000 FORI=1T05000: NEXT
10001 CLEAR: GOTO1

RAINDROPS AND WILLY THE WIGGLE ----

This program will run on all graphics machines except the C1P.
It is a shower of raindrops and a wiggly worm using graphic
techniques.

1 REM RAINDROPS & WILLY THE WIGGLE -----8/21/78

10 FORI=1TO27:PRINT:NEXTI
20 A\$="O H I O S C I E N T I F I C C O M P U T E R S"
30 B\$=""

40 C\$="P R O U D L Y P R E S E N T S . . . "

50 B=54021 53701

60 FORI=1TOLEN(A\$)

70 POKEB+I,ASC(MID\$(A\$,I,1))

80 NEXTI

90 B=54278 53797

100 FORI=1TOLEN(B\$)

110 POKEB+I,ASC(MID\$(B\$,I,1))

120 NEXTI

125 FORI=1TO1000:NEXTI

130 B=54996 54032

140 FORI=1TOLEN(C\$)

150 POKEB+I,ASC(MID\$(C\$,I,1)) 53701

160 NEXTI

170 FORI=1TO1000:NEXTI

180 A\$="RAINDROPS "

190 FORI=2TOLEN(A\$)STEP2

200 FORJ=1TO63STEP3

210 PRINTTAB(J);MID\$(A\$,I-1,1)

215 FORL=1TO150:NEXTL

220 NEXTJ

230 FORJ=2TO1STEP-8 3

240 PRINTTAB(J);MID\$(A\$,I,1)

250 FORL=1TO149:NEXTL

260 NEXTJ

270 NEXTI

280 FORI=1TO10:PRINT:NEXTI

290 PRINTTAB(10);"R A I N D R O P S "

300 FORI=1TO14:PRINT:NEXTI

400 C=500

410 FORI=1TOC

420 J=26*RND(1):K=53*RND(1)

430 POKE53440+64*INT(J)+K,ASC("*")

53443+25

440 NEXTI 53443 53449
 450 FORI=53440TO55200:POKEI,32:NEXTI
 500 A\$=" WILLY THE WIGGLE ":B=53440-53440
 510 FORI=1TOLEN(A\$)
 520 POKEB+I,ASC(MID\$(A\$,I,1))
 530 NEXTI 53440
 540 B=B+I:IFB<55103THEN510
 550 FORI=1TO29:PRINT:NEXTI
 560 B=53440:C=5000:L(1)=53440:L(2)=53440
 570 L(3)=53440:L(4)=53440:L(5)=53440
 580 I=0 53440
 590 A=INT(RND(1)*8)+1
 600 ONAGOTO610,620,630,640,650,660,670,680
 610 A=B-68:IFA>53440THEN590
 615 B=A:POKEB,79:POKEL(5),32:L(5)=L(4):L(4)=L(3)
 618 L(3)=L(2):L(2)=L(1):L(1)=B:I=I+1:IFI>500THEN700
 619 GOT0590 53440
 620 A=B-64:IFA>53440THEN590
 625 GOT0615 53440
 630 A=B-63:IFA>53440THEN590
 635 GOT0615
 640 GOT0650
 645 GOT0615 53440
 650 A=B+1:IFA>55167THEN590
 655 GOT0615 53440
 660 A=B+3:IFA>55167THEN590
 665 GOT0615
 690 GOT0615
 700 FORI=1TO15:PRINT:NEXTI
 705 PRINTTAB(10);"I S N ' T H E T A L E N T E D ?"
 710 FORI=1TO15:PRINT:NEXTI
 1000 FORI=1TO10000:NEXTI:GOT010

670 A=B-30:IFA<53443 THEN550
 675 GOT0615 53440
 680 A=B-29:IFA<53443 THEN550

FUNCTION GRAPHER ----

This program will run on all machines that have a polled keyboard and graphics except the C1P. It will graph any function entered into the program. NOTE: X and Y limits determines what the function will look like on the screen.

```
1 REM **** BY PAUL A. JOVIAK AND ROBERT L. COPPEDGE ****
2 REM *** FUNCTION GRAPHER ***
3 FORX=1TO15:PRINT:NEXTI:PRINT"INSTRUCTIONS":PRINT
4 GOSUB 1000:GOSUB 300
5 PRINT"AFTER 'OK' TYPE '50 DEF FND(X)=' AND THEN"
10 PRINT"THE FUNCTION IN 'X' FOLLOWING THE EQUAL SIGN."
15 PRINT"NOW PUSH RETURN AND TYPE 'RUN 50' FOLLOWED"
20 PRINT"BY PUSHING RETURN. EXAMPLE: "
25 PRINT:PRINT"50 DEF FND(X)=SIN(X)":PRINT
27 A$=" ";T=0
30 INPUT"Do you wish an example run";A$
35 IFLEFT$(A$,1)="Y"THEN42
40 STOP
42 PRINT
43 PRINT"USE .1 FOR SCALES FOR THE X AXIS AND Y AXIS"
50 DEF FND(X)=SIN(X)
50 INPUT"SCALE FOR X-AXIS";W
55 INPUT"SCALE FOR Y-AXIS";Z
58 A=.W*.28:B=-A
97 FORI=1TO30:PRINT:NEXTI
100 FORI=53532TO55132STEP64:POKEI,49:NEXTI
105 FORI=54336TO54399:POKEI,45:NEXTI:POKE54364,43
120 X=(A-B)*RND(P)+B
123 KEY=57088:POKE530,1:POKE KEY,128
124 IFPEEK(KEY)=1280RPEEK(KEY)=64THEN163
130 Y=FND(X)
140 Y=INT((Y/Z)+.5):X=INT(X/W)
150 P=54364+X-Y*64
155 IFP>551670RPC53440THEN120
160 POKEP,46
163 POKE KEY,2
165 F=PEEK(KEY)
170 IFF=16THEN500
173 POKE KEY,128:F=PEEK(KEY)
175 IFF=128THEN80
180 IFF=64THEN5
185 IFLEFT$(A$,1)="Y"THEN T=T+1
190 IFLEFT$(A$,1)="Y"ANDT=300THEN1
200 GOTO120
300 REM ***INSTRUCTIONS
305 PRINT:PRINT
310 PRINT"WHEN GRAPH IS ON SCREEN :"
320 PRINT"    PRESS '1' FOR GRAPHING SAME FUNCTION"
330 PRINT"    PRESS '2' FOR GRAPHING A NEW FUNCTION"
340 PRINT"    PRESS '' FOR ENDING PROGRAM"
345 PRINT:PRINT
350 RETURN
500 GOTO 1500
1000 PRINT"DEFINE THE X AND Y SCALES BY TYPING THE VALUE PER SPACE"
1001 PRINT"OF X AND Y. THERE ARE 30 SPACES EITHER SIDE OF THE"
1002 PRINT"Y-AXIS AND 12 SPACES ABOVE AND BELOW THE X-AXIS."
1003 PRINT"IF THE SCALES FOR X & Y DO NOT COMPLY THE GRAPH MAY"
1004 PRINT"NOT APPER-ON THE SCREEN. IF THIS HAPPENS, PRESS '1'
1005 PRINT"AND ENTER NEW SCALES."
1010 RETURN
1500 END
```

BOUNCER ----

This program will run on all graphics machines except the C1P. It simulates a ball bouncing around the screen at various speeds.

```
1 REM--- BOUNCER
2 REM---B. BENNETT
3 PRINT"SPEED- FROM 1 TO 200"
4 INPUT H1
5 H=INT(200*H1/H4)
6 PRINT"INPUT RANDOM SEED #"
7 INPUT K
8 R=INT(7*RND(K)+65)
11 L1=53382
15 FOR J=53300 TO 55425:POKE J,32:NEXT J
20 C=53440
29 Q2=53497
30 FOR W=Q2 TO 55300 STEP 64:POKE C,79
35 IF C>55168 THEN 170
37 L1=L1+64
40 POKE C-A,32
42 F=0:IF A>64 THEN F=1
45 P=120:IF C>W THEN P=L
47 IF C<L1 AND A<64 THEN 100
50 FOR S=1 TO H :NEXT S
60 IF F=1 AND C>(53440+64)*P) THEN A=64-ABS(A-64)
65 IF F=0 AND C>(53440+64)*P) THEN A=64+ABS(A-64)
80 C=C+A:NEXT W
90 GOTO 170
100 F=0:P=L:GOT065
170 POKE C-A,32:G=55173:M=55225
200 A=INT(14*RND(C)+57)
205 F=0:IF A>64 THEN F=1
207 IF C<53440 THEN 280
210 POKE C,79:POKE (C+A),32
211 N1=C
212 IF C>M AND F=0,THEN 300
214 IF C<G AND F=1 THEN 220
215 C=C-A
255 FOR R1=0 TO H:NEXT R1
260 M=M-64:G=G-64
270 GOTO 205
280 L1=53318:Q2=53432
283 POKE N1,32
285 IF A>64 THEN 330
286 IF A<64 THEN A=64-(A-64)
290 GOTO 30
300 A=64+(64-A):GOTO 215
320 A=64-(A-64):GOTO 215
330 A=A+2*(64-A):GOTO 290
```

RANDOM SQUARE ----

This is a short graphics demonstration program. The program is compatible with all graphics machines except the C1P. Note, this program is also listed in the section "Special Hardware", with color conversions.

```
12 REM ** RANDOM SQUARE **
15 POKE 56832,6:PRINT:PRINT:PRINT:PRINT
17 PRINT"          OHIO SCIENTIFIC:"
30 FOR I=1 TO 24:PRINT:NEXT
50 D=4096:B(1)=1:B(2)=-64:B(3)=-1:B(4)=64
80 FOR P=1 TO 5
90 FOR L=1 TO 2:H=58318
100 FOR I=1 TO 11 STEP 2
140 H=H+63:FORK=1 TO 4:Z=H
144 IF K=2 THEN Z=H+I
145 IF K=3 THEN Z=H+I+I*-64
146 IF K=4 THEN Z=H+I*-64
150 FOR J=0 TO I-1
160 TS=INT(16*RND(Z))
170 RS=INT(255*RND(TS))
200 POKE Z+J*B(K),TS
220 F=PEEK(57088):IFF<>1 THEN 800
250 IFL=2 THEN POKE Z+J*B(K)-D,32:GOT0500
300 POKE Z+J*B(K)-D,RS
500 NEXT J,K,I,L
650 NEXT P
```

occupies 2329 bytes

OTHELLO ----

This program will run on all machines except the C1P. The game follows conventional rules for OTHELLO. This is a two player game. Enter column, comma, row (example: 3,5) for your moves.

1 REM ***ROBERT L.
2 REM ***COPPEDGE
4 FOR R=1 TO 32:PRINT:NEXT
10 FOR W=1 TO 8:FOR V=1 TO 8
11 N(V,W)=45:NEXT V:NEXT W
12 N(4,4)=79:N(5,5)=79:N(4,5)=66:N(5,4)=66:GOTO 115
110 PRINT"PLAYER ";A:PRINT"TYPE YOUR MOVE":INPUT X,Y
111 IF X>8 OR X<1 OR Y>8 OR Y<1 THEN 110
112 IF N(X,Y)>45 THEN 1500
113 H=0:GOSUB 600
115 FOR W=1 TO 8
116 FOR V=1 TO 7
117 PRINTTAB(25)CHR\$(N(V,W));"
118 NEXT V
120 PRINTCHR\$(N(8,W));
130 PRINT"--";CHR\$(N(8,W))
131 NEXT W
136 A=A+1:IF A=3 THEN A=1
137 GOTO 110
140 GOTO 1000
600 N(X,Y)=66:IF A=1 THEN N(X,Y)=79
601 B=N(X,Y)
602 W=1
603 C=66:IF A=2 THEN C=79
604 IF X=1 OR Y=1 THEN 700
605 IF N(X-W,Y-W)=B THEN 630
610 IF N(X-W,Y-W)=45 OR X-W=1 OR Y-W=1 THEN 700
615 W=W+1:GOTO 605
650 FOR V=1 TO W
655 N(X-V,Y-V)=8
656 IF W>1 THEN H=1:NEXT V
700 W=1
701 IF Y=1 THEN 800
705 IF N(X,Y-W)=B THEN 750
710 IF N(X,Y-W)=45 OR Y-W=1 THEN 800
715 W=W+1:GOTO 705
750 FOR V=1 TO W
751 N(X,Y-V)=8:IF W>1 THEN H=1
752 NEXT V
800 W=1
801 IF X=8 OR Y=1 THEN 900
805 IF N(X+W,Y-W)=B THEN 850
810 IF N(X+W,Y-W)=45 OR Y-W=1 OR X+W=8 THEN 900
815 W=W+1:GOTO 801
850 FOR V=1 TO W
851 N(X+V,Y-V)=8:IF W>1 THEN H=1
852 NEXT V

PRINT"--";CHR\$(N(V,W));

900 W=1:S=1:IF X=1 THEN 1000
901 IF N(X-W,Y)=8 THEN 950
902 IF N(X-W,Y)=45 OR X-W=1 THEN 1000
903 IF X-W=3 THEN 1100
905 W=W+S:GOTO 901
950 FOR V=S TO W STEP S
951 N(X-V,Y)=8:IF W>S THEN H=1
952 NEXT V
1000 IF S=-1 THEN 1100
1001 S=-1:W=-1:IF X=8 THEN 1100
1002 GOTO 901
1005 W=1:IF X=8 THEN 1100
1100 W=1:IF X=1 OR Y=8 THEN 1200
1101 IF N(X-W,Y+W)=8 THEN 1150
1102 IF N(X-W,Y+W)=45 OR X=1 OR Y=8 THEN 1200
1105 W=W+1:GOTO 1101
1150 FOR V=1 TO W
1151 N(X-V,Y+V)=8:IF W>1 THEN H=1
1152 NEXT V
1200 W=1:IF Y=8 THEN 1300

1201 IF N(X,Y+W)=8 THEN 1250
1202 IF N(X,Y+W)=45 OR Y+W=8 THEN 1300
1205 W=W+1:GOTO 1201
1250 FOR V=1 TO W:IF W>1 THEN H=1
1251 N(X,Y+V)=8:NEXT V
1300 W=1:IF Y=8 OR X=3 THEN 1400
1301 IF N(X+W,Y+W)=8 THEN 1350
1302 IF N(X+W,Y+W)=45 OR X+W=8 OR Y+W=8 THEN 1400
1305 W=W+1:GOTO 1301
1350 FOR V=1 TO W:IF W>1 THEN H=1
1351 N(X+V,Y+V)=8:NEXT V
1400 IF H=0 THEN 1550
1405 N=N+1:IF N=64 THEN 1600
1410 FOR X=1 TO 24:PRINT:NEXT X:RETURN
1500 PRINT"PLACE ALREADY OCCUPIED":GOTO 110
1550 PRINT"MOVE NOT ALLOWED":N(X,Y)=45:GOTO 110
1600 FOR J=1 TO 8:FOR W=1 TO 8
1605 IF N(J,W)=79 THEN I=I+1
1610 NEXT W:NEXT J:PRINT"O'S SCORE IS:":I
1620 PRINT"B'S SCORE:":64-I
1700 END

PRINT"--";CHR\$(N(V,W));

November 2, 1974 25th an o'clock
1,2 076.250m

07 117
* 705 on non move 5 o'clock

CHESSBOARD ----

This program will run on all machines except the C1P. This program does not actually play chess or do any error checking, it simply displays the chess board and pieces. The players simply input their moves and the program updates the board. Typing KC or QC would indicate a king side or queen side castle. Typing BOARD will display the board. You move pieces by typing locations (example: D2-D4). You can change a pawn to a queen by typing the change after the move command (example: E2-E1Q).

```

1 REM***DANIEL GLASSER
2 REM***CHESS BOARD
10 DIM B1(8,8),B2(8,8),P$(16)
30 FOR X=1 TO 2:FOR Y=1 TO 8:READ S
42 B1(X,Y)=S: B1(X+2,Y)=S: B1(X+4,Y)=S: B1(X+6,Y)=S
50 NEXT Y: NEXT X:FOR X=1 TO 2:FOR Y=1 TO 8:READ S:B2(X,Y)=S
90 NEXT Y:NEXTX:FOR X=7TO8:FOR Y=1 TO 8:READ S:B2(X,Y)=S:NEXT Y
100 NEXTX:FOR X=1TO16:READ S:P$(X)=S:NEXTX:GOT0800
140 IF W=1 THEN 160
141 INPUT "W>"; M$:GOTO 170
160 INPUT "B>"; M$
170 IF M$="END" THEN 2000
177 IF M$="KC" THEN 250
178 IF M$="QC" THEN 300
179 IF M$="BOARD" THEN 799
180 A$=LEFT$(M$,1):B$=MID$(M$,2,1):A1$=MID$(M$,4,1):B1$=MID$(M$,5,1)
190 B=VAL(B$):C=VAL(B1$):IF W=1 THEN 210
200 W=1:GOT0220
210 W=0:W2$=K)=M$
220 P1=ASC(A$)-64:P2=ASC(A1$)-64
230 U=B2(B,P1):B2(B,P1)=0:B2(C,P2)=U
235 IF RIGHTS$(M$,1)="Q" THEN 900
240 GOTO 799
250 IF W=1 THEN 280
260 W=1
265 B2(1,1)=0:B2(1,4)=0:B2(1,2)=7:B2(1,3)=4:GOT0799
280 W=0:B2(8,1)=8:B2(8,4)=0:B2(8,2)=14:B2(8,3)=11:GOT0799
300 IF W=1 THEN 330
310 W=1
320 B2(1,8)=0:B2(1,4)=0:B2(1,6)=7:B2(1,5)=4:GOT0799
330 W=0:B2(8,8)=0:B2(8,4)=0:B2(8,6)=14:B2(8,5)=11:GOT0 799
799 FOR M$=1 TO 4:PRINT:NEXT M$
800 PRINT"-A---B---C---D---E---F---G---H---"
801 PRINT
810 FOR X=1 TO 8: FOR Y=1 TO 8
820 S1=B2(X,Y)
830 IF S1=0 THEN S1=B1(X,Y)
840 S$=P$(S1):PRINT S$;" ";
850 NEXTY:PRINT"   ";X:PRINT:PRINT:NEXT X
851 PRINT"-A---B---C---D---E---F---G---H---"
855 GOTO 140
900 IF C=8 THEN B2(C,P2)=8:GOTO 799
910 IF C=1 THEN B2(C,P2)=15
912 GOTO 799
1000 DATA 1,2,1,2,1,2,1,2,1,2,1,2,1,2,1,2,1
1010 DATA 4,5,6,7,8,9,5,4,3,3,3,3,3,3,3,3
1020 DATA 10,10,10,10,10,10,10,11,12,13,14,15,16,12,11
1030 DATA " "," #"," WP"," WR"," WN"," WB"," WK"," WQ"," WB"
1040 DATA " BP"," BR"," BN"," BB"," BK"," BQ"," BB".
2000 END

```

Word Processor ---

This program is a simple word processor for BASIC-in-ROM computers. The program allows tape storage of text, but requires 10K+ RAM to process full pages of text.

```
10 REM--D. TEWKS BARY; WORD PROCESSOR
11 DIMLS$(32),CS(13):IP=1:LP=1:CS(0)="IT"
12 CS(1)="IL":CS(2)="DL":CS(3)="IC":CS(4)="DC"
13 CS(5)="V":CS(6)="A":CS(7)="G":CS(8)="PT"
14 CS(9)="PD":CS(10)="C":CS(11)="F":CS(12)="S":CS(13)="R"
15 PRINT:INPUT"COMMAND";AS:FORI=0TO13:IFCS(I)=ASGOTO50
16 IFIP=33THENIP=1
17 NEXTI:GOSUB1400:GOT040
18 ONI+1GOT0170,100,200,300,400,500,600,700,800,900,1000,1100,1200
19 INPUT"OLD STRING";AS:INPUT"NEW STRING";BS:PRINT
20 PRINT"REPLACE ";AS;" WITH ";BS:PRINT:INPUT"CORRECT";YS
21 IFLEFT$(YS,1)="N"GOT055
22 LA=LEN(AS):FORI=1TO32:FORI2=1TOLEN(L$(I))
23 IFMIDS(L$(I),I2,LA)=ASGOTO90
24 NEXTI2,I:GOT040
25 IFI2=1THENLS(I)=BS+MIDS(L$(I),I2+LA):GOT081
26 LS(I)=LEFT$(LS(I),I2-1)+BS+MIDS(L$(I),I2+LA):GOT081
27 PRINT("IP");:INPUTAS:IFAS="**"GOT040
28 IFIP>32THENPRINT"FILE OVERFLOW":GOT040
29 C=0:FORI=1TOLEN(AS):IFMIDS(AS,I,1)="/"GOT0150
30 LS(IP)=LS(IP)+MIDS(AS,I,1)
31 NEXTI:IP=IP+1:GOT0100
32 IFLEN(L$(32))<>0THENPRINT"FILE OVERFLOW":GOT040
33 IFIP>31THENPRINT"FILE OVERFLOW":PRINT:GOT040
34 FORI2=31TOIPSTEP-1:LS(I2+1)=LS(I2):NEXT
35 IP=IP+1:LS(IP)=""GOT0120
36 POKE515,254:PRINT"START TAPE":PRINT:INPUTAS
37 PRINT("IP");:INPUTAS:IFAS="**"THENPOKE515,0:GOT040
38 IFIP>32THENPRINT"FILE OVERFLOW":POKE515,0:GOT040
39 LS(IP)=AS:IP=IP+1:GOT0175
40 PRINT:INPUT"DID YOU WANT TO REMOVE A SERIES";YS
41 IFLEFT$(YS,1)="N"THENGOT0250
42 INPUT"LOWEST LINE NUMBER";A
43 INPUT"HIGHEST LINE NUMBER";B
44 IFA>BGOT0220
45 IFA<10RA>31ORB<10RB>31THENPRINT"OUT OF RANGE":GOT040
46 FORI=A TO B:LS(I)=""NEXT
47 FORI=B+1TO32:LS(A+I-B-1)=LS(I):NEXT
48 FORI=32-B+AT032:LS(I)=""NEXT:GOT040
49 INPUT"WHICH ONE THEN";A
50 IFA<10RA>32THENPRINT"OUT OF RANGE":GOT0250
51 LS(A)=""PRINT:INPUT"IS THAT ALL";YS
52 IFLEFT$(YS,1)="Y"GOT040
53 GOT0250
54 PRINT:INPUT"What string would you like to insert here";AS
55 BS(1)=""BS(2)=""C=1
56 FORI=1TOLEN(AS):IFMIDS(AS,I,1)="/"THENGOSUB350:NEXTI:GOT0317
57 BS(C)=BS(C)+MIDS(AS,I,1):NEXTI
58 IFC+IP>31THENPRINT"OVERFLOW":GOT040
59 IFC=2THENLS(IP+1)=BS(2)+" "+LS(IP+1)
60 IFLP=1THENLS(IP)=BS(1)+LS(IP):GOT0335
61 LS(IP)=LEFT$(LS(IP),LP-1)+BS(1)+MIDS(LS(IP),LP)
62 LP=LP+LEN(BS(1)):IFC=2THENLP=LEN(BS(2))+1:IP=IP+1
63 GOT040
64 C=C+1:IFC>2THENPRINT"ONLY ONE / ALLOWED":GOT040
65 LS(IP+1)=MIDS(LS(IP),LP)+" "+LS(IP+1)
66 IFLP+I>3THENLS(IP)=""RETURN
```

```

370 L$(IP)=LEFT$(L$(IP),LP-1):RETURN
400 INPUT"HOW MANY CHARACTERS DO YOU WANT TO DELETE";C:IFC=0GOTO40
420 IF LP=1 THEN L$(IP)=MID$(L$(IP),C+1):GOTO40
430 L$(IP)=LEFT$(L$(IP),LP-1)+MID$(L$(IP),LP+C)
440 GOTO40
500 PRINT:PRINT("IP")"L$(IP):GOTO40
600 PRINT:INPUT"ADVANCE HOW MANY";A
610 IF IP+A>320RIP+A<1THENPRINT"OUT OF RANGE":GOTO40
620 IP=IP+A:LP=1
630 PRINT:PRINT"CURRENTLY AT ";IP:GOT040
700 PRINT:INPUT"WHAT STRING ARE YOU LOOKING FOR";A$
701 INPUT"ON WHICH OCCURANCE";C:IFC=0GOT0701
710 J=0:LA=LEN(A$):FOR I=IPT032:FOR I2=1TOLEN(L$(I))
720 IF MID$(L$(I),I2,LA)=A$GOT0740
730 NEXT I2,I:PRINT:PRINT"NOT FOUND":GOT040
740 J=J+1:IF J>CGOT0730
750 IP=I:LP=I2:GOT0630
800 PRINT:INPUT"THE PRINT SHOULD START WITH WHICH LINE";L1
810 INPUT"WHERE SHOULD THE PRINT STOP";L2
815 IF L1<10RL2<10RL1>320RL1>32GOT0800
816 INPUT"DID YOU WANT LINE NUMBERS";Y$:IF LEFT$(Y$,1)=""Y"GOT0830
820 PRINT:POKE517,1:PRINT"FOR PLAYBACK VIA THE IT MODE, BEGIN THE";
821 PRINT" TAPE AFTER THIS LINE BEGINS!!"
825 FOR I=L1TO L2:PRINT L$(I):NEXT:PRINT"**":POKE517,0:GOT040
830 FOR I=L1TO L2:PRINT("I")";L$(I):NEXT:GOT040
900 INPUT"THE PRINT SHOULD START WITH WHICH LINE";L1
901 INPUT"WHERE SHOULD THE PRINT STOP";L2
902 IF L1<10RL2<10RL1>320RL2>32THENPRINT"OUT OF RANGE":GOT040
905 INPUT"ON WHAT LINE WOULD YOU LIKE YOUR DATA TO START";A
910 INPUT"AND WHAT INCREMENT";B:POKE517,1:PRINT
915 PRINT"FOR PLAYBACK VIA THE IT MODE, BEGIN THE TAPE AFTER THIS";
916 PRINT" LINE BEGINS!!"
920 FOR I=L1TO L2:PRINT A"DATA"CHR$(34);L$(I);CHR$(34):A=A+B:NEXT
925 PRINT"**":POKE517,0:GOT040
1000 FOR I=1TO31:IF LEN(L$(I))<>0GOT01020
1010 FOR I2=I+1TO32:L$(I2-1)=L$(I2):NEXT I2:L$(32)=""
1020 NEXT I:GOT040
1100 PRINT:INPUT"WHICH LINE DID YOU WANT TO BE ON";A$
1110 A=VAL(A$):IFA=0GOT040
1120 IP=A:GOT0630
1200 PRINT:INPUT"ENTIRE TEXT";Y$:IF LEFT$(Y$,1)=""Y"GOT01250
1210 INPUT"WHICH LINE";C:IF C<10RC>31THENPRINT"OUT OF RANGE":GOT040
1230 L$(C)=L$(C)+" "+L$(C+1):L$(C+1)=""
1240 INPUT"COMPRESS";Y$:IF LEFT$(Y$,1)=""Y"GOT01000
1245 GOT040
1250 FOR I=1TO31STEP2:L$(I)=L$(I)+" "+L$(I+1):L$(I+1)=""NEXT:GOT01240
1400 PRINT"LIST OF COMMANDS      IL> INSERT LINE"
1410 PRINT" DL> DELETE LINE    IC> INSERT CHARACTER"
1420 PRINT" DC> DELETE CHARACTER G> GO FOR STRING"
1430 PRINT" V> VERIFY LINE      F> FIND LINE"
1440 PRINT" A> ADVANCE          C> COMPRESS"
1450 PRINT" S> STACK LINE       R> REPLACE STRING"
1460 PRINT" PT> PRINT AS TEXT   PD> PRINT AS DATA"
1470 RETURN

```

Trax ---

This program will run on all OSI computers with 540 video boards. This is a two player game where the one who lasts the longest wins!

```
5 FOR LF=1 TO 32:PRINT:NEXT
10 INPUT "DO YOU WANT INSTRUCTIONS (Y/N)";IANS$
12 IF IANS$="N" THEN 52
20 PRINT" THE OBJECT OF THIS GAME IS NOT TO RUN INTO ANYTHING."
22 PRINT" INCLUDING THE BOUNDARY, THE ENEMIES TRACK,OR YOUR OWN"
24 PRINT" TRACK. ( DO NOT GO BACK ON YOURSELF!)"
26 PRINT" PLAYER 1 STARTS IN THE TOP LEFT HAND CORNER ; "
28 PRINT" PLAYER 2 STARTS IN THE BOTTOM RIGHT HAND CORNER."
30 PRINT" THE MOVEMENT KEYS ARE AS FOLLOWS :"
32 PRINT
34 PRINT"     W          O"
36 PRINT"     A S        K L"
38 PRINT"     Z          ,"
40 PRINT
42 PRINT"     PLAYER 1           PLAYER 2"
44 PRINT
46 PRINT" THEY MOVE EACH PLAYER NORTH SOUTH EAST WEST AS APPROPRIATE"
48 PRINT" MAY BOTH OF YOU HAVE EQUAL LUCK!"
50 INPUT " ARE YOU READY";IANS$
52 D1=1:D2=-1
53 P1=53509:P2=55032
54 POKE 530,1
56 FOR LC=1 TO 32:PRINT:NEXT LC
58 KB=57088
60 DP=30*64
62 BC=161
64 REM SET UP BOARD
66 TL=53313
68 FOR BD=55040 TO 55295:POKE BD,32:NEXT BD
70 FOR BD=TL TO TL+60
72 POKE BD,BC:POKE BD+DP,BC:NEXT BD
74 FOR BD=TL TO TL+DP STEP 64
76 POKE BD,BC:POKE BD+60,BC:NEXT BD
100 REM NOW PLAY LOOP
110 GOSUB 1000
120 NP=P1+D1
130 IF PEEK(NP)<>32 THEN 500
140 POKE NP,232:P1=NP
150 GOSUB 1000
160 NP=P2+D2
170 IF PEEK(NP)<>32 THEN 600
180 POKE NP,233:P2=NP
190 GOTO 110
500 FP=55027
510 GOTO 610
600 FP=53509
610 FOR FL=1 TO 10
620 POKE FP,73:POKE FP+1,32:POKE FP+3,87:POKE FP+4,73
625 POKE FP+2,32
630 POKE FP+5,78
640 FOR DM=1 TO 50
650 NEXT DM
660 POKE FP,32:POKE FP+1,32:POKE FP+3,32:POKE FP+4,32
670 POKE FP+5,32
680 FOR DM=1 TO 50
690 NEXT DM
700 NEXT FL
?10 INPUT "PLAY AGAIN";IANS$
720 IF IANS$="Y" THEN 52
730 STOP
999 REM KBOARD POLLER
1000 POKE KB,2
1010 Q=PEEK(KB)
1020 IF Q=64 THEN D1=-1
1030 IF Q=32 THEN D1=64
1040 POKE KB,4
1050 IF PEEK(KB)=2 THEN D2=64
1060 POKE KB,8
1070 Q=PEEK(KB)
1080 IF Q=128 THEN D1=1
1090 IF Q=2 THEN D2=-1
1100 IF Q>130 THEN 1120
1110 D1=1:D2=-1
1120 POKE KB,16
1130 IF PEEK(KB)=128 THEN D1=-64
1140 POKE KB,32
1150 Q=PEEK(KB)
1160 IF Q=64 THEN D2=1
1170 IF Q=32 THEN D2=-64
1180 RETURN
```

Star Wars ---

This program is a game that will run on any graphics machine except the C1P. You are controlling a turret and an invader is after you.

```
1 REM STAR WARS
2 REM JERRY DURBAK
19 FOR I=1 TO 30:PRINT:NEXT I
20 POKE 2073, 96:POKE 56832, 0
30 GOSUB 20000
35 T=57088
40 Z=55168
45 W=55199
50 P=55180
55 XX=32:YY=64:ZZ=128
60 N4=48:N3=48:N2=48:N1=48
70 M4=48:M3=48:M2=48:M1=48
80 EX=161:S2=0
90 U=1:Q=1
97 POKET, 128
100 REM MAIN BODY AND SAUCER DRIVER
150 D=INT(24*RND(1)+1)
200 X=53440+64*D
300 Y=53471+64*D
400 ON INT(2*RND(1)+1)GOTO 0450, 1000
450 REM LEFT ENTRANCE
475 I=X-1
500 I=I+1
600 POKE I, 4
700 IF I-X=P-Z THEN GOSUB 2000
800 GOSUB 5000
850 IF Q=2 THEN Q=1:GOTO 0150
900 POKE I, 32
950 IF I>X+32 THEN GOTO 0150
970 GOTO 0500
1000 REM RIGHT ENTRANCE
1025 I=Y+1
1050 I=I-1
1100 POKE I, 4
1200 IF Y-I=W-PTHEN GOSUB 2000
1300 GOSUB 5000
1350 IF Q=2 THEN Q=1:GOTO 0150
1400 POKE I, 32
1500 IF I<Y-32 THEN GOTO 0150
1600 GOTO 01050
2000 REM SAUCER FIRING
2100 FOR K=1 TO 33-D
2200 POKE I+64*K, 149
2300 IF K>2 THEN POKE I+64*(K-2), 32
2375 IF Q=2 THEN GOTO 02999
2400 IF I+64*K=PTHEN R=P:GOSUB 3000
2450 IF SW$="2" THEN GOSUB 5000
2500 NEXT K
2600 POKE I+64*(K-1), 32
2700 POKE I+64*K, 32
2999 RETURN
3000 REM EXPLOSIONS
3100 EX=161
3200 POKER+64, EX:POKER+64+1, EX:POKER+64+2, EX
3300 POKER+64-1, EX
3400 POKER-3, EX:POKER-2, EX:POKER-1, EX:POKER, EX:POKER+1, EX
3500 POKER-64-2, EX:POKER-64-1, EX:POKER-64, EX:POKER-64+1, EX
```

```

3550 POKER-64+2, EX
3600 POKER-128-1, EX:POKER-128, EX:POKER-128+1, EX:POKER-128+2, EX
3700 POKER-192-3, EX:POKER-192-1, EX:POKER-192, EX:POKER-192+2, EX
4100 POKER-256-2, EX
4200 POKER-64+4, EX
4250 IFU=2THENQ=2
4300 IFEX=32THENGOT04500
4400 EX=32:GOT03200
4500 GOSUB10000
4999 RETURN
5000 REM TURRET DRIVER
5100 POKEP,176:POKEP+1,178
5200 C=PEEK(T)
5300 IFC=YYANDP<W-4THENGOT05700
5400 IFC=ZZANDP>ZTHENGOT05900
5500 IFC=XXTHENGOSUB7000
5600 GOT06100
5700 P=P+1:IFP>ZTHENPOKEP-1,32:POKEP,32
5800 GOT06800
5900 P=P-1:IFP<W-4THENPOKEP+1,32:POKEP+2,32
6000 POKEP,176:POKEP+1,178
6100 RETURN
7000 REM TURRET FIRING
7100 FORF=1TO27
7150 IFU=2THENGOT07400
7200 POKEP-64*F,149
7300 POKE(P+1)-64*F,149
7400 IFF>ZTHENPOKEP-64*(F-2),32
7500 IFF>ZTHENPOKE(P+1)-64*(F-2),32
7600 IFP-64*F=ITHENR=I:U=2:GOSUB3000
7650 IF(P+1)-64*F=ITHENR=I:U=2:GOSUB3000
7700 NEXTF
7800 U=1
7900 POKEP-64*(F-2),32
7950 POKE(P+1)-64*(F-2),32
8000 POKEP-64*(F-1),32
8050 POKE(P+1)-64*(F-1),32
8100 POKEP-64*F,32
8150 POKE(P+1)-64*F,32
8200 RETURN
10000 REM SCORING
10100 IFQ=2THENN3=N3+1
10200 IFQ=1THENM3=M3+1
10300 IFN3=58THENN4=N4+1:N3=48
10400 IFM3=58THENM4=M4+1:M3=48
10500 POKEZ-128,N4:POKEZ-127,N3:POKEZ-126,N2:POKEZ-125,N1
10600 POKEZ-101,M4:POKEZ-100,M3:POKEZ-99,M2:POKEZ-98,M1
10650 IFN4=500RM4=50THENGOT030000
10700 FORAB=1TO1500:NEXT
10800 POKEZ-128,32:POKEZ-127,32:POKEZ-126,32:POKEZ-125,32
10900 POKEZ-101,32:POKEZ-100,32:POKEZ-99,32:POKEZ-98,32
11000 RETURN
20000 REM INTRODUCTION
20050 IFS2=1THENGOT021100
20100 PRINT"STAR WARS":FORI1=1TO15:PRINT:NEXTI1
20200 PRINT"DO YOU NEED":INPUT"INSTRUCTIONS (Y/N)":A$"
20300 IFLEFT$(A$,1)="N"THENGOT021100
20400 FORI2=1TO30:PRINT:NEXT

```

```

20500 PRINT "YOU ARE EQUIPPED WITH":PRINT "DOUBLE LASER FIRE AND"
20600 PRINT "MOBILITY.":PRINT:PRINT "YOUR CONTROLS ARE:"
20700 PRINT "1> LEFT":PRINT "2> RIGHT":PRINT "3> FIRE"
20800 PRINT:PRINT "YOUR ENEMY HAS A":PRINT "SINGLE LASER EQUIPPED"
20900 PRINT "WITH COMPUTERIZED":PRINT "TRACKING."
21000 PRINT:PRINT:PRINT "USE THE FORCE!!"
21050 PRINT:PRINT "YOUR SCORE IS ON THE":PRINT "LEFT. PLAY IS TO 2000"
21100 PRINT:PRINT "YOU CAN PLAY":PRINT "1> HARD":PRINT "2> EASY"
21200 PRINT:PRINT "READY??":INPUT "(ENTER A 1 OR 2)":SWS
21500 FOR I=3-1TO30:PRINT:NEXT
29999 RETURN
30000 REM ENDING AND RERUN
30050 POKE P,32:POKE(P+1),32
30100 FOR I=5-1TO30:PRINT:NEXT
30150 IF M=50 THEN GOTO 31000
30200 PRINT "GOOD SHOOTING!!!!":PRINT:PRINT:PRINT
30300 IF SWS="2" THEN PRINT "TRY THE HARD VERSION."
30400 IF SWS="1" THEN PRINT "THE FORCE WAS WITH YOU!"
30500 GOT 031200
31000 PRINT "THE IMPERIAL FORCES":PRINT "WHERE TOO MUCH FOR"
31100 PRINT "YOU!!":PRINT:PRINT:PRINT
31200 PRINT:PRINT:PRINT "WOULD YOU LIKE":INPUT "ANOTHER RUN (Y/N)":A$
31300 IF LEFT$(A$,1)="Y" THEN CLEAR:S2=1:GOSUB 20000:GOT 035
40000 POKE 2073,173:POKE 56832,1
49999 END

```

Graphic V ---

This program will run on all graphics machines except the C1P.
The program is a graphic pattern generator.

```

2 REM----GRAPHIC V
3 REM--CHALLENGER II
5 FOR I=1TO30:PRINT:NEXT:POKE 55184,32:POKE 56832,0
10 FORM=8TO7:READ(M):NEXT
20 C=INT(RND(1)*100)+128
21 IF INT(RND(1)*7)=1 THEN C=32
25 IF C>178 AND C<183 THEN C>Z10 AND C<Z15 GOTO 020
30 P=INT(RND(1)*1800)+53300
35 IF P/64=INT(P/64).5 GOTO 030
40 M=INT(RND(1)*8)
50 P=P+I(M):POKE P,C
60 IF INT(P/32)=P/32 OR P>55184 OR P<53330 GOTO 020
70 IF INT(RND(1)*9)<>1 GOTO 050
80 MN=INT(RND(1)*8):IFI(MN)<>-I(M) THEN M=MN:GOTO 050
100 GOT 080
110 DATA 64,-64,65,-65,63,-63,1,-1

```

ESCAPE ----

This program will run on all graphics machines except the C1P.
The program demonstrates randomness and, trial & error of a rat trying
to escape from a self made maze.

```
10 REM ESCAPE 4/15/79
20 K1=1:K2=2:K6=64:KH=64:KV=26:K0=0:TT=0:LL=5000
30 G=1:F=1:DIMBB$(KV,KH)
40 KA=53536:KB=54399:KC=55136:KD=54336
50 HH$="-1":GOSUB60000
70 FORI=1TOPEEK(8996)+2:B=RND(1):NEXT
80 GOSUB60000:GOSUB20000
160 A$="PRESENTING...":B$="T H E R A T R A C E !"
162 A=53545:FORI=ATOA+LEN(A$)-1:B=B+1
164 POKEI,ASC(MID$(A$,B,1)):NEXTI
166 B=0:FORI=1TO1000:NEXT
168 A=54290:FORI=ATOA+LEN(B$)-1:B=B+1
170 POKEI,ASC(MID$(B$,B,1)):NEXTI
180 FORI=1TOKV:FORJ=1TOKH:BB$(I,J)=HH$:NEXTJ:NEXTI
190 GOT0280
200 GOSUB60000:PRINT"THIS RUN TOOK":T;"MOVES":PRINT
222 Q=K0:IFT>TTTHENTT=T
224 IFT<LLTHENLL=T
226 PRINT"THIS WAS RUN NUMBER":G:PRINT
227 PRINT"THE HIGHEST SCORE IN THESE RUNS WAS":TT:PRINT
228 PRINT"THE LOWEST SCORE IN THESE RUNS WAS":LL:PRINT
229 GG=GG+T:AV=INT(GG/G)
230 PRINT"THE AVERAGE RUN TOOK":AV;"MOVES":T=0:PRINT
232 PRINT"(THE RAT GOT OUT":E;"TIMES)":PRINT
240 G=G+1:GG$=STR$(G):FORI=1TO3000:NEXT
250 GOSUB60000:GOSUB20000:C$="READY?":D$=
380 A=54290:B=0:IFF=1THENF=0:GOT0400
382 FORI=ATOA+LEN(C$)-1:B=B+1
384 POKEI,ASC(MID$(C$,B,1)):NEXTI:FORI=1TO1000:NEXT
400 X=INT(RND(K1)*KV):Y=INT(RND(K1)*KH)

410 N=53439+64*X+Y
415 IFN<53504THEN400
470 B=0:FORI=ATOA+LEN(D$)-1:B=B+1
480 POKEI,ASC(MID$(D$,B,1)):NEXTI
1000 D=INT(RND(1)*4+1):A=INT(RND(1)*10+1):X1=X:Y1=Y
1100 ONDGO SUB2000,3000,4000,5000
1110 IFQ>K1THEN1150
1120 X$="H E E S C A P E D !"
1122 A=54356:B=0:FORI=ATOA+LEN(X$)-1:B=B+1
1124 POKEI,ASC(MID$(X$,B,1)):NEXTI:FORI=1TO1000:NEXT
1126 E=E+K1:GOT0200
1150 IFX1=XANDY1=YTHENC=C+K1:GOT01180
1160 C=K0
1180 IFC>15THENGOSUB50000
1200 GOT01000
2000 FORJ=K1TOA:IFY+K1>KHTHENRETURN
2300 IFBB$(X,Y+K1)=GG$THENRETURN
2400 Y=Y+K1:N=N+K1:POKEN,18:GOSUB10000
2450 GOSUB30000:IFQ>K1THENRETURN
2500 NEXTJ:RETURN
3000 FORJ=K1TOA/K2:IFX+K1>KUTHENRETURN
3300 IFBB$(X+K1,Y)=GG$THENRETURN
3400 X=X+K1:N=N+K6:POKEN,20:GOSUB10000
```

```

3450 GOTO2450
4000 FORJ=K1TOA:IFY-K1<K1THENRETURN
4300 IFBB$(X,Y-K1)=GG$THENRETURN
4400 Y=Y-K1:N=N-K1:POKEN,22:GOSUB10000
4450 GOTO2450
5000 FORJ=K1TOA/K2:IFX-K1<K1THENRETURN
5300 IFBB$(X-K1,Y)=GG$THENRETURN
5400 X=X-K1:N=N-K6:POKEN,16:GOSUB10000
5450 GOTO2450
10000 T=T+K1:BB$(X,Y)=GG$:RETURN
20000 L=INT(RND(1)*255+1)
20010 IFL=32THEN20000
20050 FORI=53504T053567:POKEI,L:NEXT
20100 FORI=53631T055167STEP64:POKEI,L:NEXT
20200 FORI=55166T055105STEP-1:POKEI,L:NEXT
20300 FORI=55104T053568STEP-64:POKEI,L:NEXT
20400 POKE53536,32:POKE54399,32:POKE55136,32:POKE54336,32
20500 RETURN
/30000 IFN=KAORN=KBORN=KCORN=KDTHENQ=1
30010 RETURN
50000 FORD=K1TO4:A=INT(RND(K1)*10+K1)
50100 ONDGOSUB2000,3000,4000,5000
50200 IFY1<>Y0RX1<>XTHENC=0:RETURN
50300 NEXTD:X$="A H A ! . . . G O T C H A !"
50400 A=54356:B=0:FORI=A TOA+LEN(X$)-1:B=B+1
50500 POKEI,ASC(MID$(X$,B,1)):NEXTI:FORI=1 TO1000:NEXT
50600 GOT0200
60000 FORI=1 TO32:PRINT:NEXT:RETURN

```

BREAKOUT ----

THIS PROGRAM WILL RUN ONLY ON MACHINES WITH ASCII KEYBOARDS. THIS GAME CAN BE CONVERTED TO A POLLED KEYBOARD SYSTEM. (SEE PROGRAM CONVERSIONS.)

```

1 REM-----DAVID E. TEWKS BARY
2 REM-----BREAKOUT
5 INPUT"DO YOU NEED INSTRUCTIONS"; Y$: IFLEFT$(Y$, 1)="N"GOTO18
6 PRINT" HOKAY": PRINT: PRINT"THIS IS THE GAME BREAKOUT. ": PRINT
7 PRINT" THE IDEA IS TO WIPE OUT ENOUGH BARRIERS TO ALLOW"
8 PRINT"THE BOUNCING BALL TO REACH THE TOP OF THE SCREEN."
9 PRINT"YOUR PADDLE IS ON THE BOTTOM OF THE SCREEN AND IS "
10 PRINT"MOVED IN THE FOLLOWING MANNER: ": PRINT
11 PRINT" 1) LEFT": PRINT" 2) RIGHT": PRINT
12 PRINT" IN ORDER TO SERVE A BALL, PRESS 4. SIX BALLS WILL"
13 PRINT"BE THE LIMIT. POINTS CAN BE SCORED BY KNOCKING DOWN"
14 PRINT"THE BARRIERS, THE DEEPER ONES BEING MORE VALUABLE."
15 PRINT: PRINT"WHEN YOU ARE READY, TYPE 'R'. ": INPUT$Y
16 IFY$<>"R"GOTO15
18 FORI=1TO30: PRINT: NEXT: POKE56832, 0
19 PRINT" BALL # SCORE"
20 FORI=53534T054942STEP64: POKEI, 47: NEXT: POKEI, 35
30 FORI=55005T054977STEP-1: POKEI, 95: NEXT: POKEI, 35
40 FORI=54912T053504STEP-64: POKEI, 92: NEXT: POKEI, 35
50 FORI=53441T053469: POKEI, 42: NEXT: POKEI, 35
51 FORI=53505T053533: POKEI, 51: NEXT
52 FORI=53569T053597: POKEI, 50: NEXT
53 FORI=53633T053661: POKEI, 49: NEXT
59 REM-----INITIALIZE VARIABLES
60 M(1)=-65: M(2)=-64: M(3)=-63: M(4)=63: M(5)=64: M(6)=65
70 BC=79: B0=32: PC=61: T=57343: P=54925
75 POKEP, 61: POKE55048, 48: POKE55062, 48: POKE55063, 48
80 REM-----SERVE
85 IFX=6GOT01000
86 IFPEEK(T)<>180GOT086
90 X=X+1: POKE55048, 48+X
100 BP=INT(RND(BC)*25)+53827: GOSUB500: L=6
105 REM----BALL'S MOTION
110 FORA=1TO1: IFA<>1GOT0230
120 POKEBP, B0: Q=PEEK(BP+M(IB)): IFQ=80GOT0200
125 IFQ=224GOT0200
130 L=L*. 87: IFQ=220ORQ=92THENIB=IB+2: GOT0180
140 IFQ=470RQ=239THENIB=IB-2: GOT0180
144 Q2=PEEK(BP+64)
145 IFQ2=610RQ2=253THENIB=INT(RND(BC)*3)+1: GOT0180
150 IFQ=2230RQ=95GOT085
155 IFQ=2340RQ=42GOT01000
167 IFQ=2410RQ=49THENZ=Z+1: GOSUB500: GOT0190
168 IFQ=2420RQ=50THENZ=Z+2: GOSUB500: GOT0190
169 IFQ=2430RQ=51THENZ=Z+3: GOSUB500: GOT0190
170 IB=INT(RND(BC)*6)+1
180 Q2=PEEK(BP+M(IB)): IFQ2<>32ANDQ2<>224GOT0170
190 POKE55062, INT(Z/10)+48: POKE55063, Z+48-INT(Z/10)*10
200 BP=BP+M(IB): POKEBP, BC
210 REM-----PADDLE MOTION
230 C=PEEK(T): IFC=178ANDP<54941GOT0260
250 IFC=177ANDP>54913GOT0270
255 GOT0280
260 P=P-1: IFP>54912THENPOKEP, B0
262 P=P+2: POKEP, PC: GOT0280
270 P=P+1: IFP<54942THENPOKEP, B0
275 P=P-2: POKEP, PC
280 NEXTA: GOT0110
500 POKEBP+M(IB), B0: IB=INT(RND(BC)*3)+4: RETURN
999 REM-----END MESSAGES
1000 FORI=1TO30: PRINT: NEXT: POKE56832, 1
1001 IFQC>234ANDQC>32GOT01040
1010 PRINT"WELL, WELL. SO NOW I SUPPOSE YOU THINK YOU'RE"
1020 PRINT"TOUGH, EH? WELL, YOU ONLY HAD"; Z; "POINTS!"
1030 PRINT" SO THERE!!": GOT01080
1040 PRINT"NOBODY SAID IT WAS GOING TO BE EASY!!"
1050 PRINT"SERIOUSLY THOUGH, "; Z; "ISN'T TOO BAD!!"
1060 PRINT" (BUT I GUESS THERE'S ALWAYS ROOM FOR IMPROVEMENT. )"
1080 PRINT: INPUT"WOULD YOU LIKE TO TRY AGAIN"; Y$
1200 IFLEFT$(Y$, 1)="Y"THENRUN18
1210 PRINT: PRINT"HAVE IT YOUR WAY. ": END

```

TORPEDO -----

THIS PROGRAM WILL RUN ONLY ON MACHINES WITH ASCII KEYBOARDS. THIS GAME CAN BE CONVERTED TO A POLLED KEYBOARD SYSTEM. (SEE PROGRAM CONVERSIONS.)

```

10 REM--R. VAN SCOV--TORPEDOE
20 INPUT "DO YOU WANT INSTRUCTIONS"; A$: IFLEFT$(A$, 1)="N" THEN 130
25 FOR X=1 TO 15: PRINT: NEXT
30 PRINT "HELLO ADMIRAL": PRINT "YOUR ORDERS HAVE PUT YOU IN CHARGE OF"
40 PRINT "AN UNDERWATER ANTI-SUBMARINE INSTALLATION."
50 PRINT "YOU ARE TO DESTROY ALL SUBMARINES WHICH PASS OVER"
60 PRINT "COMMAND!!! BECAUSE OF THE IMPORTANCE OF THIS ASSIGN--"
65 PRINT "MENT, YOUR PERFORMANCE WILL BE RATED, YOU WILL RECEIVE"
70 PRINT "25 MERIT POINTS FOR EACH SUB YOU DESTROY."
75 PRINT "GOOD LUCK ADMIRAL!"
80 PRINT "OH, YES. I ALMOST FORGOT TO TELL YOU THAT DUE TO BUDGET"
85 PRINT "CUTS, YOU MUST MAKE EVERY SHOT COUNT, BECAUSE EACH MISS"
90 PRINT "WILL COST YOU 5 POINTS, AND EVERY SUB THAT GETS AWAY,"
95 PRINT "WILL COST YOU TEN POINTS!!"
100 PRINT "YOU MUST ALSO KNOW THAT THE SUBMARINES ARE EQUIPED WITH"
105 PRINT "AN AUTO-PILOT WHICH IS DESIGNED TO CONFUSE THE ENEMY!"
130 M1$="TORPEDOES": M2$="SCORE: 000"
150 FOR X=1 TO 5: READT(X): T(X)=T(X)-64: NEXT
170 DIMR(15): FOR X=1 TO 15: READR(X): NEXT
200 PRINT: PRINT: PRINT: INPUT "ENTER A RANDOM SEED"; Z1
215 FOR X=1 TO 32: PRINT: NEXT
240 KE=57088: T=55040: C1=49
245 NU=25: SC=0: T1=TP+45
250 TP=53440: H=1344: POKE 55104, 32
270 FOR X=1 TO LEN(M1$): POKE TP+X, ASC(MID$(M1$, X, 1)): NEXT
280 FOR X=1 TO LEN(M2$): POKE TP+X+32, ASC(MID$(M2$, X, 1)): NEXT
290 FOR X=53504 TO 53566: POKE X, 94: NEXT
300 FOR X=TTOT+64 STEP 15: POKE X, 91: POKE X+2, 93:
310 POKE X+65, C1: C1=C1+1: NEXT
350 Z=INT(18*RND(Z1))*64+53697: Z2=15
400 FOR C=Z TO Z+60
405 POKE T1, 32: POKE T1-1, 32: T1=C+R(Z2)
410 POKE T1, 62: POKE T1-1, 62
420 S1=INT(NU/10): S2=INT(NU-S1*10): POKE TP+12, S1+48: POKE TP+13, S2+48
450 S=PEEK(KE)-176
470 IF S<10 OR S>5 THEN 680
500 FOR Q=T(S) TO T(S)-H STEP -64
580 C7=PEEK(Q-64): IF C7=62 OR C7=174 THEN NU=NU-1: GOTO 900
600 POKE Q-64, 33: POKE Q, 32
660 FOR X=1 TO 15: NEXT
670 NEXT Q: NU=NU-1: SC=SC-5: POKE Q, 32
675 GOSUB 920
680 Z2=INT(14*RND(Z1)+1)
700 NEXT C: POKE T1-2, 32: POKE T1-1, 32
750 SC=SC-10: GOSUB 920: GOTO 350
899 REM---EXPLOSION OF SUB
900 POKE Q, 32
910 FOR Q1=0 TO 32: POKE T1-1, Q1: POKE T1, Q1: NEXT
915 SC=SC+25: GOSUB 920: IF NU=0 THEN 1000
916 GOTO 350
920 L=ABS(SC): S3=INT(L/100): S4=INT((L-100*S3)/10): S5=L-100*S3-10*S4
925 IF S3<0 THEN POKE TP+39, 45
926 IF S3>0 THEN POKE TP+39, 32
930 POKE TP+40, S3+48: POKE TP+41, S4+48: POKE TP+42, S5+48
950 RETURN
1000 PRINT: PRINT: PRINT: IF S3<150 THEN 1100
1010 PRINT "CONGRATULATIONS ADMIRAL, WITH "; SC; "POINTS"
1020 PRINT "YOU'RE AMERICA'S FIRST SUBMARINE ACE!!!!": GOTO 1600
1100 IF S3<100 THEN 1200
1110 PRINT SC; "POINTS IS EXCELLENT SHOOTING ADMIRAL"
1120 PRINT "IT'S GOOD ENOUGH TO GET YOU PROMOTED. ": GOTO 1600
1200 IF S3<50 THEN 1300
1210 PRINT "WELL ADMIRAL, "; SC; "POINT IS PRETTY GOOD SHOOTING, "
1220 PRINT "BUT THE TOP MAN THINKS YOU NEED MORE PRACTICE. ": GOTO 1600
1300 IF S3<0 THEN 1400
1310 PRINT SC; "POINT IS NOT VERY GOOD ADMIRAL. "
1320 PRINT "THE COUNTRY IS LUCKY IT'S NOT DEPENDING ON YOU!!"
1330 GOTO 1600
1400 PRINT "WHEN YOU ONLY GET "; SC; "POINTS, THE ENEMY"
1420 PRINT "IS GLAD YOU'RE NOT ON THEIR SIDE. YOU'LL"
1430 PRINT "BE MOPPING THE DECKS TOMORROW, IF YOU DON'T"
1440 PRINT "IMPROVE THAT SCORE!!!!"
1450 PRINT 1450: PRINT "SC="; SC

```

```

1600 PRINT:PRINT:PRINT:INPUT"DO YOU WANT TO TRY AGAIN":A$  

1650 IFLEFT$(A$, 1)="Y"THENCLEAR:RUN130  

1900 END  

2000 DATA55041, 55056, 55071, 55086, 55101  

2100 DATA-128, -127, -126, -63, -63, -62, 1, 2, 64, 65, 66, 128, 129, 130, 0

```

STELLAR PERSUIT -----

THIS PROGRAM WILL RUN ONLY ON MACHINES WITH ASCII KEYBOARDS. THE PROGRAM CAN BE CONVERTED TO A POLLED KEYBOARD SYSTEM (SEE PROGRAM CONVERSIONS). IN THIS GAME YOU ARE CHASING AN INVADER HOME AND TRYING TO DESTROY HIM. TO CONTROL YOUR TURRET DEPRESS "1" TO MOVE DOWN, "2" TO MOVE UP, "3" TO MOVE RIGHT, "4" TO LEFT, AND "5" TO STOP. DEPRESSING THE "T" WILL FIRE ROCKETS. DEPRESS THE "F" TO FIRE THE LASERS.

```

1 REM ***ROBERT L.  

2 REM ***COPPEDGE  

3 POKE2073, 96  

9 S1=32: S2=32: S3=32  

10 DIM X(20), Y(20), Z(20)  

11 INPUT Z1  

12 FOR Y=53250 TO 55295:POKE Y, 32:NEXT Y  

14 K0=INT(53316+RND(Z1)*1915)  

16 FOR Y=1 TO 75  

17 C=INT(53316+RND(Z1)*1915)  

18 POKE C, 46:NEXT Y  

20 FOR Y=1 TO 10  

30 X(Y)=INT(53316+RND(Z1)*1915)  

40 Z(Y)=INT((X(Y)-53316)/64)  

45 W(Y)=X(Y)-53316-64*Z(Y)  

55 IF W(Y)<30 THEN W(Y)=-1  

56 IF Z(Y)<14 THEN Z(Y)=-1  

57 IF W(Y)<34 AND W(Y)>30 THEN W(Y)=0  

58 IF Z(Y)<18 AND Z(Y)>14 THEN Z(Y)=0  

59 IF W(Y)>33 THEN W(Y)=1  

60 IF Z(Y)>17 THEN Z(Y)=1  

65 IF M1=1 THEN 155  

70 POKE X(Y), 46:NEXT Y  

110 K=55167: J=55231: G=55199  

120 FOR Y=1 TO 10  

121 GOTO 300  

123 POKE X(Y), 32  

126 POKE 54177, 45: POKE 54173, 45: POKE 54047, 73: POKE 54303, 73  

130 X(Y)=X(Y)+W(Y)+64*Z(Y)  

135 POKE X(Y), 46  

140 IF X(Y)>55231 OR X(Y)<53316 THEN 150  

145 IF X(Y)-53316-64*INT((X(Y)-53316)/64)>63 THEN 150  

146 IF X(Y)-53316-INT((X(Y)-53316)/64)<1 THEN 150  

147 GOTO 155  

150 POKE X(Y), 32: M1=1: GOTO 30  

155 M=PEEK(57343)  

156 IF M=212 OR L=2 THEN 190  

157 IF M=198 OR L=1 THEN 162  

158 IF M>176 AND M<182 THEN 550  

159 IF M>0 AND M<5 THEN 551  

160 IF M=198 OR L=1 THEN 162  

161 GOTO 200  

162 IF H=16 THEN 178  

163 H=H+1: L=1  

164 IF S8=20 THEN 900  

165 POKE J, 94: POKE K, 94  

166 POKE J+198, 32: POKE K+186, 32  

167 J=J-66: K=K-62  

168 GOTO 200  

178 S8=S8+1  

180 POKE 54373, 32: POKE 54361, 32: POKE 54307, 32  

181 POKE 54299, 32: POKE 54241, 32: POKE 54237, 32  

182 FOR I=1 TO 80: POKE 54175, I: NEXT I  

183 H=0: L=0: K=55167: J=55231  

184 POKE 54175, 32  

186 IF K0>54107 AND K0<54114 THEN 500  

187 IF K0>54171 AND K0<54178 THEN 500  

188 IF K0>54235 AND K0<54242 THEN 500  

189 GOTO 200  

190 IF H=8 THEN 195

```

```

192 IF S6=10 THEN 800
193 POKE C, 32: G=G-128: POKE C, 34
194 L=2: H=H+1: GOTO 200
195 POKE C, 32: G=55199
196 S6=S6+1: GOTO 182
200 NEXT Y
210 GOTO 120
300 N=INT(16*RND(Z1)+1)
301 IF N>8 THEN 125
305 ON N GOTO 310, 315, 320, 325, 330, 335, 340, 345
310 S=64: GOTO 347
315 S=-64: GOTO 347
320 S=63: GOTO 347
325 S=-63: GOTO 347
330 S=65: GOTO 347
335 S=-65: GOTO 347
340 S=1: GOTO 347
345 S=-1
347 K4=K0-53312-64*INT((K0-53312)/64)
348 IF K0+S>55231 OR K0+S<53312 THEN 300
349 IF K4<2 OR K4>61 THEN 300
350 POKE K0, S1: POKE K1, S2: POKE K2, S3
355 K0=K0+S: K1=K0+1: K2=K0-1: K3=K0-64
360 S1=PEEK(K0): S2=PEEK(K1): S3=PEEK(K2)
365 POKE K0, 79: POKE K1, 92: POKE K2, 47
400 GOTO 125
500 PRINT "ENEMY DESTROYED!": S7=S7+1
501 FOR Y1=55039 TO 55061: POKE Y1, 32: NEXT Y1
502 S1=32: S2=32: S3=32
503 POKE K0-64, 32: POKE K0-63, 32: POKE K0-65, 32
510 K0=INT(53316+RND(Z1)*1915)
515 IF S7=6 THEN 1000
516 POKE 54113, 32: POKE 54109, 32
517 POKE 53983, 32: POKE 54239, 32
520 GOTO 120
530 M=M-176
551 ON M GOTO 555, 560, 570, 580, 585
555 S=64: GOTO 590
560 S=-64: GOTO 590
570 S=1: GOTO 590
580 S=-1: GOTO 590
585 S=0
590 POKE K0, S1: POKE K1, S2: POKE K2, S3
592 K0=K0+S: K1=K0+1: K2=K0-1
594 S1=PEEK(K0): S2=PEEK(K1): S3=PEEK(K2)
595 IF K0+S>55231 OR K0+S<53312 THEN 605
596 K4=K0-53312-64*INT((K0-53312)/64)
597 IF K4<2 OR K4>61 THEN 605
599 POKE K0, 79: POKE K1, 92: POKE K2, 47
600 GOTO 200
605 K0=K0-S: K1=K0+1: K2=K0-1
610 POKE K0, 79: POKE K1, 92: POKE K2, 47
615 GOTO 200
600 PRINT "TUBES EMPTY...": FOR Y2=1 TO 500: NEXT
601 FOR Y1=55039 TO 55053: POKE Y1, 32: NEXT Y1
602 POKE K0-64, 32: POKE K0-63, 32: POKE K0-65, 32
603 POKE 54113, 32: POKE 54109, 32: POKE 53983, 32
604 POKE 54239, 32
606 FOR Y1=1 TO 5
607 C=INT(55039+RND(Z1)*128)
608 POKE C, 46: NEXT Y1: GOTO 120
900 PRINT "LASERS DRY...": FOR Y1=1 TO 500: NEXT Y1: L=0: GOTO 801
1000 PRINT "YEEEEE-HAHHHH!!!!"
1010 END

```

NEW YORK TAXI ----

THIS PROGRAM WILL RUN ONLY ON MACHINES WITH ASCII KEYBOARDS. THIS GAME CAN BE CONVERTED TO A POLLED KEYBOARD SYSTEM. (SEE PROGRAM CONVERSIONS.)

```

1 REM-----B. BENNETT---N. Y. TAXI---
2 PRINT "DO YOU WANT DIRECTIONS (Y OR N)": INPUT E$
3 IF ASC(E$)=78 THEN 17: PRINT: PRINT: PRINT "NEW YORK TAXI"
4 PRINT: PRINT: PRINT "THE OBJECT OF THIS GAME IS TO CATCH A TAXI."
5 PRINT: PRINT "WITH OUT BEING HIT BY SAID TAXI (ITS HARD TO GET N. Y. "
6 PRINT: PRINT "CABBIES ATENTION !)"
7 PRINT: PRINT: PRINT "YOUR CONTROLS ARE": PRINT: PRINT "1 - MOVE UP "

```

```

8 PRINT:PRINT"2 - MOVE DOWN":PRINT:PRINT"3 - LEFT"
9 PRINT:PRINT"4 - RIGHT":PRINT:PRINT"AND MOST IMPORTANT"
10 PRINT:PRINT"5 - FLAGS DOWN TAXI"
11 PRINT:PRINT"OH, I ALMOST FORGOT, YOU HAVE TO BE DIRECTLY"
12 PRINT:PRINT"IN FRONT OF THE CAB FOR HIM TO NOTICE YOU."
13 PRINT:PRINT"READY (Y AND RETURN)":INPUT R$
17 FOR N=1 TO 32:PRINT:NEXT N
18 K=1:H=54112:I=H:GOTO700
19 FOR N=CA TO CA+8:POKE N, 32:NEXT N:POKE CA-61, 32
20 POKE CA-60, 32:POKE CA-59, 32:POKE CA+66, 32:POKE CA+71, 32
21 CA=CA+2:IF LN>55 THEN 700
22 FOR N=CA TO CA+8:POKE N, 62:NEXT N
25 POKE CA-61, 47:POKE CA-60, 61:POKE CA-59, 92
27 POKE CA+66, 79:POKE CA+71, 79
28 LN=LN+2
29 IF VI>0 THEN 310
30 FOR N=11 TO 12:HI=PEEK(CA+N)
32 IF HI<>32 AND HI<>224 THEN 300
33 NEXT N
40 FOR V=I-1 TO I+1:POKE V, 32:NEXT V:POKE I-64, 32:POKE I+63, 32
45 POKE I+65, 32
50 POKE H, 48:POKE H-64, 79
60 POKE H+63, 47:POKE H+65, 92
70 POKE H+1, 92:POKE H-1, 47
80 I=H
90 M=PEEK(57343):IF M<176 OR M>182 THEN 19
95 IF M=177 THEN H=H-64
100 IF M=178 THEN H=H+64
105 IF M=179 THEN H=H-1
110 IF M=180 THEN H=H+1
115 IF M=181 THEN 200
130 M=0:GOTO 19
200 POKE H-1, 32:POKE H+1, 32
210 FOR N=0 TO 70:NEXT N:IF K/2=INT(K/2) THEN 230
220 POKE H-63, 47:POKE H-65, 92:FOR N=0 TO 70:NEXT N
225 POKE H-63, 32:POKE H-65, 32:K=K+1:GOTO 19
230 POKE H-1, 47:POKE H+1, 92:FOR N=0 TO 70:NEXT N
240 K=K+1:GOTO 19
300 HI=0:VI=3
305 IF K/2=INT(K/2) THEN 400
310 VI=VI-1:IF VI<1 THEN 320:GOTO 19
315 GOTO 19
320 POKE H-64, 83:POKE H-63, 80:POKE H-62, 76:POKE H-61, 65:POKE H-60, 84
321 U=INT(10*RND(H)):IF U>3 THEN 500
325 SC=SC-10
326 PRINT"WELL, WHATS A FEW MONTHS IN THE HOSPITAL... "
330 PRINT:PRINT"(DONT ANSWER) YOU LOSE 10 POINTS ON THAT ONE":PRINT
331 PRINT" WANT TO TRY AGAIN ?":INPUT D$
332 IF ASC(D$)=89 GOTO 17
333 PRINT:PRINT"SCARED HUH ? TAKE A BUS NEXT TIME !"
336 PRINT
340 PRINT"TOTAL SCORE : ";SC
350 END
400 POKE H+1, 92:POKE H-1, 47
425 SC=SC+25
430 IF SC>200 THEN 600
450 PRINT,"CONGRATULATIONS !"
452 PRINT:PRINT"YOU CAUGHT A CAB WITH NO BLOOD LOST !"
457 PRINT"SCORE : ";SC
458 FOR B=1 TO 1500:NEXT B
460 VI=0:GOTO 17
500 PRINT"OUCH ! I BET THAT HURT !"
505 PRINT:PRINT
510 PRINT:PRINT"IT COST YOU 10 POINTS TOO. IN VIEW OF ALL YOU'VE"
515 PRINT:PRINT"GONE THROUGH, I'LL GIVE YOU ANOTHER CHANCE"
517 SC=SC-10
520 GOTO 331
600 PRINT"SAY ARE YOU BY ANY CHANCE FROM NEW YORK . . . ?"
605 PRINT:PRINT"SCORE : ";SC
610 GOTO 458
700 CA=64*INT(10*RND(H))+53760
702 LN=0
705 GOTO 222

```

Memory Dump

Purpose

The program permits the user to dump contiguous blocks of memory of any length (65A will not dump blocks of more than 256₁₀ words). This program also enables the user to specify the end address of a dump. This is very valuable when running at high baud rates!

Memory Allocation

OF7C - OFB4 and 00FA-00FB

Starting Address- OF7C

Relocation Information

The only position dependent instruction is the JMP at OFA4

Use

Load the "GO" locations and load FA with the ending address low and FB with the ending address high. Type a "G". The program replies with an "X" and expects a four digit hex starting address for the dump. The program prints the block up to and including the last byte specified (unlike the 65A, this program will stop in the middle of a line). The program types an "R" and returns to the 65A.

Memory Dump

<u>Location</u>	<u>Op Code</u>	<u>Mnemonic</u>	<u>Notes</u>
F7C	A9 58	DUMP LDA #'X	Type an "X"
F7E	20 08 FE	JSR OUTCH	Accept Starting Address for Dump
F81	20 C7 FE	JSR BUILD	Set Byte/Line Count
F84	A0 00	LDY #\$00	Output a Carriage Return, Line Feed
F86	A2 09	DU0 LDX #\$9	
F88	A9 0D	LDA #'CR	
F8A	20 0B FE	JSR OUTCH	
F8D	A9 0A	LDA #'LF	
F8F	20 0B FE	JSR OUTCH	
F92	CA	DU1 DEX	Decrement Byte/Line Count
F93	F0 F1	BEQ DU0	Reset if Zero
F95	20 E0 FE	JSR PRTBYT	Print Current byte
F98	A5 FA	LDA FINL	Low Address Match?
F9A	C5 FC	CMP FC	
F9C	F0 09	BEQ DU4	
F9E	E6 EC	DU3 INC FC	Increment Pointer
FA0	D0 F0	BNE DU1	Carry?
FA2	E6 F	INC FD	Yes, Carry!
FA4	4C 92 0F	JMP DU1	Loop Back
FA7	A5 FB	DU4 LDA FINH	High Address Match?
FA9	C5 FD	CMP FD	
FAB	D0 F1	BNE DU3	
FAD	A9 52	LDA #'R	Print an "R" and
FAF	20 0B FE	JSR OUTCH	Exit
FB2	4C 40 FE	JMP CONTROL + B	

FINL FA
FINH FB

PRINTER PATCH ----

This program is a patch for OS-65U operating system to enable the use of a Selecterm printer on C3 machines.

```
10 REM CREATED BY FOUR STATE MICRO COMPUTER SYSTEMS INC.
20 REM JOPLIN, MISSOURI 64801
30 REM JOE F. LINDEN
40 REM NAME -- PRINTER PATCH FOR SELECTERM PRINTER
50 REM EXECUTES IN BASIC MODE OF OPERATION
60 REM RE-CREATION DATE -- 7/18/78
70 REM
80 REM EXECUTIVE OVERLAY ROUTINE AS FOLLOWS --
90 REM
100 DIM A(53)
110 FOR I=1 TO 53:READ A(I):NEXT I
120 I=1
130 FOR J= 8668 TO 8696:POKE J,A(I):I=I+1:NEXT J
140 FOR K= 8576 TO 8599:POKE K,A(I):I=I+1:NEXT K
150 END
160 DATA 169,0,141,03,247,141,02,247,169,4,141,03,247,173,02,247
170 DATA 41,128,201,128,208,247,169,0,76,128,33,36,36,141,03,247
180 DATA 169,127,141,02,247,169,44,141,03,247,173,205,34,41,127
190 DATA 141,02,247,76,143,34
OK
POKE 8708,129
```

BACK SPACE ----

This program is for enabling the backspace for the OS-65U operating system on C3 systems. NOTE: this routine interferes with the new 65U editor.

```
298 REM FOR BACK SPACE THIS LINE SHOULD SAY GOSUB 5000
```

```
5000 REM POKE OUTPUT TO ALLOW PRINTING OF BACKSPACE
5010 POKE 21340,8: REM BACSPC=8
5020 REM POKE PATCH INTO INPUT ROUTINE
5030 POKE 1373,76:POKE 1374,9:POKE 1375,92
5040 REM POKE PATCH INTO $5C00
5050 FOR PTR=23532 TO 23571
5060 READ MAC: POKE PTR,MAC
5070 NEXT PTR:RETURN
5080 DATA 201,8,208,13,32,8,40,72
5090 DATA 169,32,32,8,40,104,76,76,5,76,97,5
```

REPORT WRITER ---

This program is a Report Writer which can produce generalized listings and selective reports from disk files. The program will run on C3 systems under 65U.

```
3 FORX=1 TO 32: PRINT:NEXT
4 PRINT"REPORT WRITER"
5 PRINT"_____"
6 POKE2888,0:REM ACCEPT NULL INPUT
7 FLAG9:FLAG11:REM FLAG9-50000 ERR CHK FLAG11-SPACE SUPP
10 DV(1)=PEEK(9832):IF DV(1)>127 THEN DV(1)=DV(1)-128+4
30 DV$(1)=CHR$(DV(1)+65)
40 INPUT"DEVICE FILE STORED ON ";DV$(2)
41 DV$(2)=LEFT$(DV$(2),1)
42 IF DV$(2)!="A" OR DV$(2)<="E" GOTO 51
43 PRINT:GOTO 40
49 GOTO 51
50 PRINT:PRINT"WHAT!":PRINT
51 INPUT"FILE NAME, PASSWORD ";MNS,P$
60 IF LEN(MNS)<5 THEN MNS=MNS+" ":GOTO 60
65 IF LEN(MNS)>6 THEN GOTO 50
70 F$=LEFT$(MNS,5)+"0"
110 IF P$=" " THEN P$="ANAN"
130 IF LEN(P$)>4 GOTO 50
150 INPUT"CONSOLE(C) OR PRINTER(P)";V$
200 PRINT
210 IF LEFT$(V$,1)="P" THEN YD=5:SH=132:GOTO 290
230 IF LEFT$(V$,1)="C" THEN YD=PEEK(11665):SH=80:GOTO 290
250 GOTO 190
290 INPUT"ENTER HEADER COMMENT ";H$
295 PRINT
300 NE$="":IF H$=NE$ GOTO 330
310 IF LEN(H$)>SW-10 THEN PRINT"MAXIMUM LENGTH OF COMMENT ";SW-10:GOTO 290
330 Y=100:DIM L$(Y):DIM FP(Y):DIM FL(Y):DIM LL$(Y)
335 DIM LF(Y)
349 REM
350 PRINT"ENTER LABELS (WHEN FINISHED TYPE 'DONE' FOR THE NEXT LABEL)";L$(X)
355 NF=0:X=1:Y=100
360 PRINT:FORX=1 TO Y:PRINT"LABEL # ";X:INPUT L$(X)
380 IF L$(X)="DONE" AND NF=0 THEN GOTO 2000
390 IF L$(X)="DONE" THEN L$(X)"":GOTO 460
395 INPUT"LABEL CHANGE (Y OR N) ";C$
396 IF C$<>"Y" AND C$<>"N" THEN GOTO 395
397 IF C$="N" GOTO 410
400 PRINT"ENTER CHANGE FOR LABEL # ";X:INPUT LL$(X)
410 PRINT
450 NF=NF+1:NEXT X
460 REM
470 INPUT"ARE ALL LABELS ENTERED CORRECTLY NOW (Y OR N) ";Q$
475 PRINT:PRINT
485 IF LEFT$(Q$,1)="Y" THEN GOTO 600
490 IF LEFT$(Q$,1)="N" THEN FORX=1 TO NF:L$(X)=""
500 NF=NF-1:NEXT X:GOTO 350
500 DEY DV$(2)
530 OPEN F$,P$,1
565 INDEX(LD=9: INPUT%1, EOF
570 INDEX(LD=20: INPUT %1, EOF
575 INDEX(LD=31: INPUT %1, RL
580 INDEX(LD=42: INPUT %1, NR
690 FOR X=1 TO NF
800 FP(X)=1E8
850 NEXT X
900 GOSUB 5000
910 FOR Y=1 TO NF
```

```

920 IF FP(X)<1E8 GOTO 930
921 PRINT"ERROR **FIELD NOT FOUND**":FORX=1 TO NF+2:L$(X)=NE$ :LL$(X)=NE$
922 FL(X)=0:FP(X)=0:TT=0:ER=0:CLOSE 1:GOTO 349
930 NEXT Y
950 PRINT
1000 LR=0
1200 IF CNT=0 GOTO 1240
1220 IF LC<55 GOTO 1410
1240 PG=PG+1:PRINT#VD
1250 PRINT#VD,M$: TAB(SW-10);:PRINT#VD, " PAGE ";PG
1280 PRINT#VD
1290 IF CNT>0 GOTO 1380
1300 REM SECTION TO CALCULATE TABS FOR OUTPUT
1305 FL=FL+1:IF FL>1 THEN GOTO 1320
1310 DIM PP(NF+1): REM PP=PRINT POSITION(S)
1320 FOR X=1 TO NF
1325 IF LEN(LL$(X))>1 THEN L$(X)=LL$(X)
1330 IF FL(X)<LEN(L$(X)) GOTO 1360
1340 REM FIELD LONGER THAN COLUMN HEADER
1350 PP(X+1)=FL(X)+PP(X)+3: GOTO 1370
1360 PP(X+1)=LEN(L$(X))+PP(X)+3: REM HEADER > FIELD
1370 NEXT: REM TABS ARE SET AT THIS POINT
1371 IF PP(NF+1)<SW THEN GOTO 1380
1372 PRINT"ERROR **WIDTH OF REPORT WRITER IS ";PP(NF+1)-SW;" CHARACTERS TO";
1373 PRINT"0 LONG**":FORX=1 TO NF+2:L$(X)="" :D$(X)="" :FP(X)=0:FL(X)=0:TT=0
1374 PG=0:LL$(X)="" :IF X>NF THEN PP(X)=0
1375 NEXT X:CLOSE1:GOTO 349
1380 FOR X=1 TO NF: PRINT#VD,TAB(PP(X));L$(X);: NEXT: PRINT#VD: PRINT#VD
1390 REM
1400 REM
1410 FOR X=1 TO NF: INDEX<1>=B0DF+FP(X)+LR: INPUT %L,D$(X): NEXT
1420 FOR X=1 TO NF: PRINT#VD,TAB(PP(X));D$(X);: NEXT: PRINT#VD
1430 LR=LR+RL:CNT=CNT+1:IF CNT=NR THEN GOTO 2000
1460 IF INDEX<1>>E0DF GOTO 2000
1480 LC=LC+1:IF LC>54 THEN LC=0:GOTO 1240
1490 FOR R=1 TO NF:D$(X)="" :NEXT R
1500 GOTO 1410
2000 DEV#V*(1):CLOSE:FLAG10:FLAG12:
2010 PRINT:INPUT"ENTER A C TO CONTINUE ";QR$:FORX=1 TO 32:PRINT:NEXT:END
5000 TT=0:INDEX<1>=53
5050 INPUT %L,X$:
5100 FOR X=1 TO NF
5101 Y=X
5150 IF L$(X)=X$ THEN U=U+1:GOTO 5300
5200 NEXT X:GOTO 5350
5300 FP(X)=TT
5350 INPUT %L,LF(Y):REM GET FILE LENGTH
5400 TT=TT+LF(Y):REM KEEP RUNNING TOTAL INTO RECORD
5425 IF L$(X)=X$ THEN FL(Y)=LF(Y)
5450 B=B+LEN(L$(X)):IF B>NF*SW THEN GOTO 5550
5460 PRINT"WIDTH OF REPORT WRITER > ";SW:PRINT" CHAR":FOR X=1 TO NF
5470 L$(X)="" :NF=NF-1:FP(X)=0:NEXT X
5480 TT=0:B=0
5500 CLOSE 1:GOTO 349
5550 IF INDEX<1>>B0DF THEN PRINT"ERROR **FILE HEADER ERROR**"
5700 RETURN
58000 REM ERROR HANDLING IS DONE HERE
58010 ER=PEEK(10226):EL=PEEK(1174)+PEEK(1177)*256
58020 REM CHK FOR CHANNEL ALREADY OPEN

```

```

50030 IF ER=133 THEN CLOSE
50040 REM CHK FOR NON-EXISTANT ENTRY ERROR
50050 IF ER=128 THEN ERR$="INVALID FILE NAME": GOTO 52000
50060 REM CHK FOR END OF FILE HIT ERRORR
50070 IF ER=132 THEN ERR$="END OF FILE ERROR":CLOSE:GOTO 52000
50080 REM CHK FOR SYSTEM ERROR I. E. CHANNEL NOT OPEN ERROR
50090 IF ER=129 THEN ERR$="CANNOT ACCESS FILE":GOTO 52000
50100 ERR$="DISC ERROR CODE "+STR$(ER)+" IN LINE "+STR$(EL)
50200 CLOSE
52000 PRINT:PRINT"*****ERROR*****":PRINT:PRINT
53000 PRINT ERR$
54000 REM PICK UP DISC ADDRESS WHERE ERROR OCCURED
54010 EA=0:FOR I=4 TO 1 STEP -1:EA=EA+256+PEEK(9889+I):NEXT I
54020 D=PEEK(9832):IF D>127 THEN D=D-128+4
54030 PRINT"ON DEVICE "+CHR$(D+65)+" AT DISC ADDRESS":EA
54040 REM COMMON EXIT PATH
54050 DEV CHR$(DV(1)+65):REM SELECT ORGINAL DEVICE
54060 FLAG10:FLAG12
54070 PRINT:INPUT"ENTER A C TO CONTINUE ":Q$:FOR X=1TO32:PRINT:NEXT:END

```

LOCATE FILE ON DEVICE ----

This program locates any file under OS-65U operating system on C3 machines.

```

48997 REM
48998 REM ----- LOCATE FILE ON ANY DEVICE -----
48999 REM
49000 DV$="A":IF CH=0 GOTO 49020
49010 DEV DV$:OPEN F$,P$,CH:GOTO RL
49020 DEV DV$: RUN F$,P$,SL
50000 ER=PEEK(19226):EL=PEEK(11774)+PEEK(11775)*256
50010 IF EL<>49010 AND EL<>49020 GOTO 50100
50020 DV$=CHR$(1+ASC(DV$)):IF DV$<"I" GOTO EL
50030 PRINT:PRINT"FILE OR PROGRAM NOT FOUND ON LINE":PRINT:PRINT
50040 PRINT"PUT THE FILE < ";F$;" > ON LINE":PRINT
50050 POKE 2838,0:INPUT"ENTER A C TO CONTINUE ";X$
50060 GOTO 49000
50100 PRINT:PRINT"DISC ERROR":STOP:REM. ***** STANDARD DISC ERROR POINT
59997 REM
59998 REM ----- ROUTINE DESCRIPTION -----
59999 REM
60000 REM ENTRY-- F$,P$ = FILENAME AND PASSWORD
60010 REM CH=0 RUN AS A PROGRAM
60020 REM CH>0 OPEN AS A DATA FILE
60025 REM RL = RETURN LINE NUMBER
60026 REM             (STACK LOST ON ERROR--NO SUB ROUTINES)
60027 REM             (NO FOR LOOPS)
60030 REM
60040 REM     EXIT      RETURN TO LINE RL (RETURN LINE NUMBER)
60050 REM             IF NO FIND THEN ALLOWS RETRY'S UNTIL FOUND

```

```

1000 PRINT "***** CASH FLOW BUDGET ANALYSIS *****"
1001 PRINT "*"
1002 PRINT "* PROGRAM BY P LINDQUIST 04/15/79 *"
1003 PRINT "*"
1004 PRINT "*****"
1010 REM
1020 REM PROGRAM PERFORMS CASH FLOW BUDGET ANALYSIS AS A
1030 REM FUNCTION OF CALENDAR PERIODS BASED ON WEEKLY START
1040 REM DATES IN DATA STATEMENTS BEGINNING AT L/N 1600.
1050 REM AVAILABLE DISK FILES : "SAMPLE"
1052 D1$="SAMPLE"
1055 NP=0
1060 DIM P$(26), PS(26), BAL(26)
1065 DIM P(30), DATE$(30), IE$(30), AMT(30), DES$(30)
1120 PRINT"DO YOU WANT INSTRUCTIONS (Y OR N)?";
1130 K=57088
1140 POKEK, 4 : IF PEEK(K)=8 THEN 2000
1150 POKEK, 16 : IF PEEK(K)=8 THEN GO SUB 1165: GOTO 2000
1160 GOTO 1140
1165 FOR I=1 TO 10: PRINT: NEXT
1170 REM INSTRUCTIONS
1180 PRINT: PRINT"PROGRAM PERFORMS CASH FLOW BUDGET ANALYSIS."
1190 PRINT"PROGRAM WILL ASK WHAT ACTION IS REQUIRED BY"
1200 PRINT"PRINTING 'REQUEST?'. YOU MAY RESPOND BY"
1210 PRINT"TYPING H, T, P, B, L, S, R, OR D AS FOLLOWS:"
1220 PRINT
1230 PRINT"H--REPEAT INSTRUCTIONS"
1240 PRINT"T--INCOME OR EXPENSE TRANSACTION"
1250 PRINT"P--SHOW DETAIL FOR PERIOD"
1260 PRINT"B--DISPLAY BALANCE FORECAST, HISTOGRAM, AND STATISTICS"
1265 PRINT"L--LIST ALL TRANSACTIONS"
1266 PRINT"S--SAVE TRANSACTION FILE ON DISK FILE"
1267 PRINT"R--RECALL TRANSACTION FILE FROM DISK"
1270 PRINT"D--DELETE TRANSACTION"
1275 PRINT"E--WILL EXIT TO THE SYSTEM MONITOR"
1280 PRINT
1290 PRINT"T--(INCOME OR EXPENSE TRANSACTION) WILL BE FOLLOWED"
1300 PRINT"BY '?'. TYPE 'DATE, I OR E, AMOUNT, DESCRIPTION'"
1310 PRINT"FOR EACH TRANSACTION, WHERE 'I' INDICATES INCOME,"
1320 PRINT"AND 'E' INDICATES EXPENSE."
1330 PRINT
1340 PRINT"TO CONTINUE, HIT SPACE BAR"
1370 K=57088 : POKEK, 2 : IF PEEK(K)=0 THEN 1370
1380 PRINT
1390 PRINT"DATE MUST BE IN FORMAT MM/DD/YY. IF DATE IS"
1400 PRINT"'00/00/00', THE TRANSACTION WILL BE REPEATED EACH"
1410 PRINT"PERIOD. IF MM IS '00', TRANSACTION WILL BE"
1420 PRINT"REPEATED FOR EACH MONTH."
1430 PRINT
1440 PRINT"P--(DETAIL FOR PERIOD) WILL BE FOLLOWED BY '?'."
1450 PRINT"TYPE IN THE PERIOD START DATE (MM/DD/YY)."
1460 PRINT
1470 PRINT"B--(BALANCE FORECAST) WILL BE FOLLOWED BY '?' TYPE"
1480 PRINT"IN THE BALANCE FORWARD AND THE NUMBER OF PERIODS TO"
1490 PRINT"BE FORECAST."
1500 PRINT
1510 PRINT"D--(DELETE TRANSACTION) WILL BE FOLLOWED BY '?'."
1520 PRINT"TYPE IN THE 'DESCRIPTION' OF THE TRANSACTION TO BE"
1530 PRINT"DELETED EXACTLY AS TYPED WHEN THE TRANSACTION WAS"
1540 PRINT"ENTERED."
1550 PRINT
1560 RETURN
1600 DATA12/31/78, 01/07/79, 01/14/79, 01/21/79, 01/28/79, 02/04/79
1610 DATA02/11/79, 02/18/79, 02/25/79, 03/04/79, 03/11/79, 03/18/79
1620 DATA03/25/79, 04/01/79, 04/08/79, 04/15/79, 04/22/79, 04/29/79
1630 DATA05/06/79, 05/13/79, 05/20/79, 05/27/79, 06/03/79, 06/10/79
1640 DATA06/17/79, 06/24/79, 07/01/79, 07/08/79, 07/15/79, 07/22/79
1650 DATA07/29/79, 08/05/79, 08/12/79, 08/19/79, 08/26/79, 09/02/79
1660 DATA09/09/79, 09/16/79, 09/23/79, 09/30/79, 10/07/79, 10/14/79
1670 DATA10/21/79, 10/28/79, 11/04/79, 11/11/79, 11/18/79, 11/25/79
1680 DATA12/02/79, 12/09/79, 12/16/79, 12/23/79, 12/30/79, 01/06/80
1990 REM INITIALIZE PERIOD START DATES
1998 DATA"NULL"
2000 RESTORE : PRINT : PRINT
2002 PRINT"INPUT THE START DATE FOR THE FIRST WEEK 'MM/DD/YY' "
2004 INPUT"SHOULD START WITH A SUNDAY? "; D$
2006 PRINT
2008 COSUB 2300: SD=SI
2010 INPUT"NUMBER OF WEEKS IN A PERIOD? "; NW
2012 PRINT
2014 READ D$: IF D$<>"NULL" THEN 2020

```

```

2016 PRINT"START DATE NOT FOUND - RESTART PROGRAM"
2018 RUN"BEXEC"
2020 GOSUB 2300 : IF ABS(SI-SD)>2 THEN 2014
2022 P$(1)=D$ : PS(1)=SI : NP=1
2030 FORJ=2TO26
2032 FORI=1TONW
2034 READ D$ : IF D$="NULL" THEN 2050
2036 NEXT I
2038 GOSUB 2300 : P$(J)=D$ : PS(J)=SI : NP=NP+1
2040 NEXT J
2050 PRINT"PERIOD START DATES ARE AS FOLLOWS":PRINT
2052 FOR I=1TONP STEP 2
2054 PRINT P$(I),
2056 IF I<NP THEN PRINTTAB(25): P$(I+1)
2058 NEXT I : PRINT : PRINT
2060 PRINT"IS THIS OK? ";
2062 K=57088
2064 POKEK, 16 : IF PEEK(K)=8THENPRINT"YES":GOTO2100
2066 POKEK, 4 : IF PEEK(K)=8THENPRINT"NO?":GOTO2000
2070 GOTO2064
2100 PRINT:PRINT:PRINT
2110 NT=0 :REM NUMBER OF TRANSACTIONS
2120 ST=100 :REM ST IS HISTOGRAM STEP SIZE
2130 PRINT:FOR I=1TO500:NEXT:PRINT"REQUEST? ";
2135 K=57088
2140 POKEK, 16: X=PEEK(K)
2150 IFX=64THENPRINT"E":RUN"BEXEC"
2155 IFX=32THENPRINT"R":GOSUB4100:GOTO2130:REM INPUT FILE
2160 IFX=16THENPRINT"T":GOSUB2350:GOTO2130:REM TRANSACTION
2170 POKEK, 32: X=PEEK(K)
2175 IFX=64THENPRINT"L":GOSUB4000:GOTO2130:REM LIST
2180 POKEK, 8: X=PEEK(K)
2185 IFX=128THENPRINT"S":GOSUB5000:GOTO2130:REM DISK SAVE
2190 IFX=64THENPRINT"D":GOSUB3600:GOTO2130:REM DELETE
2195 IFX=8THENPRINT"HELP?":GOSUB1165:GOT02130:REM HELP!!!
2200 POKEK, 4: X=PEEK(K)
2202 IFX=16THENPRINT"B":GOSUB2700:GOT02130:REM BALANCE
2205 POKEK, 2: X=PEEK(K)
2207 IFX=2THENPRINT"P":GOSUB3300:GOT02130:REM PERIOD DETAIL
2210 GOTO2140
2290 REM INTEGER-FOR-DATE SUBROUTINE
2300 D$=RIGHT$(D$, 8)
2305 DD=VAL(MID$(D$, 4, 2))
2310 MM=VAL(LEFT$(D$, 2))
2320 YY=VAL(RIGHT$(D$, 2))
2330 SI=DD+100*(MM+100*YY)
2340 RETURN
2345 REM TRANSACTIONS SUBROUTINE
2350 FORI=1TO100:NEXTI: NT=NT+1
2360 INPUTDATE$(NT), IE$, AMT(NT), DES$(NT)
2370 D$=DATE$(NT)
2380 GOSUB 2460
2390 IFFLAG=1THENNT=NT-1:RETURN
2400 P(NT)=IN
2410 IE$(NT)=LEFT$(IE$, 1)
2420 IFIE$(NT)="I"ORIE$(NT)="E"THENRETURN
2430 PRINT"INCOME OR EXPENSE? ";
2435 X=USR(X):IFX=27HENSTOP
2436 PRINTCHR$(X)
2440 IFX=69THENIE$(NT)="E":RETURN
2445 IFX=73THENIE$(NT)="I":RETURN
2446 GOTO2430
2450 REM CHECK-DATE SUBROUTINE
2460 FLAG=0
2470 IFLEN(D$)<>8THEN2600
2480 IFMID$(D$, 3, 1)<>"/"THEN2600
2490 IFMID$(D$, 6, 1)<>"/"THEN2600
2500 GOSUB2300
2510 IFMM>12THEN2600
2520 IFDD>31THEN2600
2530 IFSI=0THENIN=0:RETURN
2540 IFMM=0THENIN=-1:RETURN
2550 FORIN=1TONP-1
2560 IFPS(IN)<=SIANDSI<PS(IN+1)THENRETURN
2570 NEXTIN
2580 PRINT"DATE NOT WITHIN RANGE OF PERIODS IN DATA TABLE"
2600 PRINT"DATE MUST BE IN FORMAT 'MM/DD/YY', FOR EXAMPLE, "
2610 PRINT"4TH OF JULY 1979 WOULD BE '07/04/79'. "
2620 FLAG=1:RETURN
2630 REM EXPENSE-INCOME SUBROUTINE
2640 IF IE$(J)="E"THENBAL(I)=BAL(I)-AMT(J)
2650 IF IE$(J)="I"THENBAL(I)=BAL(I)+AMT(J)

```

```

2660 RETURN
2690 REM BALANCE SUBROUTINE
2700 FOR I=1TO100 : NEXT
2710 INPUT BAL, NS
2720 IF NS>NP THEN NS=NP
2750 PRINT
2760 PRINT"BALANCE FORWARD : "; BAL
2770 PRINT
2780 PRINT "PERIOD      BALANCE";
2785 PRINTTAB(25); "-----++++++"
2790 BAL(1)=BAL
2800 FOR I=1TONS-1
2810 IF I>1 THEN BAL(I)=BAL(I-1)
2820 FORJ=1TONT
2830 IF P(J)=0 THEN GOSUB 2640 : GOT02900
2840 IF P(J)=I THEN GOSUB2640 : GOT02900
2870 IF P(J)>0 THEN 2900
2880 GOSUB3000
2890 IFFLAG=1THENGOSUB2640
2900 NEXTJ
2910 PRINTP*(I+1); "    "; BAL(I);
2920 GOSUB3100
2930 NEXTI
2940 GOSUB3800
2950 RETURN
2990 REM EACH-MONTH SUBROUTINE
3000 FLAG=0
3010 DD=VAL(MID$(DATE$(J), 4, 2))
3020 D1=VAL(MID$(P$(I), 4, 2))
3030 D2=VAL(MID$(P$(I+1), 4, 2))
3040 IF LEFT$(P$(I), 2)=LEFT$(P$(I+1), 2)THEN3070
3050 IF DD>=01THENFLAG=1
3060 DD<D2THENFLAG=1
3070 IF DD>=01ANDDD<D2THENFLAG=1
3080 RETURN
3090 REM HISTOGRAM SUBROUTINE
3100 IFBAL(I)<ST/2THEN3160
3110 PRINTTAB(40);
3120 FORJ=1TOINT((BAL(I)/ST)+. 5)
3130 PRINT "$";
3135 IFPOS(I)>59THEN3210
3140 NEXTJ
3150 GOT03210
3160 IFBAL(I)>=ST/2THEN3210
3170 PRINTTAB(40+INT((BAL(I)/ST)+. 5))
3180 PRINT "#";
3190 IFPOS(I)>=40THEN3210
3200 GOT03180
3210 PRINT
3220 RETURN
3290 REM PERIOD-DETAIL SUBROUTINE
3300 FORI=1TO100: NEXTI: INPUT D$
3310 GOSUB2460
3320 IFFLAG=1GOT03330
3330 I=IN
3340 BAL(I)=0
3350 SJ=SI
3360 PRINT"DATE", "EXP/INC", "AMOUNT", "DESCRIPTION"
3370 PRINT
3380 FORJ=1TONT
3390 IFP(J)=0THEN3460
3400 D$=DATE$(J)
3420 GOSUB2300
3430 IFP(J)=IANDSI>=SJTHEN3460
3440 IFP(J)>0THEN3480
3450 GOSUB3000: IFFLAG=0THEN3480
3460 GOSUB2640
3470 PRINTDATE$(J), IE$(J), AMT(J), DES$(J)
3480 NEXTJ
3490 PRINTTAB(28); "-----"
3500 PRINT"BALANCE FOR PERIOD: "; TAB(28); BAL(I)
3510 RETURN
3590 REM DELETE-TRANSACTION SUBROUTINE
3600 FORI=1TO100: NEXTI: INPUT DES$
3610 FORI=1TONT
3620 IFDES$=DES$(I)THEN3660
3630 NEXTI
3640 PRINT"TRANSACTION RECORD NOT FOUND: "; DES$
3650 RETURN
3660 P(I)=P(NT)
3670 DATE$(I)=DATE$(NT)
3680 IE$(I)=IE$(NT)

```

```

3690 AMT(I)=AMT(NT)
3700 DES$(I)=DES$(NT)
3710 NT=NT-1
3720 RETURN
3790 REM STATISTICS SUBROUTINE
3800 IF NS<1 THEN RETURN
3810 SN=0
3820 SX=0
3830 SY=0
3840 X2=0
3850 XY=0
3860 FOR I=1 TO I1+NS
3870 SN=SN+1
3880 SX=SX+I
3890 X2=X2+I*I
3900 SY=SY+BAL(I)
3910 XY=XY+I*BAL(I)
3920 NEXT I
3930 A=SN*X2-SX*SX
3940 B=(SN*XY-SX*SY)/A
3950 PRINT "SLOPE IS ";INT(B); " (DOLLARS) PER PERIOD"
3960 RETURN
3990 REM TRANSACTION-LIST SUBROUTINE
4000 PRINT " TOTAL NUMBER OF TRANSACTIONS: ";NT
4010 PRINT "DATE", "INC/EXP", "AMOUNT", "DESCRIPTION"
4020 FOR I=1 TO NT
4030 PRINT DATE$(I), IE$(I), AMT(I), DES$(I)
4040 NEXT I
4050 RETURN
4090 REM DISK RETREIVAL SUBROUTINE
4100 FOR I=1 TO I00: NEXT I
4110 INPUT "NAME"; NAME$
4120 IF NAME$<>"D1$ANDNAME$<>"D2$ANDNAME$<>"D3$ THEN RETURN
4130 DISK OPEN, 6, NAME$
4135 PRINT "DISK FILE FOR ";NAME$; " OPEN"
4140 INPUT #6, NT
4150 FOR I=1 TO NT
4160 INPUT #6, P(I)
4161 INPUT #6, DATE$(I)
4162 INPUT #6, IE$(I)
4163 INPUT #6, AMT(I)
4164 INPUT #6, DES$(I)
4165 PRINT DATE$(I), IE$(I), AMT(I), DES$(I)
4170 NEXT I
4200 DISK CLOSE, 6
4220 PRINT
4230 PRINT "FILE LOAD COMPLETE - ";NAME$: PRINT
4240 RETURN
4990 REM DISK FILE SAVE ROUTINE
5000 FOR I=1 TO I00: NEXT I
5010 INPUT "NAME"; NAME$
5020 IF NAME$<>"D1$ANDNAME$<>"D2$ANDNAME$<>"D3$ THEN RETURN
5030 DISK OPEN, 6, NAME$
5035 PRINT "DISK FILE FOR ";NAME$; " OPEN"
5040 PRINT #6, NT
5050 FOR I=1 TO NT
5060 PRINT #6, P(I)
5070 PRINT #6, DATE$(I)
5080 PRINT #6, IE$(I)
5090 PRINT #6, AMT(I)
5100 PRINT #6, DES$(I)
5110 NEXT I
5115 DISK CLOSE, 6
5120 PRINT
5130 PRINT "FILE SAVE COMPLETE - ";NAME$: PRINT
5240 RETURN

```

JOYSTICK ----

This program will run on any machine with joysticks. The program is a demonstration of the programming and operation of the joysticks.

```
10 REM PGM NAME = JOYSTK
20 REM TESTS 2 JOYSTICKS SIMULTANEOUSLY !
30 REM PROGRAMMED BY L. KREBS ON 03/01/79
31 REM
32 REM
33 REM
40 DIM K(20),P$(10)
50 FOR I=1 TO 10 :REM INITIALIZE ARRAYS
60 READ P$(I)
70 NEXT I
80 READ Q$(1),R$(1) :REM GET ACTION MSGS + PLAYER MSGS
90 READ Q$(2),R$(2)
92 FOR I=1 TO 18 :REM GET DECODE COMPARE VALUES
94 READ K(I)
96 NEXT I
97 Y1=50
100 POKE 2073,96 :REM DISABLE CTRL-C
110 POKE 57088,128 :REM STROBE PLAYER "A", ROW7
120 AA=PEEK(57088) AND 31 :REM USE ONLY BITS 0-4
124 POKE 57088,16 :REM STROBE PLAYER "B", ROW 4
126 BB=PEEK(57088) AND 248 :REM USE ONLY BITS 3-7
129 Z=0
130 A=AA AND 30 :REM REMOVE ACTION KEY ON BIT 0
135 LA=1 :REM ACTION KEY IS BIT 0
138 X=1 :REM COMPARE VALUES IN K(1) - K(9)
140 GOSUB1000 :REM DO PLAYER "A"
150 A1=C1 :REM SAVE PLAYER "A" POSITION
160 A2=C2 :REM SAVE PLAYER ACTION KEY STATUS
180 AA=BB
190 A=AA AND 120 :REM REMOVE ACTION KEY ON BIT 7
200 LA=128 :REM ACTION KEY IS BIT 7
208 X=10 :REM COMPARE VALUES IN K(10) - K(18)
210 GOSUB 1000 :REM DO PLAYER "B"
220 B1=C1
230 B2=C2
250 IF A1<>Y1 THEN Z=1
255 IF A2<>Y2 THEN Z=1
260 IF B2<>Z2 THEN Z=1
265 IF B1<>Z1 THEN Z=1
270 Y1=A1:Y2=A2
280 Z1=B1:Z2=B2
290 IF Z=1 THEN 350
295 GOTO 400 :REM IF NO CHANGE, THEN DON'T PRINT
350 PRINT R$(1),P$(A1),Q$(A2)
360 PRINT R$(2),P$(B1),Q$(B2)
365 PRINT "PRESS 'A' TO ABORT"
370 PRINT "
400 POKE 57088,2 :REM PRESS "A" TO ABORT
420 IF PEEK(57088)=64 THEN 900
440 GOTO 100 :REM GO DO EVERYTHING AGAIN !
900 PRINT "ABORT"
910 RUN*BEXEC*
1000 REM SUBROUTINE TO CHECK A JOY STICK
1010 C1=10 :REM ASSUME ERROR UNLESS CHANGED
1020 FOR I=1 TO 9
1030 Y=X+I-1
1040 IF A=K(Y) THEN C1=I
40 1050 NEXT I
1110 C2=1 :REM ASSUME ACTION NOT PRESSED
1120 IF(AA AND LA) <> 0 THEN C2=2 :REM CHECK ACTION KEY
```

```

1130 RETURN
1990 REM
1995 REM
2000 REM POSITIONS AVAILABLE
2001 REM NOTE: POSITION "Z" IS THE ERROR POSITION
2010 DATA A,B,C,D,E,F,G,H,I,Z
2020 DATA "NORMAL",'A' POSITION =
2030 DATA "ACTION",'B' POSITION =
2040 REM PLAYER "A" DECODE A-I
2050 DATA 16,20,4,12,8,10,2,18,0
2060 REM PLAYER "B" DECODE A-I
2070 DATA 32,48,16,80,64,72,8,40,0
3000 END

```

SET TIME OF DAY ----

This program will run on all machines with graphics and real time capabilities. It shows updated time every second. OS-65D V3.1 HC operating system is needed to set up internal clock hardware.

```

10 REM SET TIME OF DAY PROGRAM
20 REM
30 PRINT: INPUT "TIME (H,M,S) "; H,M,S
40 T = 9480
50 POKE T,H: POKE T+1,M: POKE T+2,S
60 REM
100 REM DISPLAY TIME OF DAY & TRIP TIMER IF ON
110 REM
120 T = 9480
122 C = 224
130 H = PEEK(T): M = PEEK(T+1): S = PEEK(T+2)
134 IF PEEK(C-1) = 0 GOTO 140
136 HT= PEEK(C): MT= PEEK(C+1): ST= PEEK(C+2)
138 PRINT HT; ":"; MT; ":"; ST,
140 PRINT H; ":"; M; ":"; S
150 IF PEEK(T+2) = S GOTO 150
160 GOTO 130
170 REM
200 REM TURN TRIP TIMER ON
210 REM
220 C = 224
230 POKE C,0: POKE C+1,0: POKE C+2,5
240 POKE C-1,1
250 GOTO 100
260 REM
300 REM ACTIVATE PIA EVENT INPUTS
310 REM
320 REM SETUP "STATE OF INTEREST" BITS
330 POKE 9392,254: REM PIA 1 A, LOOK FOR BIT 0 = 0
340 POKE 9396,253: REM PIA 2 A, LOOK FOR BIT 1 = 0
350 POKE 9400,251: REM PIA 3 A, LOOK FOR BIT 2 = 0
360 REM SETUP MASKS
370 POKE 230,1: REM PIA 1 A, BIT 0
380 POKE 234,2: REM PIA 2 A, BIT 1
390 POKE 238,4: REM PIA 3 A, BIT 2
400 REM PERMIT 'RTMON' TO RUN
410 POKE 222,1
420 END

```

DIGITAL CLOCK ----

This program will run on machines with real time clocks and graphics. It is a digital clock updating time every minute. The clock will appear on the screen after time has been set. OS-65D V3.1 HC operating system is needed to run the internal time hardware.

```
5 DIMZ(3,1),G(3,3),C(9,3,3):M=1:POKE2073,96:FORI=0TO3:READZ(I,1):NEXT
32 FORI=0TO3:FORJ=0TO3:READG(I,J):NEXTJ,I
33 FORI=0TO9:FORJ=0TO3:FORK=0TO3:READC(I,J,K):NEXTK,J,I
40 FORI=1TO30:PRINT:NEXT:T=9480:GOSUB30000:FORI=1TO30:PRINT:NEXT
50 GOSUB2000:GOT050
2000 H0=PEEK(T):M0=PEEK(T+1):S0=PEEK(T+2)
2001 C$=" A.M.":IFH0>12THENH0=H0-12:C$=" P.M. "
2002 IFH0=12THENC$=" P.M. "
2003 IFH0=0THENH0=12
2005 IFM0=M1THENPOKE54053,32:FORI=1TO100:NEXT:POKE54053,42:GOT02020
2006 M1=M0
2010 GOSUB9000
2011 IFC$=" A.M. "ANDPEEK(54123)=32THENPOKE54123,146
2012 IFC$=" P.M. "ANDPEEK(54123)=146THENPOKE54123,32
2020 IFPEEK(T+2)<>S0THENRETURN
2030 GOT02020
9000 Z=0
9010 Z(3,0)=INT(H0/10):Z(2,0)=H0-Z(3,0)*10
9020 Z(1,0)=INT(M0/10):Z(0,0)=M0-Z(1,0)*10
9025 IFQS=0THEN9100
9030 IFZ=4THENRETURN
9040 IFZ=3ANDZ(3,0)=0THENPOKE54036,32:POKE54100,32:RETURN
9050 FORI=0TO3:FORJ=0TO3:POKEZ(Z,1)+G(I,J),C(Z(Z,0),I,J)
9060 NEXTJ,I:IFZ(Z,0)=0THENZ=Z+1:GOT09030
9065 IFZ(Z,0)=0ANDPEEK(54100)<>32THENZ=3:GOT09040
9070 RETURN
9100 POKE54042,174:POKE54106,174:FORZ=0TO3
9110 IFZ=3ANDZ(3,0)=0THENPOKE54036,32:POKE54100,32:GOT09130
9120 FORI=0TO3:FORJ=0TO3:POKEZ(Z,1)+G(I,J),C(Z(Z,0),I,J)
9125 NEXTJ,I,Z
9130 QS=1:L=54056:POKEL-63,128:POKEL-62,128:POKEL,147
9140 POKEL+1,144:POKEL+2,144:POKEL+3,146:POKEL+64,147
9150 IFC$=" A.M. "THENPOKEL+67,146
9160 L=54060:POKEL,147:POKEL+1,190:POKEL+2,189:POKEL+3,146
9170 POKEL+64,147:POKEL+67,146:RETURN
10000 DATA54047,54043,54038,54034,-64,-63,-62,-61,0,1,2,3,64,65
10010 DATA66,67,128,129,130,131
10020 DATA32,128,128,32,147,32,32,146,147,32,32,146,32,135,135,32
10025 DATA32,32,32,32,32,146,32,32,32,146,32,32,32,32,32,32,32
10030 DATA32,128,128,32,32,144,144,144,146,147,32,32,32,32,135,135,32
10040 DATA32,128,128,32,32,144,144,146,32,32,32,146,32,135,135,32
10050 DATA32,32,32,32,147,144,144,146,32,32,32,146,32,32,32,32,32
10060 DATA32,128,128,32,147,144,144,146,32,32,32,146,32,135,135,32
10070 DATA32,128,128,32,147,144,144,146,32,32,32,146,32,135,135,32
10080 DATA32,128,128,32,32,32,146,32,32,32,146,32,32,32,32,32
10090 DATA32,128,128,32,147,144,144,146,147,32,32,146,32,135,135,32
10100 DATA32,128,128,32,147,144,144,146,32,32,32,146,32,135,135,32
30000 INPUT"WHAT IS THE TIME (H,M,S)":H,M,S
30010 IFH<10RH>120RH<>INT(H)GOT030000
30020 IFM<00RM>590RM<>INT(M)GOT030000
30030 IFS<00RS>590RS<>INT(S)GOT030000
30040 PRINT:PRINTH;"HOURS, "M"MINUTES, AND "S"SECONDS":PRINT
30050 INPUT"IS THAT A.M. OR P.M.":Y$
30060 IFLEFT$(Y$,1)="P"THENH=H+12
30065 IFH=24THENH=12
30066 IFH=12ANDLEFT$(Y$,1)="A"THENH=0
30070 ST=9480:POKEST,H:POKEST+1,M:POKEST+2,S:RETURN
```

FLASHER ----

This program runs on all graphics machines except the C1P. This BASIC program loads a machine level program into memory by the use of DATA statements and then runs it. The program flashes random graphics and color (if machine has color hardware) on the screen.

```
1 FL=PEEK(57088):GOSUB60000
2 POKE2073,96:POKE57088,1
10 PRINT"TO ABORT PROGRAM, PRESS 'CTRL .'
20 PRINT"PRESS ANYTHING TO BEGIN?":INPUTS
30 BE=INT(RND(1)*9)+208:LE=INT(RND(1)*(216-BE))+1
40 CH=INT(RND(1)*128)+128:IFRND(1)>.45THENBE=BE+16
50 POKE16336,BE:POKE16337,LE:POKE16338,CH
55 IFPEEK(57088)<>FLGOTO70
60 POKE56832,5:X=USR(X):GOT030
70 POKE56832,1:END
60000 POKE8955,211:POKE8956,63
60010 FORI=16339T016372:READA
60020 POKEI,A:NEXT:RETURN
60030 DATA172,209,63,174,210,63,173,208,63,141,225,63
60040 DATA142,0,208,173,224,63,24,105,1,141,224,63,144
60050 DATA242,238,225,63,136,152,208,235,96
```

THEME ----

This short program plays the Star Wars theme through the tone generator. The tone generator is the only special hardware that is needed to run the program.

```
1 POKE56832,7
10 DEFFNA(C)=<(49152/(2^(C/12)*220))
20 FORJ=1T02:FORI=1T048
30 READA:POKE57089,FNA(A)
40 NEXTI:RESTORE:NEXTJ
50 END
100 DATA1,1,8,8,8,8,8,6,5,3,13,13,13
110 DATA8,8,8,8,8,6,5,3,13,13,13,8,8,8,8,8
120 DATA6,5,6,3,3,3,3,3,3,1000,1000,1000,1000,1000,1000
```

KEYS ----

This program requires DAC hardware to operate. It is an assembler program and must be typed in through the assembler editor, assembled to memory by typing A3, and then started by typing "!GO 317E". After the program is started the keyboard becomes musical, sending various sounds through the DAC output. Note, there is no exit for this program.

```
10          *= $317E
20      LDA #$FF
30      STA $DF00
40 START  LDA $DF00
50      TAX
60 LOOP   ADC $20,X
70      STA $DF01
80      DEX
90      BNE LOOP
100     STA LOOP+1
110     JMP START
```

PLANE BANNER ----

This program can be run on any graphics machine except the C1P. The program is a demonstration of animation. If the program is to be run on a color system, please refer to USR(X) for color backgrounds. NOTE: On non disk based systems you must delete all disk calls (DISK!"CA 4FD0=36,1").

```
15 REM** PLANE BANNER ****          410 POKEI,237
20 DIMA(25)                         420 POKEI+D,10
25 FORI=1TO20:READA(I):NEXT        430 POKEI+D-5,7
30 PRINT:PRINT:PRINT:PRINT         440 GOSUB1000
35 PRINT"      O.S.I. COMPUTERS"   445 POKEI-21,32
40 FORI=1TO22:PRINT:NEXT          446 POKEI+D-23,12
45 POKE56832,6                     450 FORJ=1TO50:NEXT
50 D=4096:TS=12:GR=6              460 POKEI,32
60 DISK!"CA 4FD0=36,1":POKE20433,TS:X=USR(X) 470 POKEI+D,12
70 FORI=54976T055200               500 NEXT
80 POKEI+D,GR:NEXT                600 GOTO2000
90 K=53700                          1000 FORU=7TO20
95 K=K+D:GOSUB1100                 1010 POKEI-U,A(U)
100 FORI=54915T054937STEP2        1020 NEXT
110 POKEI+D,0:POKEI,15            1030 RETURN
120 NEXT                           1100 FORI=1TO16
130 FORI=54464T054494             1110 POKEK+I,I
140 POKEI,237                      1120 NEXT:RETURN
150 POKEI+D,2                     2000 FORI=1TO3000:NEXT
160 FORJ=1TO50:NEXT                2005 FORI=54915T054937:POKEI,32:NEXT
170 POKEI,32                        2100 END
180 POKEI+D,12                     5000 DATA32,32,32,32,32,32
190 NEXT                           5100 DATA83,67,73,72,80,65
200 FORI=53982T053952STEP-1       5200 DATA82,71,32,82,79,76,79,67
210 POKEI,239
220 FORJ=1TO50:NEXT
230 POKEI,32
240 POKEI+D,12
250 NEXT
260 FORI=54208T054238
270 AC ----
```

This program will run on any machine with CA-12 remote AC control interface and OS-65D V3.1 HC operating system. The program needs an AC driver in memory before the program is typed into the computer.(See color and AC manual.)

```
10 REM  AC CONTROL PROGRAM
20 REM  (WITH EMBEDDED AC CONTROL DRIVER)
30 REM  SETUP VECTOR TO 'ACTL' CODE
40 POKE 548,127: POKE 549,50: REM $0224 = $7F, $32
50 REM
60 REM  PRESET STATUS TO 64 CHAR DISPLAY
70 POKE 249,1: REM $F9
80 REM
90 REM  OPERATOR INTERFACE FOR AC CONTROL
100 INPUT "DEVICE, COMMAND NUMBER "; N, M
110 ACTL N,M: GOTO 100
120 REM
130 REM  MINI LIGHT SHOW
140 NN=65: BR=66: LO=67: REM ON: BRIGHT: LIGHTS ON
150 FF=68: DI=69: AF=70: REM OFF: DIM: ALL OFF
200 ACTL 1,2,3,12
210 ACTL NN
220 ACTL 1,FF,2,FF,3,FF,12,FF
230 ACTL 12,NN,3,NN,2,NN,1,NN
240 ACTL 1,2,3,12
250 FOR I=1 TO 10
260 ACTL DI
270 NEXT I
```

MACHINE CODE KALEIDOSCOPE ----

This program will only run on color systems. It is an assembler program and must be typed in through the assembler editor, assembled to memory by typing A3, and then started by typing "!GO 4025". Depressing the "E" will return you to the assembler editor.

10	;	KALEIDOSCOPE	570;
20	;	DAVID E. TEWKSBEARY	580COLADD INC COUNT
30	**-\$4000		590 LDY COUNT
40	TEMP=\$3FD0		600 CPY #9
50	DUMM=\$3FD8		610 BEQ BCOL
60	COUNT=\$3FEA		620:
70	COUNT2=\$3FEB		630 LDA #63
80	CH=\$3FEC		640 STA NUMB
90	NUMB=\$3FED		650:
100;			660 LDX #1
110CLEAR	LDA #\$D0		670 LDY #5
120	STA CHAR+2		680 JSR SUB
130	LDA #\$E0		690:
140	STA COLO+2		700 LDX #3
150	LDX #0		710 LDY #7
160	LDY #8		720 JSR ADD
170LOOP	LDA #32		730:
180CHAR	STA \$D000,X		740 LDA #65
190	LDA #8		750 STA NUMB
200COLO	STA \$E000,X		760:
210	INX		770 INX
220	BNE LOOP		780 INY
230	INC CHAR+2		790 JSR SUB
240	INC COLO+2		800:
250	DEY		810 LDX #2
260	BNE LOOP		820 LDY #6
270	RTS		830 JSR ADD
280;			840:
290START	LDA #4		850BROW LDX #1
300	STA \$DE00		860 LDY #1
310	JSR CLEAR		870LOOP2 LDA TEMP,X
320	LDA #96		880 STA DUMM,Y
330	STA 2073		890 INY
340;			900 STA DUMM,Y
350BCOL	LDX #1		910 INY
360	LDA #\$D4		920 INX
370LOOP1	STA TEMP,X		930 CPX #9
380	INX		940 BNE LOOP2
390	CPX #5		950 LDY #0
400	BNE CONT		960 STY COUNT2
410	LDA #\$E		970:
420CONT	CPX #9		980 LDY #5
430	BNE LOOP1		990 LDA CH
440	LDA #0		1000RANDOM ADC DUMM,Y
450	STA COUNT		1010 DEY
460;			1020 BNE RANDOM
470	LDA #16		1030 ORA #128
480	STA \$DF00		1040 STA CH
490	LDA \$DF00		1050:
500	CMP #64		1060:
510	BNE COLADD		1070ROWADD INC COUNT2
520;			1080 LDY COUNT2
530	JSR CLEAR		1090 CPY COUNT
540	LDA #1		1100 BNE OKAY
550	STA \$DE00		1110 JMP COLADD
560	RTS		1120:
			1130OKAY LDA #65
			1140 STA NUMB

1150;		1400	INY	1650	INX
1160 LDX #9		1410 JSR ADD		1660	INY
1170 LDY #17		1420:		1670	LDA CH
1180 JSR SUB		1430 LDX #15	1680POKE2	STA \$E000	
1190:		1440 LDY #23	1690POKE	STA \$D000	
1200 INX		1450 JSR ADD		1700	CPY #9
1210 INY		1460:		1710	BNE MOVE1
1220 JSR ADD		1470 INX		1720	JMP ROWADD
1230;		1480 INY		1730:	
1240 LDX #13		1490 JSR SUB	1740ADD	LDA \$3FD0,Y	
1250 LDY #21		1500:		1750	CLC
1260 JSR ADD	1510DONER	LDA \$DE00		1760	ADC NUMB
1270:		1520 BPL DONER		1770	STA \$3FD0,Y
1280 INX	1530TIGHT2	LDA \$DE00		1780	BCC RIGHT
1290 INY	1540	BMI TIGHT2		1790	INC \$3FD0,X
1300 JSR SUB	1550 LDY #1			1800RIGHT	RTS
1310:	1560 LDX #9			1810:	
1320 LDA #63	1570MOVE1	LDA DUMM,Y	1820SUB	LDA \$3FD0,Y	
1330 STA NUMB	1580	STA POKE+2		1830	SEC
1340:	1590 CLC			1840	SBC NUMB
1350 LDX #11	1600 ADC #16			1850	STA \$3FD0,Y
1360 LDY #19	1610 STA POKE2+2			1860	BCS RIGHT2
1370 JSR SUB	1620MOVE2	LDA DUMM,X		1870	DEC \$3FD0,X
1380:	1630 STA POKE+1			1880RIGHT2	RTS
1390 INX	1640 STA POKE2+1				

RANDOM SQUARE ----

This is a short graphics demonstration program. The program is compatible with all graphics machines except the C1P. If a color unit is used, then the program "USR(X) for color backgrounds" should also be used. If the computer system does not have a disk drive, then the disk call (DISK!"CA 4FD0=36,1) should be deleted from the program.

NOTE: For more detail see USR(X) for color backgrounds.

```

10 REM ** PAUL A. JOVIAK **
12 REM ** RANDOM SQUARE **
15 POKE56832,6:PRINT:PRINT:PRINT:PRINT
17 PRINT" OHIO SCIENTIFIC:"
20 PRINT:PRINT" COLOR GRAPHICS"
23 PRINT" AND"
25 PRINT" INVERTED VIDEO"
30 FORI=1TO20:PRINT:NEXT
40 DISK!"CA 4FD0=36,1"
50 D=4096:B(1)=1:B(2)=-64:B(3)=-1:B(4)=64
80 FORPS=1TO5
90 FORL=1TO2:H=58318
100 FORI=1TO11STEP2
140 H=H+63:FORK=1TO4:Z=H
144 IFK=2THENZ=H+I
145 IFK=3THENZ=H+I+I*-64
146 IFK=4THENZ=H+I*-64
150 FORJ=0TOI-1
160 TS=INT(16*RND(Z))
170 RS=INT(255*RND(TS))
200 POKEZ+J*B(K),TS
220 F=PEEK(57088):IFF(>>1THEN800
250 IFL=2THENPOKEZ+J*B(K)-D,32:GOT0500
300 POKEZ+J*B(K)-D,RS
500 NEXTJ,K,I,L
600 POKE20433,TS:X=USR(X)
650 NEXTPS
800 END

```

BLACKJACK ----

This program will run on any machine with a Votrax unit. Note, this program requires a votrax driver (see Votrax user's manual).

```

20 DIMC(13, 4): FORI=1TO30: PRINT: NEXT
21 B$="PA1 PA1 THV UH3 UH3 PA0 D E L ER PA1"
23 PRINT"1 TO GET ANOTHER CARD": PRINT"2 TO DOUBLE YOUR BET"
30 PRINT"3 TO STAY"
40 S$=" OF ": S$(1)="HEARTS": S$(2)="DIAMONDS"
41 S$(3)="CLUBS": S$(4)="SPADES"
50 PRINT: INPUT"NUMBER OF PLAYERS (1-5)": N
55 IFNC>INT(N)ORNC>10RN>5GOT050
70 FORI=1TO13: FORJ=1TO4: C(I,J)=0: NEXTJ, I
80 FORI=1TON+1: FORJ=1TO5: PC(I, J)=0: NEXTJ: SW(I)=0: NEXTI
81 PRINT"ENTER": : PRINT#5, "I N T ER PA1"
82 PRINT" YOUR": : PRINT#5, "Y U R PA1"
83 PRINT" BETS": : PRINT#5, "B EH T S PA"
85 FORI=1TO300: NEXT
90 PRINT: PRINT: FORI=1TON: PRINT: PRINT"PLAYER":
91 PRINT#5, "P L A ER PA1": PRINTI: : T=I+20: A$=""": GOSUB1671
100 INPUTW(I): IFW(I)>0ANDW(I)<501GOT0110
101 PRINT: PRINT"GET": : PRINT#5, "G EH1 T PA0"
102 PRINT" SERIOUS!!": : PRINT#5, "S ER I AH2 S"
105 PRINT: PRINT: PRINT#5, "PA1 PA1 PA1": PRINT"PLAYER": : GOT091
110 NEXT: FORI=1TO4: PRINT: NEXT
120 FORQ=1TON: FORI=1TO2: GOSUB1100: PC(Q, I1)=IC: GOSUB1000
130 NEXTI1: PRINT
140 GOSUB1200: IFT=21THENGOSUB1305: SW(Q)=1: GOT0300
186 IFI1=3THEN=20+Q: A$="PA1 P L A ER PA1": GOSUB1671
187 IFI1=3THENGOSUB1200: GOSUB1450
190 PRINT"PLAYER"Q: : INPUTC: IFCC<10RC>30RC<>INT(C)GOT0190
191 PRINT
200 IFC=10RC=3GOT0230
220 W(Q)=W(Q)*2: PRINT#5, "D D UH1 UH1 B L PA Y U R PA B EH T PA0"
230 IFC=1GOT0236
235 IFC=3THENPRINT#5, "S T A A1 Y Y1 PA1": GOT0300
236 PRINT#5, "P L A ER PA0 T A K S PA0 W UH3 UH2 UH2 N N PA0"
240 GOSUB1100: PC(Q, I1)=IC: GOSUB1000
260 GOSUB1200: GOSUB1450: IFT>21THENGOSUB1400: GOT0300
265 IFI1=5THENSW(Q)=1: PRINT#5, "PA1 A A1 PA1 W I N ER PA1": GOT0300
270 I1=I1+1: PRINT: GOT0190
300 FORI=1TO300: NEXT: PRINT: NEXTQ
302 DO=0: DW=0
303 FORI1=1TO2: GOSUB1100: PC(Q, I1)=IC: GOSUB1000: NEXT
304 GOSUB1200: IFT=21THENGOSUB1305: SW(Q)=1: GOT0700
306 PRINT#5, RIGHT$(B$, 12): GOSUB1450: T1=T
307 FORQ=1TON: GOSUB1200: IFT<=T10RT>21ANDSW(Q)=0THENDO=DO+W(Q): GOT0309
308 IFSW(Q)=0ANDDW=DW+W(Q)
309 NEXTQ: IFI1=6THENSW(N+1)=1: GOT0700
310 IFDW>0ANDT1<15GOT0325
316 IFC=1ANDDW<>0GOT0325
320 IFDO>DWORT1>18THENPRINT#5, B$+" S T A Y S PA0": GOT0690
325 PRINT#5, B$+" T A K S PA0 W UH3 UH2 UH2 N N PA0"
326 DO=0: DW=0
330 GOSUB1100: PC(Q, I1)=IC: GOSUB1000
340 GOSUB1200: GOSUB1450: IFT<22THENI1=I1+1: T1=T: GOT0307
350 GOSUB1400
690 REM
700 FORI=1TO5: PRINT: NEXT
710 FORI=1TON: H(I)=H(I)-W(I): NEXT
720 IFSW(I)=0GOT0726
721 PRINT#5, "H AH PA1 H AH PA1"
725 PRINT"THE HOUSE WINS (AGAIN)!!": GOT0790
726 PRINT"CONGRADULATIONS TO": : PRINT
730 S=0: FORI=1TON: IFSW(I)=0GOT0740
735 PRINT" PLAYER" I: H(I)=H(I)+W(I)*2: S=1
740 NEXT
750 Q=N+1: GOSUB1200: PT=T
760 FORQ=1TON: GOSUB1200: IFPT<22ANDT<PT+1GOT0770
761 IFT>21ORSW(Q)=1GOT0770
765 PRINT" PLAYER" Q: H(Q)=H(Q)+W(Q)*2: S=1
770 NEXT: IFS=0THENPRINT"THE HOUSE!": PRINT#5, "H AH PA1 H AH PA1"
790 PRINT: PRINT: PRINT
800 Q=N+1: GOSUB1200: PRINT"THE HOUSE HAD" T: PRINT: PRINT
810 FORQ=1TON: GOSUB1200
820 PRINT"PLAYER" Q, "Score" T, "WAGER" W(Q), "HOLDING" H(Q): NEXT
830 PRINT: PRINT: PRINT"Do": : PRINT#5, "D D U PA0"
831 PRINT" YOU": : PRINT#5, "Y U PA0"
832 PRINT" WANT": : PRINT#5, "W AH1 EH2 N T PA0"
833 PRINT" TO": : PRINT#5, "T OO OI PA0"
834 PRINT" CONTINUE": : PRINT#5, "K UH N PA T I N Y U"
835 INPUTY$: IFLEFT$(Y$, 1)="Y"GOT070

```

```

850 PRINT:PRINT"YOU ":"PRINT#5,"Y U1 U PA0"
855 PRINT"MAY ":"PRINT#5,"M A Y PA0"
856 PRINT"PAY ":"PRINT#5,"P A Y PA0"
860 PRINT"YOUR ":"PRINT#5,"Y U R R PA0"
865 PRINT"DEBTS ":"PRINT#5,"D EH T S S PA1"
870 PRINT"AT ":"PRINT#5,"AE T T PA0"
875 PRINT"THE ":"PRINT#5,"TH UH UH1 PA0"
880 PRINT"FRONT ":"PRINT#5,"F R AH1 N T PA0"
885 PRINT"DESK ":"PRINT#5,"D EH S K PA1 PA1"
886 PRINT", PLEASE! ":"PRINT#5,"P L E S PA0"
890 RUN"BEXEC*"
1000 PRINTC$:S$: $$<IS>:RETURN
1100 IC=INT(RND(1)*13)+1:IS=INT(RND(1)*4)+1
1110 IFIC<IC,IS)=1GOTO1100
1120 C<IC,IS)=1:C$=MID$(STR$(IC),2):IFIC=1THENC$="ACE"
1130 IFIC=11THENC$="JACK"
1140 IFIC=12THENC$="QUEEN"
1150 IFIC=13THENC$="KING"
1160 IFIC>10THENIC=10
1170 RETURN
1200 IC=0: T=0:FORI=1TO5:IFPC<Q, I>=1THENIC=IC+1
1210 T=T+PC<Q, I>:NEXT
1220 IFIC=0THENRETURN
1230 FORI=1TOIC:IFT+10>21THENRETURN
1240 T=T+10:NEXT:RETURN
1305 PRINT#5,"B L AH1 E2 K PA0 J J EH3 AH1 K PA0"
1310 PRINT:PRINT"BLACKJACK! ":"PRINT:RETURN
1400 PRINT#5,"B AH1 S T EH D":PRINT:PRINT"BUSTED! ":"PRINT:RETURN
1450 A$="SH SH O I1 NG PA1"
1455 ONT-1GOTO1470,1480,1490,1500,1510,1520,1530,1540,1550
1460 ONT-10GOTO1560,1570,1580,1590,1600,1610,1620,1630,1640
1465 ONT-19GOTO1670,1670,1670,1670,1670,1670,1670,1670,1670
1466 ONT-28GOTO1670,1770,1780,1790
1470 A$=A$+"T IU IU U1 U1 PA1":GOTO1800
1480 A$=A$+"TH TH R E Y PA1":GOTO1800
1490 A$=A$+"F O1 O1 R PA1":GOTO1800
1500 A$=A$+"F AH2 AH1 I3 Y V PA1":GOTO1800
1510 A$=A$+"S I I3 K PA0 S PA1":GOTO1800
1520 A$=A$+"S EH3 EH2 V EH2 N N PA1":GOTO1800
1530 A$=A$+"A2 A2 AY T PA1":GOTO1800
1540 A$=A$+"N AH1 EH2 Y N PA1":GOTO1800
1550 A$=A$+"T AE1 EH N PA1":GOTO1800
1560 A$=A$+"UH3 L EH1 V EH2 N PA1":GOTO1800
1570 A$=A$+"T W EH L V PA":GOTO1800
1580 A$=A$+"TH ER T E N PA":GOTO1800
1590 A$=A$+"F O1 R T E N PA":GOTO1800
1600 A$=A$+"F I V T E N PA":GOTO1800
1610 A$=A$+"S I1 K S T E1 E1 N":GOTO1800
1620 A$=A$+"S EH1 V EH3 N T E1 E1 N":GOTO1800
1630 A$=A$+"A1 AY Y1 T PA0 E1 E1 N PA":GOTO1800
1640 A$=A$+"N AH2 I3 Y N T E1 E1 N PA1":GOTO1800
1670 A$=A$+"T W EH1 N T E PA0"
1671 ONT-19GOTO1800,1680,1690,1700,1710,1720,1730,1740,1750,1760
1680 A$=A$+" W UH3 UH2 UH2 N N PA1":GOTO1800
1690 A$=A$+" T IU IU U1 U1 PA1":GOTO1800
1700 A$=A$+" TH TH R E Y PA1":GOTO1800
1710 A$=A$+" F O1 O1 R PA1":GOTO1800
1720 A$=A$+" F AH2 AH1 I3 Y V PA1":GOTO1800
1730 A$=A$+" S I I3 K PA0 S PA1":GOTO1800
1740 A$=A$+" S EH3 EH2 V EH2 N N PA1":GOTO1800
1750 A$=A$+" A2 A2 AY Y T PA1":GOTO1800
1760 A$=A$+" N AH1 EH2 Y N PA1":GOTO1800
1770 A$=A$+"TH ER T E PA1":GOTO1800
1780 A$=A$+"TH ER T E PA0 W UH3 UH2 UH2 N N PA1":GOTO1800
1790 A$=A$+"TH ER T E PA0 " :GOTO1470
1800 PRINT#5,A$:RETURN
2000 IFIC=10RC=3GOTO230

```

Telecom Test ---

This program should be used with C2-4P's and C2-8P's with the universal telephone interface option. (CA-15) to test and demonstrate the versatility of this comprehensive interface board.

```

1 REM TELCOM TEST PROGRAM
10 DIMN$(16),NS$(16),D$(16)
50 DATA 238, 222, 190, 237, 221, 189, 235, 219, 187, 215
52 DATA 231, 183, 126, 125, 123, 119
53 DATA 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, *, #, A, B, C, D
56 FORI=1TO16:READN$(I):NEXTI
57 FORI=1TO16:READNS$(I):NEXTI
100 A=63488:FORI=A TO A+STEP2:POKEI, 255:NEXTI
105 FORI=A+1TOA+7STEP2:POKEI, 0:NEXTI
110 DATA 63, 15, 248, 255
120 FOR I=A TO A+7STEP2:READB:POKE I, B:NEXTI
130 FORI=A+1TOA+7STEP2:POKEI, 6:NEXTI:POKE63494, 255
135 POKE 63496, 3:POKE 63496, 145:REM ACIA
140 PRINT"1 = ORIGINATE CALL PULSE DIALER
142 PRINT"2 = ORIGINATE CALL TONE DIALER
144 PRINT"3 = HANG UP"
145 PRINT"4 = DECODE TONE INPUTS"
146 PRINT"5 = END PROGRAM & HANG UP"
147 PRINT"6 = CALL NATIONAL WEATHER SERVICE"
148 PRINT"7 = CALL TIME SERVICE"
149 PRINT"8 = AUTO ANSWER MODE"
150 PRINT"9 = FORCE OFF HOOK AND YOUR FUNCTION"
200 INPUT"COMMAND":C
210 ON C GOTO 1000, 1000, 2000, 9000, 9999, 5000, 5050, 6000, 6000
220 GOTO 200
1000 REM ORIGINATE
1010 INPUT"NUMBER PLEASE":A$
1020 L=LEN(A$):E=1:POKE 63490, 0
1030 FORJ=1TO1
1040 FORI=1TO16:IF MID$(A$, J, 1)=NS$(I) THEN D$(J)=N$(I):E=0
1050 NEXTI:IF E=1 THEN GOTO 1010
1060 E=1:NEXTJ
1070 REM # IS NOW IN D(8) - D(15) - # OF DIGITS IN L
1080 POKE 63490, 1:REM OFF HOOK
1090 IF C=1 THEN POKE 63488, 30:REM PULSE DIAL
1100 IF C=2 THEN POKE 63488, 29:REM TONE DIAL
1110 REM WAIT 1 SECOND
1115 D=60:GOSUB8000
1120 REM BEGIN DIAL
1130 FORI=1TO1:POKE63494, D(I):D=1:GOSUB8000:POKE63494, 255:D=1
1160 GOSUB8000:NEXTI:GOTO140
2000 REM HANG UP PHONE
2010 GOSUB 9090:GOTO140
5000 A$="3111212":C=2:GOT01020
5050 A$="4711212":C=2:GOT01020
6000 REM ANSWER MODE
6010 PRINT"3 = TAPE REC."
6015 PRINT"4 = MODEM RCV."
6020 PRINT"5 = TONE DECODER"
6030 INPUT"YOUR INPUT FUNCTION":R
6060 PRINT"8 = NO OUTPUT"
6065 PRINT"1 = VOTRAX OUTPUT"
6070 PRINT"2 = AUX OUTPUT"
6075 PRINT"3 = TAPE PLAYER OUTPUT"
6080 PRINT"4 = MODEM OUTPUT"
6090 PRINT"5 = TONE GEN. OUTPUT"
6094 INPUT"OUTPUT FUNCTION":X
6100 POKE 63488, ((R*8)+X)
6105 IF C>8 THEN GOTO 6120
6110 Z=PEEK(63488):Z=ZAND128:IF Z=0 THEN 6110
6120 GOSUB 9080
6130 IF R=3 GOTO 140
6132 IF R=4 THEN PRINT"INSERT YOUR MODEM PROGRAM":GOT0140
6134 IF R=5 GOTO 9001
6140 GOTO 6010
8000 FORT=1TO1:WAIT 56832, 128, 128:WAIT 56832, 128:NEXTT:RETURN
9000 GOSUB 9080:POKE 63488, 45
9001 PRINT:PRINT:PRINT"PRESS (#) TO EXIT THIS MODE & HANG UP"
9005 Z=PEEK(63493):Z=ZAND128:IF Z>0 THEN 9020
9010 GOTO9005
9020 F=PEEK(63492) AND 15:REM GET DATA AND RESET FLAG
9030 PRINT"YOU PRESSED "; NS$(F):IF NS$(F)="##" THEN GOSUB9090:GOT0140
9040 GOTO9005
9080 POKE 63490, 1:RETURN:REM LIFT HOOK
9090 POKE 63490, 0:RETURN
9999 POKE 63490, 0:END

```

Little Guy ---

This program will run on any graphics machine except the C1P with color (optional tone generator). Using keys 1-4 you move a little man around the screen trying to find the door.

```

5 C=3
10 LS=50 :REM LOW WHOOP
12 HS=100 :REM HIGH WHOOP
14 SS=2 :REM WHOOP STEP
16 OK=192 :REM GUY MUST MOVE!!!! ON START
20 DEF FNR(X)=INT(X*RND(SD))
30 INPUT"INPUT SEED";SD
30 GOTO 100
33 POKE 2073,173 : POKE 56832,1 : END
100 FORL=0T035:PRINT:NEXTL
150 POKE56832,4
200 A=4096
/300 BL=14
400 FORL=53248T055295:POKEL+A,BL:NEXTL
500 GOSUB30000:REM *** MAKE A RANDOM DOOR ***
600 GOSUB30100:REM *** MAKE A LITTLE GUY ***
700 GOSUB31000:REM *** LET THE USER MOVE
800 END
29999 REM*** RANDOM DOOR ***
30000 DX=FNR(32)
30010 DY=FNR(32)
30020 RD=53248+DY*64+DX
30030 POKERD+A,C
30050 RETURN
30099 REM*** LITTLE GUY ***
30100 GX=FNR(32)
30110 GY=FNR(32)
30120 LG=53248+GY*64+GX
30130 IF LG=RD THEN 30100
30140 POKELG,240
30150 RETURN
30200 REM*** MOVE LITTLE GUY UP(1) ***
30210 POKE LG,32
30220 IF GY<>0 THEN 30230
30222 GY=31
30224 LG=LG+1984
30226 POKELG,240
30228 RETURN
30230 GY=GY-1
30240 LG=LG-64
30250 POKELG,240
30260 RETURN
30300 REM*** MOVE LITTLE GUY DOWN(5) ***
30310 POKE LG,32
30320 IF GY<>31 THEN 30330
30322 GY=0
30324 LG=LG-1984
30326 POKELG,240
30328 RETURN
30330 GY=GY+1
30340 LG=LG+64
30350 POKELG,240
30360 RETURN
30400 REM*** MOVE LITTLE GUY RIGHT(3) ***
30410 POKE LG,32
30420 IF GX<>31 THEN 30430
30422 GX=0
30424 LG=LG-31
30426 POKE LG,240
30428 RETURN
30430 GX=GX+1
30440 LG=LG+1
30450 POKELG,240
30460 RETURN
30500 REM*** MOVE LITTLE GUY LEFT(7) ***
30510 POKELG,32
30520 IF GX<>0 THEN 30530
30522 GX=31
30524 LG=LG+31
30526 POKELG,240
30528 RETURN
30530 GX=GX-1
30540 LG=LG-1
30550 POKELG,240
30560 RETURN
30600 REM*** MOVE LITTLE GUY UP+RIGHT(2)
30610 POKELG,32
30620 IF GY<>0 THEN 30630
30622 GY=31
30623 GX=GX+1
30624 LG=LG+1985
30626 IF GX=31 THEN 30632
30628 POKELG,240
30629 RETURN
30630 IF GX<>31 THEN 30640
30631 GY=GY-1
30632 GX=0
30634 LG=LG-95
30636 POKELG,240
30638 RETURN
30640 GX=GX+1
30650 GY=GY-1
30660 LG=LG-63
30670 POKELG,240
30680 RETURN
30700 REM*** MOVE LITTLE GUY DOWN+LEFT(6)
30710 POKELG,32
30720 IF GY<>31 THEN 30730
30722 GY=0
30724 GX=GX-1
30726 LG=LG-1985
30727 IF GX=0 THEN 30732
30728 POKELG,240
30729 RETURN
30730 IF GX<>0 THEN 30740
30731 GY=GY+1
30732 GX=31
30734 LG=LG+95
30736 POKELG,240
30738 RETURN
30740 GX=GX-1
30750 GY=GY+1
30760 LG=LG+63
30770 POKELG,240
30780 RETURN

```

```

30800 REM*** MOVE LITTLE GUY DOWN+RIGHT(4
30810 POKE LG,32
30820 IF GY<>31 THEN 30830
30822 GY=0
30823 GX=GX+1
30824 LG=LG-1983
30826 IF GX=31 THEN 30832
30828 POKE LG,240
30829 RETURN
30830 IF GX<>31 THEN 30840
30831 GY=GY+1
30832 GX=0
30834 LG=LG+33
30836 POKE LG,240
30838 RETURN
30840 GX=GX+1
30850 GY=GY+1
30854 LG=LG+65
30870 POKE LG,240
30880 RETURN
30900 REM*** MOVE LITTLE GUY UP+LEFT(8)
30910 POKE LG,32
30920 IF GY<>0 THEN 30930
30922 GY=31
30923 GX=GX-1
30924 LG=LG+1983
30926 IF GX=0 THEN 30932
30928 POKE LG,240
30929 RETURN
30930 IF GX<>0 THEN 30940
30931 GY=GY-1
30932 GX=31
30934 LG=LG-33
30936 POKE LG,240
30938 RETURN
30940 GX=GX-1
30950 GY=GY-1
30960 LG=LG-65
30970 POKE LG,240
30980 RETURN
31000 REM*** POLL KEYBOARD ***
31005 J=FNR(8)+1
31010 POKE2073,96:REM*** NO TC ***
31020 KB=57088:R1=128
31025 UP=128: DO=32: LT=16: RT=64
31027 UR=192: UL=144:DR=96: DL=48
31030 POKE KB,R1
31040 K=PEEK(KB)
31050 IF K=UP THEN 31200
31060 IF K=UR THEN 31210
31070 IF K=RT THEN 31220
31080 IF K=DR THEN 31230
31090 IF K=DO THEN 31240
31100 IF K=DL THEN 31250
31110 IF K=LT THEN 31260
31120 IF K=UL THEN 31270
31125 IF K=2 THEN 99
31140 K=OK : GOTO 31050
31200 GOSUB30200
31202 GOTO 31300
31210 GOSUB30600
31212 GOTO 31300
31220 GOSUB 30400
31222 GOTO 31300
31230 GOSUB 30800
31232 GOTO 31300
31240 GOSUB 30300
31242 GOTO 31300
31250 GOSUB 30700
31252 GOTO 31300
31260 GOSUB 30500
31262 GOTO 31300
31270 GOSUB 30900
31300 OK=K : REM SAVE OLD DIRECTION
31305 IF LG>RD THEN 31030
31310 POKE2073,173:REM** TC WORKS!!! **
31320 REM** MAKE A WHOOP FOR FINDING DOOR
31330 POKE 56832,6
31340 POKE57089,0
31350 FOR I=1 TO 5
31360 FOR J=LS TO HS STEP SS
31370 POKE57089,J
31380 NEXT J
31390 FOR J=HS TO LS STEP -SS
31400 POKE 57089,J
31410 NEXT J
31420 NEXT I
31430 POKE56832,4
31440 FOR J=1 TO 300:NEXT J
31450 POKE RD+A,BL
31460 GOSUB30000
31465 POKE 2073,96:REM** NO TC AGAIN!! **
31470 GOTO31300
40000 RETURN

```

COPIER ----

This program will run on any disk based machine with a polled keyboard except the C1P. It will copy all tracks except track 0. Place new disk into the drive, and initialize it. Take out the initialized disk and place the master into the drive while copier is in memory. Run the copier. Depress the space bar when "OLD DISK" appears on the screen and the screen will fill with the contents of that track. Now, remove the master disk and place new disk into the drive. Depress the space bar and "OLD DISK" will appear again. Replace new disk with the master and repeat procedure until program runs to completion. After copying tracks 1-39 for 5" floppies (or 1-76 for 8" floppies), you must copy track 0 as follows. First type "EXIT" and A* will appear. Type "CA 0200=13,1" for 5 inch floppies or "CA 0200=01,2" for 8 inch floppies followed by RETURN and A* will reappear. Type "GO 0200" followed by RETURN. Type "2", then RETURN. Type "R4200", then RETURN while the master disk is in the drive. Remove the master disk from the drive and replace it with the new disk. Type "W4200/2200,8", then RETURN. Exit and depress the BREAK key and then "D". NOTE:copy drive A to drive A if you have are using a one drive system.

```
1 FORI=1TO30:PRINT:NEXT
2 POKE2073,96
5 PRINT"COPIER"
6 PRINT:PRINT"Copies All Tracks Except Zero"
7 GOSUB1000
10 DISK!B$
20 FORI=A+100TOB+100
25 Z$=RIGHT$(STR$(I),2)
26 GOSUB5000
27 FORJ=1TOX
28 P$=RIGHT$(STR$(J),1)
30 A$="CA D000-"+Z$+", "+P$
40 DISK!A$
45 IFC$=B$THENPOKE57088,2:F=PEEK(57088):IFF<>16THEN45
50 DISK!C$
60 A$="SA "+Z$+", "+P$+"=D000/"+X$(J)
70 DISK!A$
75 PRINT"***** OLD DISK *****"
76 IFC$=B$THENPOKE57088,2:F=PEEK(57088):IFF<>16THEN76
80 DISK!B$
90 NEXTJ,I
100 END
1000 PRINT:PRINT
1010 INPUT"COPY FROM DRIVE";B$
1020 IFB$<>"A"ANDB$<>"B"ANDB$<>"C"ANDB$<>"D"THEN1010
1030 INPUT"COPY TO DRIVE";C$
1040 IFC$<>"A"ANDC$<>"B"ANDC$<>"C"ANDC$<>"D"THEN1030
1045 B$="SE "+B$:C$="SE "+C$
1050 PRINT:PRINT
1060 INPUT"FROM TRACK";A
1065 IFA>390RA<10RA<INT(A)THEN1060
1070 INPUT"TO TRACK";B
1075 IFB>390RB<00RB<INT(B)THEN1070
1080 IFA>BTHEN1050
1090 PRINT"***** OLD DISK *****"
1100 INPUT"READY":Q$:IFLEFT$(Q$,1)<>"Y"THENRUN
2000 RETURN
5000 DISK!"DIR "+Z$
5100 X=VAL(CHR$(PEEK(55106)))
5200 FORJ=0TOX:X$(J+1)=CHR$(PEEK(55109-J*64)):NEXT
5300 RETURN
```

PROGRAM CONVERSIONS ----

The ASCII keyboard is located at the address 57343 in memory. Note, the polled keyboard is located at the address 57088. First, look through the program for all variables being assigned a value by PEEKing this location. The PEEK is usually followed by comparisons with that variable to determine which key was depressed. The two things that will differ in programs written for ASCII keyboards and polled keyboards are, the keyboard is at a different address in memory and the comparison values are different. Here are some conversions from ASCII to polled done with the help of "The Challenger Character Graphics Reference Manual".

100 Q=PEEK(57343)

200 IF Q=177 THEN 500

This is a sample of two lines from a program written for ASCII keyboards. You must now subtract 128 from the comparison value (this is a hardware consideration).

177-128=49

/ 49 is the ASCII value for a "1" (i.e., ASC("1")=49), so the program is looking for a "1" to be depressed on the keyboard. Using page 11 of the character graphics manual, the code modified for polled keyboards becomes:

100 POKE57088,128 : Q=PEEK(57088)

200 IF Q=128 THEN 500

EXAMPLE #2

ASCII program:

100 Q=PEEK(57343)

200 IF Q=212 THEN X=1

300 IF Q=198 THEN X=2

SUBTRACT:

212-128=84 ASC("T")=84 (looking for a "T")

198-128=70 ASC("F")=70 (looking for an "F")

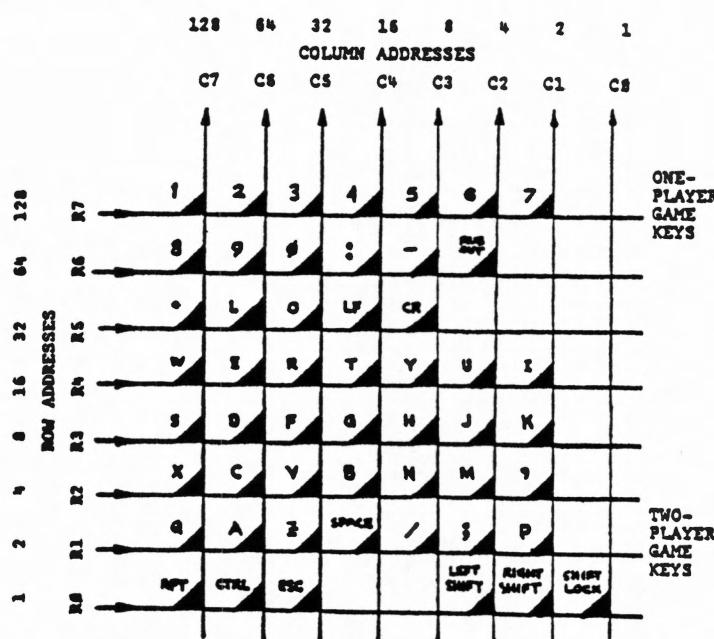
POLLED program:

100 POKE57088,16 : Q=PEEK(57088)

200 IF Q=16 THEN X=1

210 POKE57088,8 : Q=PEEK(57088)

300 IF Q=32 THEN X=2



USR(X) FOR COLOR BACKGROUND ----

This is a BASIC program that sets up an ASSEMBLER subroutine under the USR(X) function. The subroutine changes the background color of the entire screen. Note, if a disk system is not used then the BASIC code; DISK!"CA 4FDO=36,1"; must be removed from the program.

To save the assembler program (created by this BASIC program) on disk, type DISK!"SA 36,1=4FDO/1" after running the program. This will let you call the program from disk in any other BASIC program by the command DISK!"CA 4FDO=36,1" instead of running this BASIC code.

Use the following code in BASIC (after the assembler program is loaded into memory) to execute the assembler routine. NOTE: this must be done after the subroutine is in memory.

POKE8955,208:POKE8956,79

This is the high and low addresses to tell the computer where the USR(X) function is located in memory.

/ POKE20433,(your color choice, 0-16)

This is your choice of color background.

X=USR(X)

This is the BASIC command for jumping to an assembler subroutine specified by the previous POKEs.

```
100 FORI=20432TO20473:READX:POKEI,X:NEXT  
200 DATA162,14,169,0,141,242,79,169,224,141,243,79,173,242,79  
210 DATA24,185,1,141,242,79,173,243,79,185,0,141,243,79,201,232  
220 DATA240,6,142,0,224,76,220,79,96,0,2
```

MEMORY TEST ---

The following memory test is written for 4 and 8K BASIC in ROM machines. By changing lines 0 and 1 the program is easily adapted to your particular requirements. This program should be run anytime your computer "acts funny" as a quick diagnostic.

```
0 Y=8191  
1 INPUT"4 OR 8K";K:IFK=4THENY=4095  
2 P=1025  
5 Q=255  
10 FORX=PTOY  
12 POKEX,Q  
13 NEXTX  
20 FORX=PTOY  
22 Z=PEEK(X)  
23 IFZ<>QTHENGOSUB100  
25 NEXTX:PRINT" PASS USING ";Q  
26 IFQ=0THENS  
30 Q=0:GOTO10  
100 PRINT"LOCATION";X;"WAS";Z;"NOT";Q:RETURN
```

Mini-Floppy Disk DirectoryFull Size Floppy Disk Directory

OS-65D VERSION 3.0
-- DIRECTORY --

FILE NAME	TRACK RANGE
OS65D3	0 - 12
BEXEC*	14 - 14
CHANGE	15 - 16
CREATE	17 - 19
DELETE	20 - 20
DIR	21 - 21
DIRSRT	22 - 22
RANLST	23 - 24
RENAME	25 - 25
SECDIR	26 - 26
SEQLST	27 - 28
TRACE	29 - 29
ZERO	30 - 31
ASAMPL	32 - 32

50 ENTRIES FREE OUT OF 64

OS-65D VERSION 3.0
-- DIRECTORY --

FILE NAME	TRACK RANGE
OS65D3	0 - 8
BEXEC*	9 - 9
CHANGE	10 - 10
CREATE	13 - 14
DELETE	15 - 15
DIR	16 - 16
DIRSRT	17 - 17
RANLST	18 - 19
RENAME	20 - 20
SECDIR	21 - 21
SEQLST	22 - 23
TRACE	24 - 24
ZERO	25 - 26
ASAMPL	27 - 27

50 ENTRIES FREE OUT OF 64

```

10 REM BASIC EXECUTIVE
20 REM
24 REM SETUP INFLAG & OUFLAG FROM DEFAULT
25 X=PEEK(10950): POKE 8993,X: POKE 8994,X
30 PRINT : PRINT "BASIC EXECUTIVE FOR OS-65D VERSION 3.0" : PRINT
40 PRINT "13 OCT 1978 RELEASE"
100 PRINT
110 PRINT "FUNCTIONS AVAILABLE:"
120 PRINT " CHANGE - ALTER WORKSPACE LIMITS"
130 PRINT " DIR - PRINT DIRECTORY"
140 PRINT " UNLOCK - UNLOCK SYSTEM FROM END USER MODIFICATIONS"
10000 REM
10010 REM UNLOCK SYSTEM
10020 REM
10030 REM REPLACE "NEW" AND "LIST"
10040 POKE 741,76 : POKE 750,78
10050 REM
10060 REM ENABLE CONTROL-C
10070 POKE 2073,173
10080 REM
10090 REM DISABLE "REDO FROM START"
10100 POKE 2893,55 : POKE 2894,8
10110 PRINT : PRINT "SYSTEM OPEN" : END

```

```

10 REM CHANGE PARAMETER UTILITY UNDER OS-65D VERSION 3.0
20 REM
30 PRINT : PRINT "CHANGE PARAMETER UTILITY" : PRINT
35 GOSUB 1000 : REMARK DO EVERYTHING ELSE FIRST
36 PRINT : INPUT "CHANGE BASIC'S WORKSPACE LIMITS (Y/N)": A$
37 IF A$<>"Y" THEN END
40 INPUT "HOW MANY 12 PAGE BUFFERS DO YOU WANT BEFORE THE WORKSPACE": B
50 IF B<0 OR B>2 THEN PRINT "ANSWER 0, 1, OR 2" : GOTO 40
60 L=12670+B*3072 : REM L=$317E PLUS B*$C00
70 IF B<0 THEN 130
80 INPUT "WANT TO LEAVE ANY ROOM BEFORE THE WORKSPACE": A$
90 IF MID$(A$,1,1)<>"Y" THEN 170
100 INPUT "HOW MANY BYTES": B
110 L=L+B
120 GOTO 170
130 INPUT "WANT TO LEAVE ANY ADDITIONAL ROOM": A$
140 IF MID$(A$,1,1)<>"Y" THEN 170
150 INPUT "HOW MANY BYTES": B
160 L=L+B
170 PRINT:PRINT "THE BASIC WORKSPACE WILL BE SET TO START AT":L
180 PRINT "LEAVING":L-12670;"BYTES FREE IN FRONT OF THE WORKSPACE"
190 INPUT "IS THAT ALRIGHT": A$
200 IF MID$(A$,1,1)="Y" THEN 210
204 INPUT "NEW LOWER LIMIT":L : IF L<12670 THEN 204
206 PRINT L-12670;"BYTES WILL BE FREE BEFORE THE WORKSPACE"
210 MP=PEEK(8960)
220 PRINT:PRINT "YOU HAVE": (MP+1)/4;"K OF RAM"
230 U=(MP+1)*256
240 INPUT "DO YOU WANT TO LEAVE ANY ROOM AT THE TOP": A$
250 IF MID$(A$,1,1)<>"Y" THEN 280
260 INPUT "HOW MANY BYTES": B
270 U=U-B
280 PRINT:PRINT "THE BASIC WORKSPACE WILL BE SET TO END AT":U
290 PRINT "LEAVING":(MP+1)*256-U;"BYTES FREE AFTER THE WORKSPACE"
300 INPUT "IS THAT ALRIGHT": A$
310 IF MID$(A$,1,1)="Y" THEN 320
312 INPUT "NEW UPPER LIMIT": U : IF U>49152 OR U<L+3 THEN 312
314 PRINT (MP+1)*256-U;"BYTES WILL BE FREE AFTER THE WORKSPACE"
320 PRINT:PRINT "YOU WILL HAVE":U-L+1;"BYTES FREE IN THE WORKSPACE"
330 INPUT "IS THAT ALRIGHT": A$
340 IF MID$(A$,1,1)<>"Y" THEN RUN
350 REM
360 REM NOW DO THE ADJUSTMENTS
370 REM
380 POKE132,U-INT(U/256)*256:POKE133,INT(U/256)
390 POKE120,L+1-INT((L+1)/256)*256:POKE121,INT((L+1)/256):POKE1,0:NEW
1000 REM
1010 REM
1020 PRINT "THE TERMINAL WIDTH IS SET FOR":PEEK(23)
1030 INPUT "DO YOU WANT TO CHANGE IT (Y/N)": A$
1040 IF A$<>"Y" THEN 1100
1050 INPUT "NEW VALUE": WD
1060 IF WD<14 OR WD>255 THEN PRINT "BAD VALUE" : GOTO 1050
1070 POKE 23,WD
1080 NC=INT(WD/14)-1)*14
1090 POKE 24,NC
1100 PRINT : PRINT "BASIC & THE ASSEMBLER USE": (PEEK(8960)+1)/4;
1110 PRINT "K WORKSPACES (",PEEK(8960); "PAGES"
1120 INPUT "WOULD YOU LIKE TO CHANGE THIS (Y/N)": A$
1130 IF A$<>"Y" THEN 1170
1140 INPUT "HOW MANY PAGES SHOULD THEY USE": KK
1150 IF KK<50 OR KK>191 THEN PRINT "BAD VALUE" : GOTO 1140
1160 POKE 8960,KK
1170 RETURN

```

```

10 REM FILE CREATE UTILITY OF OS-65D VERSION 3.0
20 REM
40 REM EXECUTE:
50 REM
100 REM 3D7E A000    ZERO    LDY #0
110 REM 3D80 A20C    LDX #12
120 REM 3D82 98      TYA
130 REM 3D83 997E31 ONE    STA $317E,Y
140 REM 3D86 C8      INY
150 REM 3D87 D0FA    BNE ONE
160 REM 3D89 EE853D    INC ONE+2
170 REM 3D8C CA      DEX
180 REM 3D8D D0F4    BNE ONE
190 REM 3D8F 60      RTS
200 REM
230 DATA 160,0,162,12,152,153,126,49,200,208,250
240 DATA 238,133,61,202,208,244,96
250 FORI=15742T015759:READD:POKEI,D:NEXT
280 POKE8955,126:POKE8956,61:X=USR(X):POKE8955,212:POKE8956,34
320 PRINT:PRINT"FILE CREATION UTILITY":PRINT
330 PN=11897
335 INPUT"PASSWORD":A$:IF A$<>"PASS"THENEND
337 PRINT
340 DEF FNA(X)=16*INT(X/10)+X-10*INT(X/10)
350 DEF FNB(X)=18*INT(X/16)+X-16*INT(X/16)
360 DATA 1,2,3,4,5,6,7,8,9,A,B,C
370 PRINT "CREATES AN ENTRY IN DIRECTORY FOR A NEW FILE"
380 PRINT "AND INITIALIZES THE TRACKS THAT THE NEW FILE WILL"
390 PRINT "RESIDE ON. THE TRACKS WILL CONTAIN NULLS WITH A"
400 PRINT "RETURN AT THE END OF THE TRACK."
410 PRINT
420 INPUT"FILE NAME":A$
430 IF LEN(A$)>6 THEN 410
440 IF LEN(A$)<6 THEN A$=A$+" ":GOTO 440
450 IF MID$(A$,1,1)<"A" OR MID$(A$,1,1)>"Z" THEN 420
460 REM CHECK ALLOCATION + WATCH FOR NEW NAME
490 DIM AL%(76)
500 FORI=0T076:AL%(I)=0:NEXT
510 DISK!"CA 2E79=08,2":GOSUB10000
520 DISK!"CA 2E79=08,1":GOSUB10000
530 REM
540 REM FIND FREE ENTRY IN DIRECTORY
560 GOSUB 20000
570 IF FL=1 THEN DISK!"SA 08,1=2E79/1":END
580 DISK!"CA 2E79=08,2":GOSUB10000
590 IF FL=1 THEN DISK!"SA 08,2=2E79/1":END
600 PRINT"** DIRECTORY FULL **":END
10000 REM
10010 REM SUBROUTINE USED BY ALLOCATION CHECKER
10030 FOR I=PN+6 TO PN+254 STEP 8
10040 IF PEEK(I-6)=35 THEN 10100
10050 C$="":FORK=1T06:C$=C$+CHR$(PEEK(I-7+K)):NEXTK:IF C$<>A$THEN10090
10080 PRINT"** FILE NAME ";CHR$(34);A$;CHR$(34);" IN USE **":RUN
10090 T0=FNB(PEEK(I)) : T9=FNB(PEEK(I+1))
10095 FORK=T0TOT9:AL%(K)=-1:NEXTK
10100 NEXT I
10110 RETURN
20000 REM
20010 REM SUBROUTINE USED TO ENTER NEW NAME INTO DIRECTORY

```

```

20030 FOR I=PN TO PN+248 STEP 8
20040 IF PEEK(I)=35 THEN 20080
20050 NEXT I
20060 FL=0:RETURN
20080 PRINT : INPUT "FIRST TRACK OF FILE":T0
20090 IF T0<9 OR T0>76 THEN 20080
20100 INPUT "NUMBER OF TRACKS IN FILE":NT
20110 IF NT<1 OR NT>68 THEN 20100
20115 T9=T0+NT-1
20120 FK=0
20130 FOR K=T0 TO T9
20140 IF ALX(K) THEN PRINT "*** TRACK":K;" IN USE ***":FK=1
20150 NEXT K
20160 IF FK<>0 THEN RUN
20170 PG=12
20180 INPUT "12 PAGES PER TRACK. IS THIS OK":B$
20190 IF MID$(B$,1,1)="Y" THEN 20220
20200 INPUT "HOW MANY PAGES PER TRACK THEN":PG
20210 IF PG<>12 THEN PRINT:PRINT"NOTE: ALL DEFAULTS ARE SET FOR 12 PAGES!"
20220 FOR J=0 TO 5:POKE I+J,ASC(MID$(A$,J+1,1)):NEXT J
20250 POKE I+6,FNA(T0):POKE I+7,FNA(T9)
20260 FOR I=1 TO PG:READ P$:NEXT I
20270 FOR I=T0 TO T9
20280 T$=RIGHT$(STR$(I+100),2)
20290 DISK!"IN "+T$ : DISK!"SA "+T$+",1=317E//"+P$
20310 NEXT I
20320 FL=1:RETURN

```

```

10 REM DELETE FILE UTILITY UNDER OS-65D VERSION 3.0
20 REM
30 PRINT:PRINT"DELETE UTILITY":PRINT
32 PRINT "REMOVES AN ENTRY FROM THE DIRECTORY":PRINT
33 INPUT "PASSWORD":A$ : IF A$<>"PASS" THEN END
34 PRINT
35 FLAG=0 : PN=11897
40 INPUT "FILE NAME":A$
45 IF LEN(A$)>6 THEN 40
47 IF LEN(A$)<6 THEN A$=A$+" " : GOTO 47
50 DISK ! "CALL 2E79=08,1"
60 GOSUB 10000 : IF FLAG=1 THEN DISK ! "SAVE 08,1=2E79/1" : END
70 DISK ! "CALL 2E79=08,2"
80 GOSUB 10000 : IF FLAG=1 THEN DISK ! "SAVE 08,2=2E79/1" : END
90 PRINT "*** ",CHR$(34);A$;CHR$(34);" NOT FOUND IN DIRECTORY ***" : PRINT
100 END
10000 REM
10010 REM SEE IF FILE NAME A$ IS IN DIRECTORY BUFFER
10020 REM
10030 FOR I=PNT TO PN+248 STEP 8
10040 FOR J=I TO I+5
10050 IF PEEK(J)<>ASC(MID$(A$,J-I+1,1)) THEN 10100
10060 NEXT J
10070 FOR J=I TO I+5 : POKE J,ASC("#") : NEXT J
10080 POKE I+6,0 : POKE I+7,0
10090 FLAG=1 : RETURN
58 10100 NEXT I
10110 FLAG=0 : RETURN

```

```
10 REM DIRECTORY UTILITY FOR OS-65D VERSION 3.0
20 REM
30 NF=0
40 PN=11897
50 DEF FNA(X)=10*INT(X/16)+X-16*INT(X/16)
80 DV=1 : Y=1 : X=PEEK(8994)
90 IF X<Y THEN 110
100 DV=DV+1 : Y=Y+Y : GOTO 90
110 PRINT "LIST ON LINEPRINTER INSTEAD OF DEVICE #";DV;
120 INPUT A$
130 IF MID$(A$,1,1)="Y" THEN DV=4
10000 REM
10010 REM PRINT A DIRECTORY OUT
10020 REM
10030 PRINT #DV : PRINT #DV, "OS-65D VERSION 3.0"
10035 PRINT #DV, " -- DIRECTORY --" : PRINT #DV
10040 PRINT #DV, "FILE NAME TRACK RANGE"
10050 PRINT #DV, "-----"
10060 DISK ! "CALL 2E79=08,1"
10070 GOSUB 11000
10080 DISK ! "CALL 2E79=08,2"
10090 GOSUB 11000
10130 PRINT #DV : PRINT #DV,NF; "ENTRIES FREE OUT OF 64" : PRINT #DV
10140 END
11000 REM
11010 REM READ DIRECTORY OUT OF BUFFER INTO ARRAYS
11020 REM
11040 FOR I=PN TO PN+248 STEP 8
11050 IF PEEK(I)=35 THEN NF=NF+1 : GOTO 11130
11060 N$=""
11070 FOR J=I TO I+5
11080 N$=N$+CHR$(PEEK(J))
11090 NEXT J
11100 PRINT #DV,N$:TAB(12):FNA(PEEK(I+6)):TAB(16):"-";
11110 PRINT #DV,TAB(17):FNA(PEEK(I+7))
11130 NEXT I
11140 RETURN
```

```

10 REM SORTED DIRECTORY UTILITY FOR OS-65D VERSION 3.0
20 REM
30 NF=0
40 PN=11897
50 DEF FNA(X)=10*INT(X/16)+X-16*INT(X/16)
60 DIM NM$(64), T0%(64), T9%(64)
70 AV=0
80 DV=1 : Y=1 : X=PEEK(8994)
82 IF X<Y THEN 86
84 DV=DV+1 : Y=Y+Y : GOTO 82
86 PRINT: PRINT "SORTED DIRECTORY UTILITY": PRINT
90 INPUT "SORTED BY NAME OR TRACK (N/T)", Z$
95 PRINT "LIST ON LINEPRINTER INSTEAD OF DEVICE #"; DV;
96 INPUT A$ : IF MID$(A$, 1, 1)="Y" THEN DV=4
100 IF Z$="N" OR Z$="T" THEN 10000
110 PRINT "THEN IT WILL BE UNSORTED"
10000 REM
10010 REM PRINT A DIRECTORY OUT
10020 REM
10030 PRINT #DV : PRINT #DV, "OS-65D VERSION 3.0"
10035 PRINT #DV, " -- DIRECTORY --" : PRINT #DV
10040 PRINT #DV, "FILE NAME TRACK RANGE"
10050 PRINT #DV, -----
10060 DISK ! "CALL 2E79=08, 1"
10070 GOSUB 11000
10080 DISK ! "CALL 2E79=08, 2"
10090 GOSUB 11000
10095 IF Z$="N" THEN GOSUB 20000
10097 IF Z$="T" THEN GOSUB 21000
10100 FOR I=0 TO AV-1
10110 PRINT #DV, NM$(I); TAB(12); T0%(I); TAB(16); "-"; TAB(17); T9%(I)
10120 NEXT I
10130 PRINT #DV : PRINT #DV, 64-AV; "ENTRIES FREE OUT OF 64" : PRINT #DV
10140 END
11000 REM
11010 REM READ DIRECTORY OUT OF BUFFER INTO ARRAYS
11020 REM
11030 FOR I=PN TO PN+248 STEP 8
11035 IF PEEK(I)=35 THEN 11130
11060 N$=CHR$(PEEK(I))+CHR$(PEEK(I+1))+CHR$(PEEK(I+2))+CHR$(PEEK(I+3))
11070 NM$(AV)=N$+CHR$(PEEK(I+4))+CHR$(PEEK(I+5))
11100 T0%(AV)=FNA(PEEK(I+6))
11110 T9%(AV)=FNA(PEEK(I+7))
11120 AV=AV+1
11130 NEXT I
11140 RETURN
20000 REM
20010 REM SORT DIRECTORY BY NAME
20015 REM (SHELL METZNER SORT)
20020 REM
20022 M=AV-1
20025 M=INT(M/2)
20030 IF M=0 THEN RETURN
20032 J=0 : K=AV-1-M
20040 I=J
20050 L=I+M
20070 IF NM$(I)<NM$(L) THEN 20120
20080 T$=NM$(I): NM$(I)=NM$(L): NM$(L)=T$
20090 T% =T0%(I): T0%(I)=T0%(L): T0%(L)=T%
20100 T% =T9%(I): T9%(I)=T9%(L): T9%(L)=T%
20105 I=I-M
20110 IF I>=0 THEN 20050
20120 J=J+1
20130 IF J>K THEN 20025
20140 GOTO 20040
21000 REM
21010 REM SORT DIRECTORY BY TRACK
21020 REM
21022 M=AV-1
21025 M=INT(M/2)
21030 IF M=0 THEN RETURN
21032 J=0 : K=AV-1-M
21040 I=J
21050 L=I+M
21070 IF T0%(I)<T0%(L) THEN 21120
21080 T$=NM$(I): NM$(I)=NM$(L): NM$(L)=T$
21090 T% =T0%(I): T0%(I)=T0%(L): T0%(L)=T%
21100 T% =T9%(I): T9%(I)=T9%(L): T9%(L)=T%
21105 I=I-M
21110 IF I>=0 THEN 21050
21120 J=J+1
21130 IF J>K THEN 21025
21140 GOTO 21040

```

```

10 REM RANDOM ACCESS FILE LIST UTILITY UNDER OS-65D VERSION 3.0
20 REM
30 PRINT : PRINT "RANDOM ACCESS FILE READ" : PRINT
40 INPUT "FILE NAME"; N$
50 IF LEN(N$)>6 THEN 40
70 DISK OPEN, 6, N$
75 INPUT "EXAMINE SINGLE RECORDS OR GROUPS (S/G)"; R$
77 IF R$="G" THEN 200
78 IF R$<>"S" THEN 75
80 PRINT : INPUT "RECORD NUMBER"; R
90 DISK GET, R
100 INPUT #6, A$
110 PRINT : PRINT A$
120 GOTO 80
200 PRINT : INPUT "FIRST RECORD"; R0
210 INPUT "LAST RECORD"; R9
220 IF R9<R0 THEN 200
230 FOR R=R0 TO R9
240 DISK GET, R
250 INPUT #6, A$
260 PRINT : PRINT A$
270 NEXT R
280 GOTO 75

```

```

10 REM RENAME FILE UTILITY UNDER OS-65D VERSION 3.0
20 REM
30 PRINT : PRINT "RENAME UTILITY" : PRINT
35 FLAG=0 : PN=11897
40 INPUT "OLD NAME"; A$
45 IF LEN(A$)>6 THEN 40
47 IF LEN(A$)<6 THEN A$=A$+" " : GOTO 47
50 DISK ! "CALL 2E79=08, 1"
60 GOSUB 10000 : IF FLAG=1 THEN DISK ! "SAVE 08, 1=2E79/1" : END
70 DISK ! "CALL 2E79=08, 2"
80 GOSUB 10000 : IF FLAG=1 THEN DISK ! "SAVE 08, 2=2E79/1" : END
90 PRINT "*** "; CHR$(34); A$; CHR$(34); " NOT FOUND IN DIRECTORY ***"
100 END
10000 REM
10010 REM SEE IF FILE NAME A$ IS IN DIRECTORY BUFFER
10020 REM
10030 FOR I=PNT TO PN+248 STEP 8
10040 FOR J=I TO I+5
10050 IF PEEK(J)<>ASC(MID$(A$, J-I+1, 1)) THEN 10100
10060 NEXT J
10070 PRINT "RENAME "; CHR$(34); A$; CHR$(34); : INPUT " TO"; AN$
10075 IF LEN(AN$)>6 THEN 10070
10080 IF LEN(AN$)<6 THEN AN$=AN$+" " : GOTO 10080
10082 IF MID$(AN$, 1, 1)<"A" OR MID$(AN$, 1, 1)>"Z" THEN 10070
10085 FOR J=I TO I+5 : POKE J, ASC(MID$(AN$, J-I+1, 1)) : NEXT J
10090 FLAG=1 : RETURN
10100 NEXT I
10110 FLAG=0 : RETURN

```

```
10 REM SECTOR DIRECTORY UTILITY UNDER OS-65D VERSION 3.0
15 REM
20 PRINT : PRINT "SECDIR" : PRINT
22 PRINT "USES OS-65D'S DIR COMMAND TO PRINT OUT A SECTOR"
24 PRINT "MAP OF A GIVEN RANGE OF TRACKS" : PRINT
30 PRINT : INPUT "FIRST TRACK"; T0
40 IF T0<1 OR T0>76 THEN 30
50 PRINT : INPUT "LAST TRACK"; T9
60 IF T9<T0 OR T9>76 THEN 50
70 PRINT : PRINT "SECTOR MAP DIRECTORY" : PRINT
80 FOR I=100+T0 TO 100+T9
90 DISK ! "DIR "+RIGHT$(STR$(I),2)
95 PRINT
100 NEXT I
110 END
```

```
/
```

```
10 REM SEQUENTIAL FILE LISTER UTILITY UNDER OS-65D VERSION 3.0
20 REM
30 PRINT : PRINT "SEQUENTIAL FILE LISTER" : PRINT
40 PRINT "TYPE A CONTROL-C TO STOP"
50 PRINT : INPUT "FILE NAME"; A$
60 IF LEN(A$)>6 THEN 60
70 DISK OPEN, 6, A$
80 INPUT #6, D$
90 PRINT D$
100 GOTO 100
```

```
10 REM TRACE UTILITY UNDER OS-65D VERSION 3.0
20 REM
30 PRINT : PRINT "TRACE UTILITY" : PRINT
35 PRINT "WHEN BASIC'S TRACE FEATURE IS ENABLED, BASIC WILL PRINT"
37 PRINT "OUT EACH LINE NUMBER OF THE PROGRAM BEFORE IT IS EXECUTED"
38 PRINT
40 INPUT "ENABLE OR DISABLE (E/D)"; A$
50 IF A$="E" THEN 100
60 IF A$="D" THEN 200
70 GOTO 40
100 REM
110 REM ENABLE
120 REM
130 REM THIS MUST ALL BE DONE AS ONE LINE!
140 REM
150 L=2011:POKEL, 32:POKEL+1, 216:POKEL+2, 28:POKEL+3, 234:POKEL+4, 234
160 END
200 REM
210 REM DISABLE
220 REM
230 REM THIS MUST ALL BE DONE AS ONE LINE!
240 REM
250 L=2011:POKEL, 24:POKEL+1, 144:POKEL+2, 2:POKEL+3, 230:POKEL+4, 200
260 END
```

```

10 REM FILE ZEROING UTILITY OF OS-65D VERSION 3.0
20 REM
40 REM TO ZERO OUT DATA BUFFER: EXECUTE THIS:
50 REM
100 REM 3D7E A000    ZERO    LDY #0
110 REM 3D80 A20C    LDX #12
120 REM 3D82 98      TYA
130 REM 3D83 997E31 ONE   STA $317E,Y
140 REM 3D86 C8      INY
150 REM 3D87 D0FA    BNE ONE
160 REM 3D89 EE853D    INC ONE+2
170 REM 3D8C CA      DEX
180 REM 3D8D D0F4    BNE ONE
190 REM 3D8F 60      RTS
200 REM
230 DATA 160, 0, 162, 12, 152, 153, 126, 49, 200, 208, 250
240 DATA 238, 133, 61, 202, 208, 244, 96
250 FOR I=15742T015759: READ: POKEI, D: NEXT
280 POKE8955, 126: POKE8956, 61: X=USR(X): POKE8955, 212: POKE8956, 34
285 DEF FNA(X)=10*INT(X/16)+X-16*INT(X/16)
290 PRINT: PRINT"FILE ZERO UTILITY": PRINT
300 PRINT"COMPLETELY ERASES THE CONTENTS OF A DATA FILE"
310 PRINT
320 INPUT "PASSWORD": A$ : IF A$<>"PASS" THEN END
330 INPUT "FILE NAME": A$
340 IF LEN(A$)>6 THEN 330
350 IF LEN(A$)<6 THEN A$=A$+" " : GOTO 350
360 PN=11897
370 DISK!:"CA 2E79=08, 1": GOSUB 10000
380 IF FL<>0 THEN 405
390 DISK!:"CA 2E79=08, 2": GOSUB 10000
400 IF FL=0 THEN PRINT "*** FILE NAME NOT IN DIRECTORY ***": END
405 PG=12
410 PRINT: INPUT"IS IT A NORMAL 12 PAGE DATA FILE": AAS
420 IF MID$(AAS, 1, 1)="Y" THEN 450
430 INPUT "THEN HOW MANY PAGES PER TRACK": PG
440 IF PG<1 OR PG>12 THEN 430
450 DATA 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C
460 FOR I=1 TO PG : READ P$ : NEXT I
480 FOR I=T0 TO T9
490 T$=RIGHT$(STR$(I+100), 2)
500 DISK!:"SA "+T$+", 1=317E/"+P$
510 NEXT I
520 END
10000 REM
10010 REM FIND A$ IN DIRECTORY
10020 REM
10030 FOR I=PN TO PN+248 STEP 8
10040 B$=""
10050 FOR K=I TO I+5 : B$=B$+CHR$(PEEK(K)) : NEXT K
10060 IF A$<>B$ THEN 10090
10070 T0=FNA(PEEK(I+6)) : T9=FNA(PEEK(I+7))
10080 FL=1 : RETURN
10090 NEXT I
10100 FL=0 : RETURN

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