TO:

COLOUR GENIE

AUCKLAND DISTRICT USER GROUP

NEWSLETTER NO: 18

JULY 85

Well I finally made it onto the front page. Nola sends her apologies
but other commitments means you have to put up with me this month.

 Firstly this month is the start of a series of articles by David
Donaldson, these were origionally for the now defunked INPUT magazine
but david has now offered them to use at a very reasonable price
(FREE)

 Items of interest this month :- A shipment of tape recorders to hit
N.Z. under the name of EUROMATIC I have no details of them at the
moment except that Nola tells me they can be bought for $50,hopefully
more details next month.
Also I have been asked to make it clear that $3 tapes containing
newsleter programs are no longer obtainable but the ones listed at
$3.50 can still be purchased.
Comments on SUPERPRINT mentioned last month. This is advertised as
being EPSON compatible. We know it works on SUPER-5 printers and a
STAR STX 80 thermal printer and of course Epson's. If you buy this
tape and you don't have one of the printer brands mentioned please let
us know if it works. If it does not work we will give a refund.

 Finally welcome to this months new members:-

Ron Hart
26 Puriri Court Flats
Denbigh St
Feilding

Peter Lee-Johnson & family
34 Adams St
Waihi

Dean Kelsall
40 Gladstone Terrace
Invercargill

                              Regards

                               CHRIS

18 Elizabeth ST

Feilding

5 July 1985

Auckland Colour Genie User Group
P.O. Box 27387
AUCKLAND

Dear Group

Thank you for sending me the useful information a month or so
ago. One particular page that caught my eye was the 'ZEN'
cartridge write up. It sounds very good and as I sometimes
crash my machine code programs into ZEN, in a cartridge form,
it would be very useful and give more free memory. Could you
please advise weather this is or will be available in New Zealand
and how much.

I have typed in the screen scroller of Peter Fisher's and found
it very good. With some modification I also added a speed
control. But as it had to move colour data as well, the faster
it got the worse it looked. What I did then was to change
the code so it worked on the FGR screen and because there is
no colour data, this works very well. Thanks Peter I will
still have hours of fun with this program.

The printer I use is a 'Pacesetter FAX-80'. It is a good
printer but I can only get it to work in italic mode. I have
set the switches inside - all of which do as they say - but
not the italic. I have seen another Genie and printer com-
bination that works exactly opposite, only normal printing
and no italic. I have set my genie up on a Epson printer
which then worked perfectly. Is there anyone out there that
can help? I'm sure there is more than just a few of us that
could do with help in this area.

One last small problem I have is I need some kind person to
draw me up a circuit for an A-D coverter for the genie. I
already have a chip, a ADC0800, 8-bit A/D converter. I have
all the information on this chip but don't know how to inter-
face it or anything. So if there is any kind person out there
please contact me.

I have enclosed a Hex VIDEO PLANNING SHEET and a colour RAM
SHEET which only uses other people's ideas. Very useful for
us machine coders.

Happy computing

Regards

Kevin Hunter

HEX VIDEO COLOUR RAM PLANNING SHEET
****

```
          0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39
--------------------------------------------------------------------------------------------------------------------------------
F000    0---00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F 20 21 22 23 24 25 26 27
F028   40---28 29 2A 2B 2C 2D 2E 2F 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F
F050   80---50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F 60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76 77
F078  120---78 79 7A 7B 7C 7D 7E 7F 80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F 90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F
F0A0  160---A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF C0 C1 C2 C3 C4 C5 C6 C7
F0C8  200---C8 C9 CA CB CC CD CE CF D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF
F0F0  240---F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17
F118  280---18 19 1A 1B 1C 1D 1E 1F 20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F
F140  320---40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F 50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F 60 61 62 63 64 65 66 67
F168  360---68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F 80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F
F190  400---90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF B0 B1 B2 B3 B4 B5 B6 B7
F1B8  440---B8 B9 BA BB BC BD BE BF C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF
F1E0  480---E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF 00 01 02 03 04 05 06 07
F208  520---08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F 20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F
F230  560---30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F 50 51 52 53 54 55 56 57
F258  600---58 59 5A 5B 5C 5D 5E 5F 60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F
F280  640---80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F 90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F A0 A1 A2 A3 A4 A5 A6 A7
F2A8  680---A8 A9 AA AB AC AD AE AF B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF
F2D0  720---D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF F0 F1 F2 F3 F4 F5 F6 F7
F2F8  760---F8 F9 FA FB FC FD FE FF 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
F320  800---20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F 40 41 42 43 44 45 46 47
F348  840---48 49 4A 4B 4C 4D 4E 4F 50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F 60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F
F370  880---70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F 80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F 90 91 92 93 94 95 96 97
F398  920---98 99 9A 9B 9C 9D 9E 9F A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF
F3C0  960---C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF E0 E1 E2 E3 E4 E5 E6 E7
```

```
1 CLS:PRINT@492,"PRINTING NOW"
2 LPRINTCHR$(14);TAB(3);"HEX VIDEO COLOUR RAM PLANNING SHEET":LPRINTTAB(63);"";:
FORL=1TO70:LPRINT"*";:NEXT:LPRINT:LPRINT
3 A=&HF000:F$="%    %"
4 F1$="###":X=-1:F2$="% %"
5 LPRINTCHR$(15);
6 LPRINTTAB(12);"";
7 FORJ=0TO39:LPRINTUSINGF1$;J;:NEXT
8 LPRINT
9 FORO=1TO140:LPRINT"-";:NEXT:LPRINT
10 FORN=ATOA+999
11 C=N:X=X+1:N=N+65536
12 GOSUB19:L=0
13 IF P=0THENLPRINTUSINGF$;L$;:LPRINTUSINGF1$;X;:LPRINT"---";
14 P=P+1:IF P=41THENP=0:LPRINT:GOTO13
15 LPRINTUSINGF2$;RIGHT$(L$,2);:L$=""
16 N=C
17 NEXT:LPRINTCHR$(18);CHR$(27);CHR$(64)
18 END'     By K.J.Hunter

19 L=N-INT(N/16)*16:L$=CHR$(L+48-7*(L>9))+L$:N=INT(N/16):IF NTHEN19
20 RETURN
```

CHANGES TO KNIGHTSBRIDGE

I suggest the following changes to this game published in Newletter 16. The result will be a non-scrolling board, on which the men only will move. This in my opinion gives a more effective display.

Most of the changes involve inserting PRINT@ staements. Note the semicolon in line 250 - without it disaster wil strike. I have added line 495 to blank messages. There are 13 spaces inside the quotes.

Line 615 puts a space between each line of the board. This seems to me to produce a better proportioned board.

```
170 PRINT@880,"YOU MUST MOVE THE PIECE ON "M
250 IF P=O THEN PRINT@920,"ILLEGAL MOVE";:GOTO 180
260 IF H(N)=67 THEN HU=HU+1:PRINT@920,"WELL PLAYED!!":FOR R=1TO500:NEXTR
360 PRINT@880,"I HAVE TO MOVE THE PIECE ON "K
390 IF H(K+Z(W))=72 THEN PRINT@920"GOTCHA!!";:CO=CO+1:FOR P=1TO1000:NEXTP:GO
TO450

495 PRINT@920,"             "
500 PRINT@0,;:PRINT
615 PRINT
700 COLOUR4:IF HU=6 THEN PRINT@880,"WELL DONE!-I'M BEATEN   ! "
710 COLOUR1:IF CO=6 THEN PRINT@880,"I'M THE WINNER!":PRINT"BETTER LUCK NEXT
TIME!!"

720 IF Q=500 THEN PRINT@880,"I accept your wish to concede"
730 IF Q1=500 THEN PRINT@880,"I concede to a master"
```

If you want the computer to play fair you had better add
$$OR A = 58$$
to line 830 otherwise the computer will take a piece from nowhere and do you down. this omission is in Tim Hartnell's origional program.

KEITH McGILL

Basic Basic for Parents & Beginers
Part 1

David Donaldson

Have you a son or daughter who is one of those whizz kids with a
computer or are you one of those who have become tired of using
those commercially written games programmes (all the same aren't
they).Or do you wonder if the mighty marvel you bought will do
anything exept play games,well it will, and I hope to give you
some idea how to use your computer to do more than those games
you load into it. Something usefull in the way of a block of
utility programmes.

Now first of all I had better tell you,if you know about writing
your own programmes go and read something else (footrot flats for
instance) because this will start at the beginning,& I mean at
the very beginning.Excepting that the examples may be of some use
to advanced programmers to build on from,they are written in
standard (?) Microsoft Basic and will thus convert to almost any
machine easily.No colour or sound instructions will be included
as these tend to be specific for a given machine.

Now to begin ,as with all brain teasers, you must first define
your problem.. Let us take for our first teaser a method of
converting gallons to litres.

The first thing to do is to work out the basic formula,so its
back to the maths book & we find > Litres = Gal x 4.5461 <
therefore substituting in algebra

$$L = G \times 4.5461$$

The way we give the computer the information we have,is by an
'input' statement,this statement (in a programme) makes the
computer stop & wait for the human operator to give (input) some
information.The way the computer 'tells' us the answer is by a
'print' statement which puts the answer on the screen for us to
read. So now let's have a go at writing the programme.Type it in
exactly as it is printed.

```
110 CLS
120 PRINT "To convert Gallons to Litres"
130 PRINT:INPUT "Give me the quantity in Gallons ";G
140 PRINT:PRINT
150 L = G * 4.5461
160 PRINT:PRINT "The quantity in Litres is ";L
170 PRINT:INPUT "Another calculation (Y/N) ";Z$
180 IF Z$="Y" GOTO 110 : IF Z$="N" GOTO 190 ELSE 170
190 END
```

If you make a mistake just re-type the line starting with the
same number and the computer will substitute the new line for the
old one If you type in a wrong number & you wish to get rid of
it just type the same (wrong) number again leave the line blank &
press 'return' this will erase the line from the computer.
Now let us have a look at what we have produced.Firstly you will

1

notice that I started at line 110 well don't worry about this as we will be adding to the programme as we go along & will end up with a much bigger programme of which this is only a building block.Then you will have noticed we write each line leaving 10 numbers between each line,this is so we can add more lines later if needed without too much trouble,a programme is a set of instructions to the computer telling it to do a specific job one step at a time It follows the programme from the lowest to the highest line number until finished or told to do something else.
Line 110 CLS,clears the screen,if you have a vic/pet you will use 110 PRINT CHR(\$)147 & if using an Apple use the word HOME to do the same job.
The fact that all 'commands' are written in capital letters is important too,computers require all commands in capital form.Then there are the extra 'PRINT' commands,this leaves blank lines when printed on the screen.Setting out the information on the screen neatly.This is called Screen Formatting.
Note also the use of an asterisk (*) instead of a (x),the computer dies not recognise a multiply sign the way we do.
Next the 'GOTO' command,this works the same as an AA sign on the road,it tells the computer to branch out to a different part of the programme this is followed by an error trapping routine,the ELSE command this tells the computer that if any other key is pressed to go back to the line it was executing at the time & ignore that key.The END command looks as if it is unnecessary as the programme will never get to it by the looks of it but in a complex programme it is included to make sure the computer will not run on into the next segment of the programme.
The colon's between statements mean the same to the computer as putting each statement on a different line so that it can work through one step at a time.The use of Z\$ is algebra for a string to the computer & the(;) before it is important although a BBC computer may need a (,) instead of a (;)
To do the reverse (convert litres to gallons) is just as simple

```
210 CLS
220 PRINT "To convert litres to Gallons "
230 PRINT:INPUT "Give me the quantity in litres ";L
240 PRINT:PRINT
250 G = L/4.5461
260 PRINT:PRINT "The quantity in gallons is ";G
270 PRINT:INPUT "another calculation (Y/N) ";Z$
280 IF Z$="Y" GOTO 210:IF Z$="N" GOTO 290 ELSE 270
290 END
```

Now the only difference here is the (/) used instead of a divide sign,and once again the error trap & END safety statement.

A method of converting degrees centigrade to degrees farenheit. will combine both multiply & divide functions,And as they often have to be done in a strict order (in more complex calculations) there is a way to make the computer do calculations in the order YOU want them done.
First work out the basic formula,so its back to the maths book.

2

Degrees F = Degrees C x 9/5 + 32
substituting in algebra
             F = C x 9/5 + 32
therefore what we want to do is to tell the computer the degrees
centigrade & have it work out the farenheit

    310 CLS
    320 PRINT:PRINT "TO CONVERT CENTIGRADE TO FARENHEIT"
    330 PRINT:INPUT "What is the temperature in CENTIGRADE ";C
    340 F = ((C*9)/5) + 32
    350 PRINT:PRINT
    360 PRINT "The temperature in farenheit is ";F
    370 PRINT:INPUT "Another temperature Y/N ";Z$
    380 IF Z$= "Y" GOTO 310 :IF Z$="N" GOTO 390 ELSE 380
    390 END

Now have a look at the brackets in the formula,there are two lots
of brackets one pair within each other,the computer works from
the centre lot of brackets,does those first & then works
outwards,so put the calculation which has to be done first in the
centre lot of brackets & work outwards.

Now for homework see if you can write the reverse programme,to
convert Farenheit to Centigrade, start with line 410.
But before you go you had better 'save' the programme lines you
have typed in.Refer to your manual for exact instructions but
remember to turn on the tape recorder first before you press
'return' on the computer

See you again next month.

```
10 GOSUB 1210
20 A=RND(10000):B=RND(10000):C=RND(10000)
30 D=500:E=500:F=500:D1=0:E1=0:F1=0:D2=10:E2=10:F2=10
40 IF D<=0 THEN 1170
45 CLS:PRINT"STATUS REPORT"
60 PRINT"DISTANCE 1-2: ";A;" KM"
70 PRINT"         1-3: ";B;" KM"
80 PRINT"         2-3: ";C;" KM"
90 PRINT"ENERGY AVAILABLE: ";D
100 PRINT"MISSILES LOADED: ";D2
110 PRINT"RESERVE ENERGY: ";D1
120 A1=PEEK(-2046)
130 CO=0
135 Q$=INKEY$:IF Q$="" THEN 135
140 IF Q$="H" THEN CO=1:GOTO 220
150 IF Q$="I" THEN CO=2:GOTO 220
160 IF Q$="J" THEN CO=3:GOTO 220
170 IF Q$="K" THEN CO=4:GOTO 220
180 IF Q$="L" THEN CO=5:GOTO 220
190 IF Q$="M" THEN CO=6:GOTO 220
200 IF Q$="N" THEN CO=7:GOTO 220
210 IF Q$="O" THEN CO=8
220 IF CO=0 THEN PRINT"NO COMMAND READ":GOTO 570
230 ON CO GOTO 240,290,340,360,440,450,530,550
240 PRINT"COMMAND H READ"
250 IF D2=0 THEN PRINT"MISSILE TUBES EMPTY":GOTO 570
260 K=RND(2):IF K=1 THEN PRINT"MISSILE MISSED TARGET":D2=D2-1:GOTO 570
270 K=A:GOSUB 1350
280 PRINTH;" UNIT HIT ON SHIP 2":E=E-H:D2=D2-1:GOTO 570
290 PRINT"COMMAND I READ"
300 IF D2=0 THEN 250
310 K=RND(2):IF K=1 THEN PRINT"MISSILE MISSED TARGET":D2=D2-1:GOTO 570
320 K=B:GOSUB 1350
330 PRINTH;" UNIT HIT ON SHIP 3":F=F-H:D2=D2-1:GOTO 570
340 PRINT"COMMAND J READ"
350 GOTO 370
360 PRINT"COMMAND K READ"

370 IF CO=3 AND A<1000 THEN 380 ELSE IF CO=4 AND B<1000 THEN 380 ELSE 390
380 PRINT"I CANT ALLOW THAT!":GOTO 570
390  K=RND(500)+500
400 IF CO=3  THEN A=A-K:GOTO 420
410 IF CO=4 THEN B=B-K
420 PRINTK;"  KM APPROACH MADE":D=D-50
430 GOTO 570
440 PRINT"COMMAND L READ":GOTO 460
450 PRINT"COMMAND M READ"
460 IF CO=5 AND A>9000 THEN 470 ELSE  IF CO=6 AND B>9000 THEN 470 ELSE 480
470  PRINT"I CAN'T ALLOW THAT!":GOTO 570
480 K=RND(500)+500
490 IF CO=5 THEN A=A+K:GOTO 510
500 IF CO=6 THEN B=B+K
510 PRINTK;" KM RETREAT MADE"
520 D=D-50:GOTO 570
530 PRINT"COMMAND N READ"
540 D1=D1+10:GOTO 570
550 PRINT"COMMAND O READ":IF D1<50 THEN PRINT"NOT ENOUGH IN RESERVE FOR TRANSFER":GOTO 570
560  D=D+D1:D1=0:D2=10
570 T=0:FOR X=1 TO 2:IF X=1 AND E<=0 THEN 1140 ELSE IF X=2 AND F<=0 THEN 1140
580 IF X=1 AND E<80 THEN 1080 ELSE IF X=2 AND F<80  THEN 1080
590 IF X=1 AND A>9000 THEN OB=1:GOTO 860
600 IF C>9000 THEN OB=2:GOTO 860
610 IF  X=2 AND B>9000 THEN OB=3:GOTO 860
620 IF X=1 AND  A<1000 THEN OB=1:GOTO 970
630 IF C<1000 AND C<>0 THEN OB=2:GOTO 970
640  IF X=2 AND B<1000 THEN OB=3:GOTO 970
650 K=RND(20):IF K=5 THEN T=1:GOTO 860
660 IF K=7 THEN T=1:GOTO 970
670 K=RND(10):IF K=5 THEN 1080
680 IF X=1 AND E2=0 THEN 1080
690 IF X=2 AND F2=0 THEN 1080
700 IF X=1   THEN K=RND(2):IF K=1 THEN OB=1 ELSE OB=3
710 IF X=2 THEN K=RND(2):IF K=1 THEN OB=1 ELSE OB=2
```

```
730 IF OB=2 AND E=0 THEN OB=1
740  IF X=1 THEN PRINT"SHIP 2";ELSE PRINT"SHIP 3";
750 PRINT" HAS FIRED A MISSILE"
760 K=RND(2):IF K=1 AND X=1 THEN E2=E2-1:GOTO 1140
770 IF K=1 AND X=2 THEN F2=F2-1:GOTO 1140
780 IF X=1 AND OB=1  THEN K=A ELSE IF X=1 AND OB=3 THEN K=C
790 IF  X=2 AND OB=1 THEN K=B ELSE IF X=2 AND OB=2 THEN K=C
800 GOSUB 1350 ·
810 IF OB=1 THEN PRINT H;" UNIT HIT SUSTAINED":D=D-H
820 IF OB=2 THEN PRINT"SENSORS RECORD HIT ON SHIP 2":E=E-H
830 IF OB=3 THEN PRINT"SENSORS RECORD HIT ON SHIP 3":F=F-H
840 IF X=1 THEN E2=E2-1 ELSE  F2=F2-1
850 GOTO 1140
860 IF T<>1 THEN 920
870 P=RND(2)
880 IF X=1 AND P=1 THEN OB=1:IF A<1000 THEN OB=2
890 IF X=1 AND P=2 THEN OB=2:IF C<1000 THEN OB=1
900 IF X=2 AND P=1 THEN OB=3:IF B<1000 THEN OB=2
910 IF X=2 AND P=2 THEN OB=2:IFC<1000 AND B<1000 THEN 970  ELSE IF C<1000 THEN OB=3
920 K=RND(500)+500
930 IF OB=1 THEN A=A-K:E=E-50:PRINT"SHIP 2 APPROACHES"
940 IF OB=2 THEN C=C-K:IF X=1 THEN E=E-50 ELSEF=F-50:IF X=1 THEN PRINT"SHIP 2 APPROACHES SHIP 3"
ELSE PRINT"SHIP 3 APPROACHES SHIP 2"
950 IF OB=3 THEN B=B-K:F=F-50:PRINT"SHIP 3 APPROACHES"
960 GOTO 1140
970 IF T<>1 THEN 1030
980 P=RND(2)
990 IF X=1 AND P=1 THEN OB=1:IF A>9000 THEN OB=2
1000 IF X=1 AND P=2 THEN OB=2:IF C>9000 AND A>9000 THEN 860 ELSE IF C>9000 THEN OB=1
1010 IF X=2 AND P=1 THEN OB=3:IF B>9000 THEN OB=2
1020 IF X=2 AND P=2 THEN OB=2:IF B>9000 AND C>9000 THEN 970 ELSE IF C>9000 THEN OB=3
1030 K=RND(500)+500
1040 IF OB=1 THEN A=A+K:E=E-50:PRINT"SHIP 2 RETREATS"
1050 IF OB=2 THEN C=C+K:IF X=1 THEN E=E-50 ELSE F=F-50:IF X=1 THEN PRINT"SHIP 2 RETREATS FROM SH
IP 3" ELSE PRINT"SHIP 3 RETREATS FROM SHIP 2"
1060 IF OB=3 THEN B=B+K:F=F-50:PRINT"SHIP 3 RETREATS"
1070 GOTO 1140

1080 IF X=1 AND E1<50 THEN 1120
1090 IF X=2 AND F1<50 THEN 1120
1100 IF X=1 THEN E=E+E1:E1=0:E2=10:PRINT"SENSORS RECORD MASSIVE ENERGY TRANSFER ON SHIP 2":GOTO
1140
1110 IF X=2 THEN F=F+F1:F1=0:F2=10:PRINT"SENSORS RECORD MASSIVE ENERGY TRANSFER ON SHIP 3":GOTO
1140
1120 IF X=1 THEN E1=E1+10
1130 IF X=2 THEN F1=F1+10
1140  IF E<=0 AND F<=0 THEN 1190 ELSE IF E<=0 PRINT"SHIP 2 DESTROYED":A=0:C=0:GOTO 1160
1150 IF F<=0 THEN PRINT"SHIP 3  DESTROYED":B=0:C=0
1160 NEXT X:GOSUB 1340:FOR P=1 TO 750:NEXT P:GOTO 40
1170 PRINT"YOU HAVE RUN OUT OF ENERGY AND HAVE"
1180 PRINT"DESTROYED YOUR SHIP":END
1190 PRINT"YOU DID IT! EARTH HAS BEEN SAVED FROM   THE ALIENS!"
1200 END
1210 CLS:PRINT"LIST OF COMMANDS"
1220 PRINT"----------------"
1230  PRINT"      H - FIRE AT SHIP 2"
1240  PRINT"      I - FIRE AT SHIP 3"
1250 PRINT"      J - APPROACH SHIP 2"
1260 PRINT"      K - APPROACH SHIP 3"
1270 PRINT"      L - RETREAT FROM SHIP 2"
1280 PRINT"      M - RETREAT FROM SHIP 3"
1290 PRINT"      N - GAIN NEW ENERGY AND PREPARE"
1300 PRINT"          NEW MISSILES"
1310 PRINT"      O - TRANSFER ENERGY AND RE-LOAD"
1320 PRINT:PRINT"PRESS ANY KEY TO BEGIN"
1330 A$=INKEY$:IF A$="" THEN 1330 ELSE RETURN
1340 SOUND 6,0:SOUND 7,7:SOUND 8,16:SOUND 9,16:SOUND 10,16:SOUND 12,56:SOUND 13,0:RETURN
1350 L=K/1000:H=(10-L)*10:H=H+(RND(0)*10)
1360 RETURN
```

```
10 COLOUR7:CLS:PRINT@171,"WORD SEARCH PUZZLE"
15 'ADAPTED TO COLOUR GENIE BY              DON EDWARDS

30 COLOUR2 :PRINT@920,"";:INPUT"DO YOU NEED INSTRUCTIONS";I$
40 IF LEFT$(I$,1)="N"OR LEFT$(I$,1)="n" THEN CLS: GOTO 190 ELSE CLS
50 COLOUR7:PRINT TAB(10); "WORD SEARCH PUZZLE": PRINT
60 COLOUR2:PRINT "  THIS PROGRAM IS A WORD SEARCH PUZZLE  GENERATOR!!"
70 PRINT "THE PROGRAM TAKES A SET OF INPUT STRINGS, PURGES ALL";
80 PRINT " NON-ALPHABETIC CHARACTERS  OUT OF THEM AND INCORPORATES";
90  PRINT " THEM INTO A WORD SEARCH PUZZLE"
100 PRINT
110 PRINT " IN THE COURSE OF MAKING THE PUZZLE, THE MACHINE MAY";
120 PRINT " FIND THAT IT CAN'T PUT A   PATICULAR WORD ANYWHERE, AND";
130 PRINT " SO WILL ASKYOU IF IT SHOULD START THE WHOLE PUZZLE"
140 PRINT "OVER.  IF YOU DON'T WANT IT TO START     OVER, TYPING 'NO' ";
150 PRINT "WILL THROW AWAY THAT  PARTICULAR WORD.  IF THIS PERSISTS,"
160 PRINT "TRY EITHER GIVING LESS WORDS OR BIGGER   PUZZLE DIMENSIONS!"
170 PRINT@920, "PRESS ANY KEY TO CONTINUE";
180 IF INKEY$="" THEN 180 ELSE CLS
190 CLEAR 3000
200 COLOUR2:INPUT "DO YOU WANT THIS TO GO TO THE PRINTER";PR$
210 IF LEFT$(PR$,1)="N"OR LEFT$(PR$,1)="n" THEN TW=40:GOTO230
220 INPUT"HOW MANY COLUMNS DOES YOUR PRINTER HAVE ";TW
230 INPUT"DO YOU WANT A SOLUTION PRINTOUT";X$
240 COLOUR2:PRINT:INPUT"WHAT IS TO BE THE WIDTH OF THE PUZZLE   ";W: MD=W
250 IFW*2<=TW THEN 270
260 COLOUR5:PRINT "THAT WILL NOT FIT IN";TW;" COLUMNS.":GOTO240
270 IFW<1 THEN240
280 COLOUR2:PRINT:INPUT "THE LENGTH";L: IFL>W THEN MD=L
290 IFL<1 THEN 280
300 COLOUR2:PRINT:INPUT "WHAT IS THE MAXIMUM NUMBER OF WORDS IN  THE PUZZLE";M
310 IF M>=2THEN 330
320 COLOUR5:PRINT"SORRY; THERE MUST BE AT LEAST 2 WORDS.":GOTO300
330 DIM A$(L,W),W$(M)
331 FOR I= 1 TOL:FORJ=1TO W:A$(I,J)="":NEXTJ:NEXTI
340 DIMW(M,3),DXY(8,2),DD(28)
350 COLOUR2:PRINT:PRINT"NOW ENTER A HEADING THAT WILL BE PRINTED OVER THE PUZZLE
:"
360 PRINT TAB(4 ); "(";TW; " CHARACTERS MAXIMUM! )"
370 INPUT XY$
380 CLS
390 PRINT"OK.....ENTER A WORD AT EACH QUESTION    MARK. ";:COLOUR3:PRINT"Words m
ust be in lower case!!"
400 COLOUR2:PRINT"TO REDO THE PREVIOUS WORD, TYPE A HYPEN (-)."
410 PRINT"WHEN YOU RUN OUT OF WORDS, TYPE A        FULLSTOP (.)."
420 SC=320: FOR I=1 TO M
430 PRINT@260,"NEXT WORD ";CHR$(30);:INPUT T$
440 IF T$<>"-"THEN 470 ELSE I=I-1
450 COLOUR5:SC=SC-16: PRINT@280, "REDO "; W$(I);"...."; CHR$(30);
460 INPUT T$: GOTO440
```

```
470 IF T$="." THEN M=I-1:GOTO 710
480 COLOUR5:IFLEN(T$)=0 THEN PRINT$280,"INPUT ERROR; REDO.";CHR$(30);
490 IF LEN(T$)=0THEN INPUTT$: GOTO 440 ELSE J=1
500 TE$=MID$(T$,J,1): IFTE$>="a" AND TE$<="z" THEN580
510 IF TE$<"a" OR TE$>"z" THEN540
520 T$=LEFT$(T$,J-1)+CHR$(ASC(MID$(T$,J,1)))+RIGHT$(T$,LEN(T$)-J)
530 GOTO580
540 IF TE$=T$   THEN T$="": GOTO 480
550 IF J=LEN(T$) THEN T$=LEFT$(T$,J-1): GOTO 610
560 IF J=1 THEN T$=RIGHT$(T$,LEN(T$)-1):J=J-1:GOTO580
570 T$=LEFT$(T$J-1);RIGHT$(T$,LEN(T$)-J): J=J-1
580 J=J+1: IFJ<=LEN(T$) THEN 500
590 IF LEN(T$)>MD THEN 640
600 FORIZ= 1TO I-1 :IFW$(IZ)=T$ THEN 660
610 COLOUR2:NEXT: PRINT$SC, "-";T$;"-";CHR$(31);:SC=SC+10:FL=2
620 IF LEN(T$)+FL>10 THEN SC=SC+10:FL=FL-10: GOTO620
630 GOTO 680
640 COLOUR5:PRINT$280, "STRING TO LONG; REDO: ";CHR$(30);: INPUT T$
650 GOTO 440
660 PRINT$280, "DUPLICATE ENTRY ; REDO: "; CHR$(30);: INPUT T$
670 GOTO 440
680 W$(I)=T$
690 NEXTI
700 REM
710 COLOUR2:CLS: PRINT "NOW LET ME PONDER THIS......"
720 FOR I=1 TO M-1
730 FOR J=I+1 TO M
740 IF LEN(W$(I)) <LEN(W$(J)) THEN HZ$=W$(I): W$(I)=W$(J):W$(J)=HZ$
750 NEXT J,I
760 FOR I=1 TO 8: READ DXY(I,1),DXY(I,2): NEXT
770 FOR I=1 TO 28: READ DD(I): NEXT
780 DATA 0,1,1,1,1,0,1,-1,0,-1,-1,-1,-1,0,-1,1
790 DATA 2,4,6,8,2,4,6,8,2,4,6,8,2,4,6,8,2,4,6,8,2,4,6,8,1,3,5,7
800 FOR I=1 TO M
810 LN=LEN(W$(I))
820 NT=0
830 SD=DD(RND(28))
840 SX=RND(W): X1 =SX+(LN-1)*DXY(SD,1):IFX1<1 OR X1>W THEN 830
850 SY=RND(L):X1=SY+(LN-1)*DXY(SD,2):IF X1<1 OR X1>L THEN 830
860 NT=NT+1:IF NT<>W*L*2 THEN910
870 COLOUR5:PRINT "COULDN'T FIT '";:COLOUR4:PRINT W$(I);:COLOUR5:PRINT "' IN THE
    PUZZLE"
880 INPUT " DO YOU WANT ME TO START AGAIN";A$
890 IF LEFT$(A$,1)="Y" THEN 1410
900 W$(I)="" :GOTO 990
910 J=SY:K=SX
920 FORP=1TOLN
930 IFLEN(A$(J,K))ANDA$(J,K)<>MID$(W$(I),P,1)THEN830
940 J=J+DXY(SD,2):K=K+DXY(SD,1):NEXT P
950 J=SY:K=SX
960 FORP=1 TO LN:A$(J,K)=MID$(W$(I),P,1)
970 J=J+DXY(SD,2):K=K+DXY(SD,1):NEXT P
980 W(I,1)=SX: W(I,2)=SY:W(I,3)=SD
990 NEXT I
```
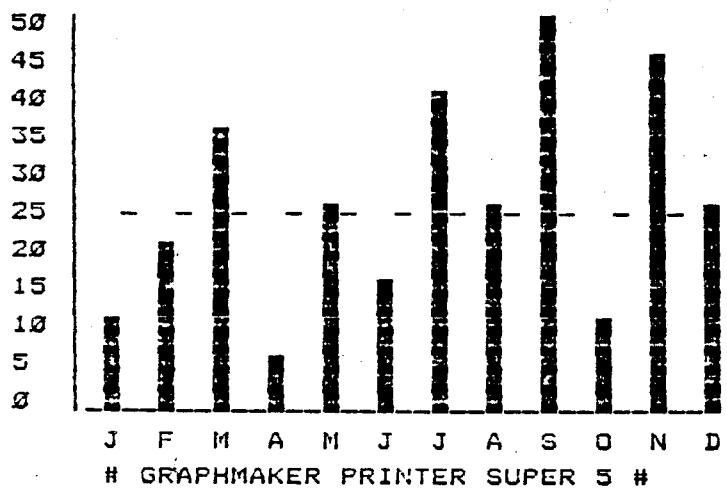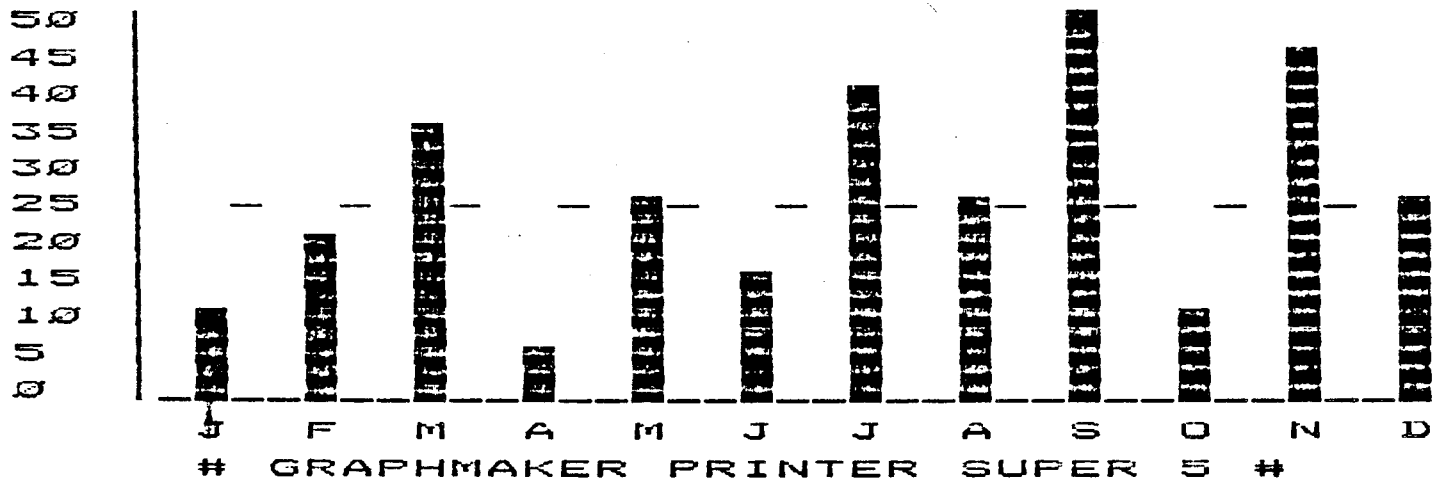
```
1000 FOR I=1 TOL
1010 FOR J=1 TO W
1020 IF A$(I,J)="" THENA$(I,J)=CHR$(RND(26)+96)
1030 NEXT J,I
1040 FOR I=1 TO M-1:FOR J=I+1 TO M
1050 IF W$(I)<=W$(J) THEN 1080
1060 HZ$=W$(I):W$(I)=W$(J):W$(J)=HZ$
1070 FOR K= 1 TO 3:HZ=W(I,K):W(I,K)=W(J,K):W(J,K)=HZ:NEXT K
1080 NEXT J: NEXT I
1090 COLOUR2:PRINT:INPUT"HOW MANY COPIES OF THIS PUZZLE DO YOU    WANT";N
1100 PRINT"FOR EACH COPY , PRESS <RETURN> TO BEGIN PRINTING...";
1110 FOR C = 1 TO N: GOSUB 1120:NEXT C: GOTO1400
1120 PRINTPM$;:INPUTA$:PRINT:PR$=LEFT$(PR$,1)
1130 PM$="PRESS < RETURN > TO CONTINUE "
1140 T=(TW-2*W)/2:CLS:PR=(PR$="Y"):TS=(40-2*W)/2
1150 IF PR THEN LPRINT" "
1160 PRINT:IF PR THEN LPRINT" "
1170 CLS:PRINTXZ$ :PRINT TAB((40-LEN(XY$))/2);XY$
1180 IF PR THENLPRINTXZ$: LPRINT TAB((TW-LEN(XY$))/2);XY$
1190 PRINT:PRINT:IF PR THEN LPRINT" ":LPRINT" "
1200 FORJ=1TOL:IFPRTHENLPRINTTAB(T):PRINTTAB(TS);
1210 FOR K = 1 TO W: IF A$(J,K)<>"." THEN1240
1220 PRINT". ";:IF PR THEN LPRINT". ";
1230 GOTO 1250
1240 PRINT A$(J,K);" ";: IF PR THEN LPRINT A$(J,K);" ";
1250 NEXT K: PRINT:IF PR THEN LPRINT" "
1260 NEXT J
1270 PRINT:PRINT: IF PR THEN LPRINT" ":LPRINT" "
1280 PO=0:PRINT"FIND THESE HIDDEN WORDS IN THE PUZZLE:"
1290 IF PR THEN LPRINT"FIND THESE HIDDEN WORDS IN THE PUZZLE:"
1300 PRINT: IF PR THEN LPRINT" "
1310 FOR J=1 TO M:IF LEN(W$(J))=0 THEN1370
1320 IF POS(0)+LEN(W$(J))>38 THEN PRINT
1330 IF PR THEN IF PO+LEN(W$(J))>TW-2 THEN LPRINT" ":PO=0
1340 PRINTW$(J),: IF PR THEN LPRINTW$(J),
1350 PO=PO+16
1360 REM LPRINTCHR$(12) REM IS THE PRINTER FORM FEED CHARACTER
1370 NEXT J:PRINT:PRINT:PRINT:PRINT
1380 IF PR THEN LPRINT:LPRINT:LPRINT:LPRINT:LPRINT""
1390 RETURN
1400 IF LEFT$(X$,1)="Y" OR LEFT$(X$,1)="y" THEN1420
1405 PRINT:INPUT"CONTINUE";Z9$
1410 RUN
1420 REM
1430 FOR I= 1 TO L:FOR J=1 TO W:A$(I,J)=".":NEXT J:NEXT I
1440 FOR I = 1 TO M
1450 LN=LEN(W$(I)):J=W(I,2):K=W(I,1)
1460 FOR P=1 TO LN
1470 A$(J,K)=MID$(W$(I),P,1)
1480 J=J+DXY(W(I,3),2):  K=K+DXY(W(I,3),1): NEXT P
1490 NEXT I
1500 XZ$="     Here is the answer key to the "
1510 GOSUB 1120
1520 PRINT:PRINT




1530 END
```

```
50
45
40
35
30
25  - - - - - - - - - - - - - - - - - - - - - - - - - -
20
15
10
 5
 0
    J   F   M   A   M   J   J   A   S   O   N   D
    #  GRAPHMAKER  PRINTER  SUPER  5  #
```



```
50
45
40
35
30
25  - - - - - - - - - - - - - - - - - -
20
15
10
 5
 0
   J  F  M  A  M  J  J  A  S  O  N  D
   #  GRAPHMAKER PRINTER SUPER 5  #
```

```
10 X$="045064067000000080082121195235004"
20 FORJ=0TO10:K=VAL(MID$(X$,J*3+1,3)):POKE16422+J,K:NEXT
30 CLEAR 1000:DIM Q(13):DIM X(13):TL=0:AV=0
40 COLOUR 5:CLS
50 PRINT@168,"##################"
60 PRINT@208,"#                #"
70 PRINT@248,"#   GRAPHMAKER    #"
80 PRINT@288,"#                #"
90 PRINT@328,"##################"
100 COLOUR1:PRINT@720,"ENTER GRAPH TITLE THEN <RETURN>":PRINT:INPUT T$
110 CLS
120 FOR M=1 TO 12
130 PRINT@40,"ENTER QUANTITY FOR MONTH ";M;" (0-900)":PRINT:INPUT Q(M)
140 PRINT@67," ":PRINT@122,"    ":NEXT M
150 CLS:INPUT"ENTER LARGEST ENTRY (10-900)";LE
160 IF LE<10 OR LE>900 THEN 150
170 FOR M=1 TO 12
180 IF Q(M) > LE THEN 210
190 NEXT M
200 GOTO 230
```

```
210 COLOUR3:PRINT:PRINTLE;" IS NOT THE LARGEST ENTRY"
220 FOR D=1 TO 1000:NEXT D:COLOUR1:GOTO150
230 CLS:PRINT"DISPLAY AS DOT OR BAR GRAPH?"
240 PRINT:PRINT"HIT <D> OR <B>"
250 K$=INKEY$:IF K$="D"OR K$="B"THEN260 ELSE 250
260 IF K$="D" THEN F$="*" ELSE F$="J"
270 PRINT:PRINT"DISPLAY AVERAGE ?"
280 PRINT:PRINT"HIT <Y> OR <N>"
290 A$=INKEY$:IF A$="Y"ORA$="N"THEN 300 ELSE290
300 PRINT:PRINT"OUTPUT TO PRINTER ?"
310 PRINT:PRINT"HIT <Y> OR <N>"
320 Q$=INKEY$:IF Q$="Y"ORQ$="N"THEN 330 ELSE 320
330 IFQ$="Y"THEN340ELSE370
340 PRINT:PRINT"FULL PAGE OR HALF PAGE WIDTH."
350 PRINT:PRINT"HIT <F> OR <H>"
360 Q1$=INKEY$:IFQ1$="F"ORQ1$="H"THEN370ELSE360
370 'DRAW X,Y AXIS
380 CLS
390 LE=INT(LE)
400 IF LE>100 THEN 430
410 IF LE=900 THEN 460
420 GOSUB 1040:GOTO 460
430 GOSUB 1040
440 IF MID$(LE$,3,1)="0" THEN 460
450 LE=LE+10:GOTO430
460 SP=LE/20
470 V=0:L=LE
480 FOR C=1 TO 10
490 COLOUR2:PRINT@V,L
500 L=L-(SP*2):V=V+80
510 NEXT C
520 PRINT@801,"0"
530 A=4
540 FOR C=0 TO 20
550 COLOUR4:PRINT@A,"["
560 A=A+40
570 NEXT C
580 A=805
590 FOR C=0 TO 34
600 PRINT@A,"Z"
610 A=A+1
620 NEXT C
630 COLOUR2:PRINT@885," J  F  M  A  M  J  J  A  S  O  N  D"
640 PRINT@965," # ";T$;" # ";
650 COLOUR 1:PRINT@448,"HIT ANY KEY TO RETURN TO PROGRAM"
660 PRINT@528,"AFTER GRAPH HAS BEEN DISPLAYED"
670 'WORK OUT VALUES FOR GRAPH
680 FOR M=1 TO 12
690 GOSUB 1110
700 NEXT M
710 IF A$="N"THEN 770
720 TL=0
730 FOR M=1 TO 12
740 TL=TL+Q(M)
750 NEXT M
760 AV=INT(TL/12)
770 FOR D=0 TO 300:NEXTD
780 PRINT@448,"                              "
```

```
790 PRINT@528,"                                    "
800 'PLOT GRAPH COORDINATES
810 A=6
820 FOR M=1 TO 12
830 P=(800-40*X(M))+A
840 COLOUR7:PRINT@P,F$
850 IF F$="J"THEN GOSUB 1070
860 A=A+3
870 NEXT M
880 IF TL=0 THEN 980
890 A=7
900 Q(13)=AV:GOSUB1110
910 AV=X(13)
920 P=(800-40*AV)+A
930 FOR C=7 TO 39 STEP 3
940 COLOUR6:PRINT@P,"Y"
950 P=P+3
960 NEXT C
970 TL=0:AV=0:COLOUR1
980 IF Q$="Y" THEN GOSUB 1270
990 K$=INKEY$:IF K$=""THEN990
1000 CLS:PRINT"DISPLAY AGAIN OR CREATE NEW GRAPH ?"
1010 PRINT:PRINT"HIT <A> OR <N>"
1020 K$=INKEY$:IF K$<>"A"AND K$<>"N"THEN1020
1030 IF K$="A"THEN 230 ELSE 1150
1040 LE$=STR$(LE)
1050 IF RIGHT$(LE$,1)="0"THEN RETURN
1060 LE=LE+1:GOTO1040
1070 FOR B=0 TO 25
1080 P=P+40:IF P>=845 THEN RETURN
1090 PRINT@P,"J"
1100 NEXT B:RETURN
1110 Y=0
1120 IF Q(M)<=Y THEN 1140
1130 Y=Y+SP:GOTO 1120
1140 X(M)=Y/SP:RETURN
1150 CLS:PRINT"DO YOU WANT TO :"
1160 PRINT:PRINT" <1> CREATE NEW GRAPH"
1170 PRINT:PRINT" <2> INSERT NEW VALUES IN OLD GRAPH"
1180 PRINT:PRINT"HIT <1> OR <2>"
1190 K$=INKEY$:IF K$="1"OR K$="2"THEN 1200 ELSE 1190
1200 IF K$="1"THEN 30
1210 CLS:INPUT"ENTER MONTH(1-12).IF END ENTER <99>";M
1220 IF M<1 OR M>12 AND M<>99 THEN 1210
1230 IF M=99 THEN 150
1240 PRINT:PRINT"ENTER NEW VALUE FOR MONTH ";M" (0-900)"
1250 PRINT:INPUT V
1260 Q(M)=INT(V):GOTO1210
1270 LPRINTCHR$(27);"1";:IFQ1$="F"THENLPRINTCHR$(27);"W";CHR$(1)
1280 P=17408
1290 FORJ=0TO24
1300 LPRINT
1310 FORS=PTOP+39
1320 G=PEEK(S)
1330 IFG=217THENG=157
1340 IFG=218THENG=1
1350 IFG=219THENG=156
1360 IFG=202THENG=17
```

```
790 PRINT@528,"                          "
800 'PLOT GRAPH COORDINATES
810 A=6
820 FOR M=1 TO 12
830 P=(800-40*X(M))+A
840 COLOUR7:PRINT@P,F$
850 IF F$="J"THEN GOSUB 1070
860 A=A+3
870 NEXT M
880 IF TL=0 THEN 980
890 A=7
900 Q(13)=AV:GOSUB1110
910 AV=X(13)
920 P=(800-40*AV)+A
930 FOR C=7 TO 39 STEP 3
940 COLOUR6:PRINT@P,"Y"
950 P=P+3
960 NEXT C
970 TL=0:AV=0:COLOUR1
980 IF Q$="Y" THEN GOSUB 1270
990 K$=INKEY$:IF K$=""THEN990
1000 CLS:PRINT"DISPLAY AGAIN OR CREATE NEW GRAPH ?"
1010 PRINT:PRINT"HIT <A> OR <N>"
1020 K$=INKEY$:IF K$<>"A"AND K$<>"N"THEN1020
1030 IF K$="A"THEN 230 ELSE 1150
1040 LE$=STR$(LE)
1050 IF RIGHT$(LE$,1)="0"THEN RETURN
1060 LE=LE+1:GOTO1040
1070 FOR B=0 TO 25
1080 P=P+40:IF P>=845 THEN RETURN
1090 PRINT@P,"J"
1100 NEXT B:RETURN
1110 Y=0
1120 IF Q(M)<=Y THEN 1140
1130 Y=Y+SP:GOTO 1120
1140 X(M)=Y/SP:RETURN
1150 CLS:PRINT"DO YOU WANT TO :"
1160 PRINT:PRINT" <1> CREATE NEW GRAPH"
1170 PRINT:PRINT" <2> INSERT NEW VALUES IN OLD GRAPH"
1180 PRINT:PRINT"HIT <1> OR <2>"
1190 K$=INKEY$:IF K$="1"OR K$="2"THEN 1200 ELSE 1190
1200 IF K$="1"THEN 30
1210 CLS:INPUT"ENTER MONTH(1-12).IF END ENTER <99>";M
1220 IF M<1 OR M>12 AND M<>99 THEN 1210
1230 IF M=99 THEN 150
1240 PRINT:PRINT"ENTER NEW VALUE FOR MONTH ";M" (0-900)"
1250 PRINT:INPUT V
1260 Q(M)=INT(V):GOTO1210
1270 LPRINTCHR$(27);"1";:IFQ1$="F"THENLPRINTCHR$(27);"W";CHR$(1)
1280 P=17408
1290 FORJ=0TO24
1300 LPRINT
1310 FORS=PTOP+39
1320 G=PEEK(S)
1330 IFG=217THENG=157
1340 IFG=218THENG=1
1350 IFG=219THENG=156
1360 IFG=202THENG=17
1370 LPRINTCHR$(G);
1380 NEXTS
1390 P=P+40
1400 NEXTJ
1410 LPRINT:LPRINT:LPRINTCHR$(27);"2";CHR$(27);"W";CHR$(0)
1420 RETURN
```

```
1 CLS
2
3 ,
7 ,
9 ,
10 '
11 '
13 "M  A  S  T  E  R    M  I  N  D"
14 '
15 '
16 '
17 '
18 '
20 PRINT@610,"PRESS A KEY TO BEGIN"
22 PRINT@800,"THIS PROGRAM HAS BEEN ADAPTED FOR CG    BY A.K.McGill FROM THE ORIGINAL BY TIM  HARTNELL (GIANT BOOK OF COMPUTER GAMES

25 K$=INKEY$:IF K$="" THEN 25
30 CLS:N=1
50 N=N+1
70 RANDOM
80 CLS
100 PRINT
110 PRINT"WHEN YOU ARE TOLD TO DO SO,"
120 PRINT"ENTER A FOUR-DIGIT NUMBER"
130 PRINT"THEN PRESS RETURN"
140 PRINT
150 PRINT"DIGITS CAN BE REPEATED"
160 PRINT
170 PRINT"YOU HAVE EIGHT ATTEMPTS TO BREAK"
180 PRINT"THE DIFFICULT CODE"
182 PRINT:PRINT:PRINT"Black - the right digit in the right     place"
184 PRINT:PRINT"White - the right digit in the wrong     place"
190 FOR Z=1 TO 3000:NEXT Z
200 CLS
210 DIM B(4)
220 DIM D(4)
230 H=0
240 FOR A=1 TO 4
250 B(A)=RND(9)
260 NEXT A
270 FOR C=1 TO 8
280 PRINT
290 PRINT"ENTER GUESS NUMBER";C;
300 INPUT X
310 IF X>9999 THEN 290
320 IF X<1000 THEN 290
330 P=INT(X/1000)
340 Q=INT((X-1000*P)/100)
350 R=INT((X-1000*P-100*Q)/10)
360 S=INT(X-1000*P-100*Q-10*R)
370 D(1)=P
380 D(2)=Q
390 D(3)=R
400 D(4)=S
410 FOR E=1 TO 4
420 IF D(E)<>B(E) THEN 470
430 PRINT" Black";
440 B(E)=B(E)+10
450 D(E)=D(E)+20
460 H=H+1
470 NEXT E
480 IF H=4 THEN 680
490 FOR F=1 TO 4
500 D=D(F)
510 FOR G=1 TO 4
520 IF D<>B(G) THEN 560
530 PRINT" White";
540 B(G)=B(G)+10
550 GOTO 570
560 NEXT G
570 NEXT F
580 FOR G=1 TO 4
590 IF B(G)<10 THEN 610
600 B(G)=B(G)-10
610 NEXT G
620 H=0
630 PRINT
640 NEXT C
650 PRINT:PRINT"You didn't get it...."
660 PRINT"The answer is  ";B(1);B(2);B(3);B(4)
670 END
680 PRINT:PRINT:PRINT"Well done,Mastermind!"
690 PRINT
700 PRINT:PRINT"You got the answer in just";C;" attempts"
```

MASTERMIND   from Keith McGill

Guess the 4-digit number. 8 tries allowed.
(from Tim Hartnell's Giant Book of Computer
Games.)