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Continued from back page  
on which holds other usefull programs at the same time. When  
the final version is complete the other programs are then  
ERASED and this is the copy used for production runs.  
Leaving the original programs on the disc but intact. WELL  
as we all know, when a program is ERASED it is only the  
Directory entry that is flagged as available for use. If no  
other SAVES are done then the original stuff is recoverable.  
(To your benefit if you take advantage of it)(PS can we see  
the new DOS you have?) As for the extended capacity, that is  
more difficult. It is possible that once you have UN-ERASED  
a file that you have not actually got all of it. If this is  
the case then assuming that the file that has been UN-ERASED  
should be 40K long and you have only got 4K of it then the  
Directory will count all of the 40K as being there,  
although there is actually only 4k. (The best I can offer)

UK EINSTEIN USER GROUP  
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**EDITORIAL**

First of all thanks to all of you who have REACTED to the newsletter, whether it is to complain about the tardiness of publishing or praise us for the quality. The quality is due to those of you who do REACT. Did anyone manage to get an extra machine at COMET when they were having their end of line sale and selling them off at £69.99??? I missed out. Dixons still have some at about £120.00. Not the same though is it?

David Bell of Tatung is leaving and we all wish him the best in his new job. Thanks for all the support you have given us in the past David.

Future plans, and we've got lots of them, but for the present - We intend to set up a BULLETIN BOARD. Fine. Does anyone out there have anything that might be usefull in setting up a bulletin board, from spare discs to dedicated software, from monitor leads to 10Mbyte drives, from modems to experience. We need everything.(Except the telephone line).

Send us your spare bits and pieces, with or without comments, but most of all send us your REACTIONS. Tell us what you want on it, or even if you want it. One of the facilities we hope to offer is demonstration commertial software, so that you can see before you buy. If this is the only facility we end up providing then that alone will make it worth your while getting a modem. Some of the Software houses are interested and are already considering providing demonstration packages.

BASIC BASIC3

Back again so lets get straight to it. This week we will start with the symbol "<" which means less than. So that 1<2 -2<-1 -3<1 are all TRUE but 1<0 and 0<-2 are false. They are located above the full stop and comma.

To see how this works we will write a small program to enter numbers and print the biggest so far.

```

10 CLS
20 PRINT "INPUT A NUMBER";
30 INPUT A
40 LET BIGGEST=A
50 PRINT BIGGEST
60 INPUT A
70 IF BIGGEST<A THEN LET BIGGEST=A
80 GOTO 50
    
```

The crucial part is in line 70 which checks to see if biggest is less than the number just entered and if so makes biggest equal to A.

Another symbol very similar is ">" which means greater than, which is just like "<" but the other way round. Both these signs can be used with "=" or together so that

- < less than
- > greater than
- = equal to
- =< equal to or less than
- => equal to or greater than
- <> less than or greater than (not equal to)

Another way of using them is with some of the logical reserved words used in BASIC "AND" "OR" "NOT". These can be used within basic as you would use "=" or "<>" (not equal to). It is important to be careful how you use them as they can reverse the meaning of the other symbols i.e. NOT<> means "not not equal to" i.e. "equal to" You will get used to them with practice so here is an example.

```

10 INPUT F$
20 INPUT AGE
30 IF F$="X" AND AGE<18 OR F$="AA" AND AGE<14 THEN PRINT "DONT LET
IN"
40 GOTO 10
    
```

As you can see we are asking the computer to check if strings are equal to one another this may sound strange but as the computer can only understand numbers it compares the values it gives to characters. These can be seen in your handbook in the ASCII table.

Another way of using the above commands is IF condition THEN GOTO linenumber

This means if the condition is true goto the line number.

or  
IF NOT condition THEN GOTO linenumber  
if the condition is not true go to the line number.

It is important to understand these commands as they are how you program decision making in to the program. If you are not sure that you have got the hang of it use the two earlier programs and play around with them for yourself.

I think it is now time that we looked at the full character set this can be seen on page 206 of the Introduction to the Einstein. Rather than list them all here the small program below will list them all out.

```

10 CLS
20 FOR X=32 TO 255
30 PRINT CHR$(X);
40 NEXTX
    
```

LINE 10 clears the screen  
LINE 20 starts a loop which will begin at 32 and stop when it reaches 255 moving up one at a time.  
LINE 30 prints the ASCII character that has a value of X

LINE 40 tells the program that this is the end of the loop and to go back to the beginning (i.e. line 20)

As you can see this is a fast program but really it's not a patch on machine code as the computer is doing all the work of converting from English to machine code a line at a time.

If you find that some of the programs don't work this is not a mistake. After all the idea is that you should learn programming and if I did all the work you wouldn't have any fun. The process of removing mistakes from coding is called de-bugging. This is after the original bug. Back in the days when computers were made with valves a moth landed on one of the valves and caused it to blow so from this point on you had to debug programs. (I don't know how true it is either)

That's all for this month but don't let me stop you looking up the commands in the Basic Reference Manual and playing around with them, after all you can't do any harm, the worst thing that could happen is to reboot the computer (press the little button at the back).

WRITER PART 2

The second part of Writer, in this bit comes all the really clever bits so look out for them to improve your own programming skills.

```

14500 REM***SEARCH/REPLACE $***
14510 GOSUB10005
14520 PRINT:PRINT:PRINT"Enter line no. to search from-":
PRINT"<c/r for edit menu>":PRINT"<'A' for all>":
INPUTA$:IFLEN(A$)<1THEN10200
14530 IFA$="A"ORA$="a"THENA=1:B=NL:GOTO14570
14540 A=VAL(A$):IFA=0ORA>NLTHEN14510
14550 PRINT:PRINT"Enter line no. to search to-":
PRINT"<c/r for last line>":
INPUTB$:IFLEN(B$)<1THENB=NL:GOTO14570
14560 B=VAL(B$):IFB=0ORB>NLORB<A THEN14550
14570 PRINT:PRINT"Enter string to search for-":
PRINT"<c/r for edit menu>":INPUTC$:IFLEN(C$)<1THEN10200
14580 PRINT:PRINT"Enter string to replace with-":
INPUTD$:IFLEN(D$)<1THEN10200
14590 PRINT:PRINT"Check each replacement(Y/N)?"
14600 B$=INCH$:IFB$="Y"ORB$="N"ORB$="y"ORB$="n"THEN14610:ELSE14600
14610 C=LEN(C$):GOSUB10005
14620 IFB$="y"THENB$="Y"
14630 FORN=ATOB:IFB$="Y"THENPRINT:PRINT"<;N;>";TEXT$(N)
14640 IFLEN(TEXT$(N))<C THEN14760
14645 IFC$=LEFT$(TEXT$(N),C)THENGOSUB14800
14646 IFLEN(TEXT$(N))<CTHEN14760
14647 IFC$=RIGHT$(TEXT$(N),C)THENGOSUB14900
14650 FORT=1TOLEN(TEXT$(N))-C:L2$=MID$(TEXT$(N),T,1):GOSUB15800
14660 IFL$="YES"THEN14750
14670 L2$=MID$(TEXT$(N),T+C+1,1):GOSUB15800
14680 IFL$="YES"THEN14750
14690 IFMID$(TEXT$(N),T+1,C)<>C$THEN14750
14700 IFB$<>"Y"THEN14740
14710 PRINT:PRINTLEFT$(TEXT$(N),T);"]]]";C$;"[[[";
RIGHT$(TEXT$(N),LEN(TEXT$(N))-(C+T)):PRINT"Change(Y/N)?"
14720 A$=INCH$:IFA$="N"ORA$="n"THEN14750
14730 IFA$<>"Y"ANDA$<>"y"THEN14730
14740 A$=RIGHT$(TEXT$(N),LEN(TEXT$(N))-(T+C)):
TEXT$(N)=LEFT$(TEXT$(N),T)+D$+A$
14750 NEXTT
14760 NEXTN
14770 PRINT:PRINT"All strings changed...":
PRINT" ....now resorting line lengths.":GOTO17000

```

```

14800 IF LEN(TEXT$(N))=C THENA$="":GOTO14840
14810 L2$=MID$(TEXT$(N),C+1,1):GOSUB15800
14820 IF L$="YES"THENRETURN
14830 A$=RIGHT$(TEXT$(N),LEN(TEXT$(N))-C)
14840 IFB$<>"Y"ANDB$<>"y"THEN14890
14850 PRINT"]]]";C$;"[[[";A$
14860 PRINT:PRINT"Change(Y/N)?";
14870 A$=INCH$:IFA$="N"ORA$="n"THENRETURN
14880 IFA$<>"Y"ANDA$<>"y"THEN14870
14890 A$=RIGHT$(TEXT$(N),LEN(TEXT$(N))-C):TEXT$(N)=D$+A$:RETURN
14900 IFLEN(TEXT$(M))=CTHENA$="":GOTO14940
14910 L2$=MID$(TEXT$(N),LEN(TEXT$(N))-C,1):GOSUB15800
14920 IF L$="YES"THENRETURN
14930 A$=LEFT$(TEXT$(N),LEN(TEXT$(N))-C)
14940 IFB$<>"Y"ANDB$<>"y"THEN14990
14950 PRINTA$;"]]]";C$;"[[["
14960 PRINT:PRINT"Change(Y/N)?";
14970 A$=INCH$:IFA$="N"ORA$="n"THENRETURN
14980 IFA$<>"Y"ANDA$<>"y"THEN14970
14990 A$=LEFT$(TEXT$(N),LEN(TEXT$(N))-C):TEXT$(N)=A$+D$:RETURN
15500 REM***FREE WRITING***
15510 CLS:GOSUB10005
15520 PRINT:PRINT"Signify end of paragraph/line with 'p'.":
PRINT"e.g. Dear Sir, p I would etc.etc."
15525 PRINT"<c/r to finish>"
15530 N=NL:PRINT:PRINT:GOTO15590
15550 FORX=1TO255
15560 A$=INCH$:IFASC(A$)=25THEN15600
15561 IFASC(A$)=13 THEN15700
15565 IFASC(A$)<32THEN15560
15570 TEXT2$(N)=TEXT2$(N)+A$:PRINTA$;
15580 NEXTX
15590 N=N+1:TEXT2$(N)="":GOTO15550
15600 IFX=1THEN15620
15610 TEXT2$(N)=LEFT$(TEXT2$(N),X-2):PRINTA$;:X=X-1:GOTO15560
15620 IFN=NL+1THEN15560
15630 N=N-1:X=255:TEXT2$(N)=LEFT$(TEXT2$(N),254):PRINTA$;:GOTO15560
15700 IFN=NL+1ANDX=1THEN10200
15702 L=NL+1:TEXT$(L)=""
15705 FORN2=(NL+1)TON
15710 FORY=1TO255
15720 B$=MID$(TEXT2$(N2),Y,1):IFB$="p"THENTEXT$(L)=TEXT$(L)+B$:
GOTO15770
15722 IFB$="3"THENDB$="ON"
15723 IFB$="4"THENDB$="OFF"
15730 L2$=B$:GOSUB15800
15740 IF L$="NO"THEN15900
15750 TEXT$(L)=TEXT$(L)+B$:NB=NB+LTR(ASC(B$)-31):
IFDB$="ON"THENNBNB=NB+LTR(ASC(B$)-31)
15755 IFN2=NANDY=X-1THEN16000
15760 NEXTY,N2
15770 IF RIGHT$(TEXT$(L),1)=" "THENTEXT$(L)=LEFT$(TEXT$(L),
(LEN(TEXT$(L))-1))
15775 IF LEFT$(TEXT$(L),1)=" "THENTEXT$(L)=RIGHT$(TEXT$(L),
(LEN(TEXT$(L))-1))
15776 L=L+1:NB=0:TEXT$(L)="":IFN2=N ANDY=(X-1)THEN16000
15780 PRINT"Sorting line ";L+1
15790 GOTO15755
15800 REM***CHECK CHECK***
15810 L$="NO"
15820 IF ASC(L2$)>47 AND ASC(L2$)<58THENL$="YES"
15830 IF ASC(L2$)>64 AND ASC(L2$)<91THENL$="YES"
15840 IF ASC(L2$)>96 AND ASC(L2$)<123THENL$="YES"

```

```

15850 RETURN
15900 REM***WORD LENGTH CHECK***
15905 IFN2=N ANDY=(X-1)THENTEXT$(L)=TEXT$(L)+B$:GOTO16000
15910 NB2=NB+LTR(ASC(B$)-31):NB3=0:
      IFDB$="ON"THENNB2=NB2+LTR(ASC(B$)-31)
15915 IF Y=255THEN15950
15920 FORZ=(Y+1)TO255:C$=MID$(TEXT2$(N2),Z,1):L2$=C$:GOSUB15800
15925 IFASC(C$)=0THEN16000
15930 IFL$="NO"THEN15980
15940 NB3=NB3+LTR(ASC(C$)-31):IFDB$="ON"THENNB3=NB3+LTR(ASC(C$)-31)
15945 NEXTZ
15950 FORZ=1TO255:C$=MID$(TEXT2$(N2+1),Z,1):L2$=C$:GOSUB15800
15960 IFL$="NO"THEN15980
15965 IFASC(C$)=0THEN16000
15970 NB3=NB3+LTR(ASC(C$)-31):IFDB$="ON"THENNB3=NB3+LTR(ASC(C$)-31)
15975 NEXTZ
15980 NB3=NB3+LTR(ASC(C$)-31):IFDB$="ON"THENNB3=NB3+LTR(ASC(C$)-31)
15990 IFNB3+NB2>WTHTHENTEXT$(L)=TEXT$(L)+B$:GOTO15770
15995 GOTO15750
16000 PRINT:PRINT"Text sorted.":FORT=1TO500:NEXTT:NL=L-1:GOTO10200
17000 REM***RESORT LINES***
17001 PRINT:PRINT"Have you set page width(Y/N)?"
17002 A$=INCH$:IFA$="Y"ORAS$="y"THEN17005:ELSE10200
17005 L=0:GOTO17320
17010 FORN=1TONL:FORT=1TOLEN(TEXT$(N))
17020 A$=MID$(TEXT$(N),T,1):A=ASC(A$)-31:L2$=A$:GOSUB15800
17030 IFA$="p"THEN17300
17040 IFA$="3"THENDB$="ON"
17050 IFA$="4"THENDB$="OFF"
17060 IFL$="NO"THEN17500
17070 TEXT2$(L)=TEXT2$(L)+A$:FORN2=1TO(4-LEN(DB$)):
      NB=NB+LTR(A):NEXTN2
17080 NEXTT:IF L$="YES"AND(WTH-NB)>4THENTEXT2$(L)=TEXT2$(L)+" ":
      NB=NB+4
17085 NEXTN
17090 GOTO17400
17290 A$=""
17300 TEXT2$(L)=TEXT2$(L)+A$:
      IFASC(TEXT2$(L))=32THENTEXT2$(L)=RIGHT$(TEXT2$(L),LEN(TEXT2$(L)))
17310 IFRIGHT$(TEXT2$(L),1)=""THENTEXT2$(L)=LEFT$(TEXT2$(L),
      LEN(TEXT2$(L))-1)
17320 NB=0:L=L+1:TEXT2$(L)="" :PRINT"Sorting line ";L:
      IFL=1THEN17010:ELSE17080
17330 END
17400 FORN=1TOL:TEXT$(N)=TEXT2$(N):NEXTN
17410 PRINT:PRINT"Text sorted to width:";WTH:NL=L:GOTO40000
17500 NB2=NB+LTR(A):NB3=0:IFDB$="ON"THENNB2=NB2+LTR(A)
17510 IFT=LEN(TEXT$(N))THEN17570
17520 FORY=(T+1)TOLEN(TEXT$(N)):L2$=MID$(TEXT$(N),Y,1):GOSUB15800
17530 IFASC(L2$)=0THEN17660
17540 IFL$="NO"THEN17650
17550 FORN2=1TO(4-LEN(DB$)):NB3=NB3+LTR(ASC(L2$)-31):NEXTN2
17560 NEXTY
17570 FORY=1TOLEN(TEXT$(N+1)):L2$=MID$(TEXT$(N+1),Y,1):GOSUB15800
17580 IFASC(L2$)=0THEN17660
17590 IFL$="NO"THEN17650
17600 FORN2=1TO(4-LEN(DB$)):NB3=NB3+LTR(ASC(L2$)-31):NEXTN2
17610 NEXTY
17650 FORN2=1TO(4-LEN(DB$)):NB3=NB3+LTR(ASC(L2$)-31):NEXTN2
17660 IFNB3+NB2>WTHTHEN17300:ELSE17070
17670 END
40000 REM***PAUSE***
40010 FORT=1TO500:NEXTT:GOTO10200

```

50000 DATA 4,5,7,11,11,11,11,6,6,6,11,11,5,11,5,9,11,7,11,11,11,11,  
11,11,11,11,5,5,9,11,9,11,13,11,11,11,11,11,11,11,7,11  
50010 DATA 11,11,13,11,11,11,11,11,11,11,11,11,11,9,11,9,7,9,7,11,  
11,11,10,8,9,9,9,8,9,3,6,9,4,12,10,9,9,10,9,10,7  
50020 DATA 9,11,11,7,8,8,12,8,12,10  
50030 DATA "000016016016214214016016016000"  
50045 REM\*\*\*SPACE-HASH\*\*\*  
50050 DATA "000000000000", "000096242096000", "00022400000000224000",  
"000040040254040040040254040040000"  
50055 REM\*\*DOLLAR-AND\*\*\*  
50060 DATA "000032084084084254084084084008000",  
"000194194196008016032070134134000",  
"000076178178170074002004010018000"  
50065 REM\*\*\*DASH-ASTERISK\*\*\*  
50070 DATA "000160160192128000", "000016124068130000",  
"000130068124016000", "000040040016016124016016040040000"  
50071 REM\*\*\*PLUS-FULL STOP\*\*\*  
50073 DATA "000016016016016124016016016016000", "000005006006000",  
"000016016016016016016016016016000", "000006006006000"  
50075 REM\*\*\*STROKE-1\*\*\*  
50080 DATA "000006012024048096192000",  
"000056068068130130130068068056000", "000066194254002002000"  
50085 REM\*\*\*2-4\*\*\*  
50090 DATA "000066130134130138130146146098000",  
"000132134130146146178146222140000",  
"000008024040072136136254008008000"  
50095 REM\*\*\*5-7\*\*\*  
50100 DATA "000228166162162162162162182156000",  
"000012030050082146146018030012000",  
"000128128130132136144160192128000"  
50105 REM\*\*\*8-SEMI-COLON\*\*\*  
50110 DATA "000108084146146146146146084108000",  
"000096240144144146148152240096000", "000108108108000",  
"000106108108000"  
50115 REM\*\*\*LEFT-RIGHT BRACKETS\*\*\*  
50120 DATA "000016040040068068130130000",  
"000040040040040040040040040040000",  
"000130130068068040040016000"  
50125 REM\*\*\*?-A\*\*\*  
50130 DATA "000064000128128138136136016096000",  
"000126129153165165164164190162130124000",  
"000030040072136136136072040030000"  
50135 REM\*\*\*B-D\*\*\*  
50140 DATA "000130254146146146146146254108000",  
"000124198130130130130198068000",  
"000130254130130130130130198124000"  
50145 REM\*\*\*E-G\*\*\*  
50150 DATA "000254146146146146146146130130000",  
"000254144144144144144144128128000",  
"000124198130130146146146086028000"  
50155 REM\*\*\*H-J\*\*\*  
50160 DATA "000254016016016016016016254000",  
"000130130254130130000", "000012006002002130130134252128000"  
50165 REM\*\*\*K-M\*\*\*  
50170 DATA "000254016016056040108068198130000",  
"000254002002002002002002002000",  
"000254192064096048016048096064192254000"  
50175 REM\*\*\*N-P\*\*\*  
50180 DATA "000254192096048024012006006254000",  
"000124198130130130130198124000",  
"000254144144144144144144240096000"  
50185 REM\*\*\*Q-S\*\*\*  
50190 DATA "000124198130130138138134206122000",

```

"000254144144144144144156246098000",
"000100246146146146146146222076000"
50195 REM***T-V***
50200 DATA"000128128128128254128128128000",
"000252006002002002002006252000",
"000224024012006002006012024224000"
50205 REM***W-Y***
50210 DATA"000252006004008056008004006252000",
"000130198108056108198130000",
"000128192096048030048096192128000"
50215 REM***Z-BRACKET***
50220 DATA"000130134138146162194130000", "000254130130130130000",
"000192096048024012006002000", "000130130130130254000"
50225 REM***^-`***
50230 DATA"000032096064192128192064096032000",
"000001001001001001001001001001000",
"000017019122146146130066002002000"
50235 REM***a-c***
50240 DATA"004010042042042042028002006",
"254034034034034054028000", "028054034034034034002006"
50245 REM***d-f***
50250 DATA"028054034034034034254002006",
"028042042042042042026002006", "032032126160160160032032"
50255 REM***g-j***
50260 DATA"024060037037037037063000",
"254032032032032048030002006", "190002006", "000001001001190000"
50265 REM***k-n***
50270 DATA"254008008028020054034002006", "252006002006",
"032030048032048030048032048030002006",
"032030048032032032048030002006"
50275 REM***o-q***
50280 DATA"028054034034034054060032032",
"063036036036036036060028000", "028060036036036036036063001003"
50285 REM***r-t***
50290 DATA"032030048032032048016016048",
"016058042042042042042046004000", "032032252038034002006"
50295 REM***u-w***
50300 DATA"060006002002002006060002006",
"048024012006002006012024048032032",
"060006002006028006002006060032032"
50305 REM***x-z***
50310 DATA"034028008028034002006", "056012005005005013063000",
"034038046042058050034000"
50315 REM***{-}***
50320 DATA"000072249010004010022042082159002000",
"000254254000000254254000", "000137170252010022042082191002000"
50325 REM***~***
50330 DATA"000016016016214214016016016000"

```

STOP PRESS We have just received two utilities to further enhance WRITER. These should be published in the next issue.

If you are too lazy to type in the above program then send a blank FORMATTED disc to A.Cull, Woolaston Inn, Woolaston, nr.Lydney, Glos. GL15 6PW along with £5.00 and he will return it with the program and utilities.

E.A.E.A.

Well as the saying goes, from small acorns and all that, (note pun). With a total membership of THREE the East Anglian Einstein Association would like to introduce itself. We hope to contribute a regular issue to each UKEUG publication and organize a group within the Ipswich, or surrounding area with an aim to self help for Einstein users. So anyone living in the above area would be very welcome. Who to contact? Graham Bettany on 0473 49507 or Mike Smallman on 0206 540540.

I was talking to a salesman the other day and he asked, "What is a limited offer?", trying to be clever I replied, "An offer that contains a limiting factor". "Correct and that factor is nearly always the number of customers!" But this is not the case this time. We have six monochrome monitors for sale, all ex commercial equipment made by Harris. Slightly smaller than the Tatung colour monitor and a similar finish, they give excellent results in 80 columns. Originally cost hundred's, to you £45, including cable to connect to 80 column card or YUV output. Originally used as a workstation, including a separate keyboard. We also have for sale three serial printers, again ex commercial kit from Sperry-Univac, I am pretty sure they are OKI 80 printers, unfortunately they require nul characters to fill the print buffer before printing. Hence the price of £20, friction feed, dot matrix, very well made. Can be delivered a reasonable distance or buyer collects.

Why is it that all games are not written for joystick and keyboard? I do not know, but I do know that I much prefer to use a joystick and so do most kids, so any games writers please note. To this end Harry the Hacker, (well, its actually Mike but it didn't rhyme), decided to attack the six pack originally included with the machine to give joystick operation. The method we employ to do this is to disassemble the program and find the keyboard routine, this is usually a direct input from port 3 but can also be a ROM call (usually B5). Note the start address of this routine. Next find the routines that call the keyboard start address, there may be more than one! it is within these routines that the keyboard input is compared and the resulting calls or jumps are made to the part of the program that actually does the work of moving, or shooting etc. all we have to do now is replace the call to the keyboard with a call to a new routine containing the joystick operation. It is possible to place this code within the original program if an unused part can be found, usually memory containing &FF, but it is easier to put it after the end of the original program and save one extra block. The joystick code must contain the calls or jumps that were found earlier, we can then replace the keyboard comparisons with NOP's, (&00), the routine that actually reads the keyboard can be left intact. So if you want to convert Nvaders this is what you do, I would strongly suggest that a copy of the games pack is taken first, remember Murphey! <E> represents a press of the enter key, capitals are instructions to be typed into the machine.

1. Load disc and enter DOS
2. LOAD NVADERS.COM<E>
3. MOS<E>
4. M 1C00<E>
5. 3E04<E> D338<E> AF<E> DB38<E> FEFF<E> 2003<E> C3AF02<E> FE11<E>  
3003<E> C39602<E> C9<E> DB20<E> CB47<E> 2003<E> C3C402<E>  
C9<E>.<E>
6. M 027D<E>
7. C3001C<E> 00000000<E> 00000000<E> 0000<E> C9<E> C3161C<E>  
00000000<E> 000000<E>.<E>
8. Y<E>
9. SAVE 26 INVJOY.COM<E>

You should now have a copy of Nvaders which uses a joystick, the keyboard routine has been removed so cannot be used. To load the program from DOS, I'm sure you know anyway, just type INVJOY. Whilst doing the above I did find that it was necessary to start after doing a reset on the rear of the machine as previous memory contents were still present after the load from DOS?

On attempting to convert TRAXMAN several bugs were found. If the Traxman is moved as far left as is possible and the fire key held down you cannot be killed, the moving objects re-enter the top of the screen. It is quite interesting to see how fast the game is at the quickest level! after passing this level the caterpillar slows to a

snail. Also the game score does not reset on completion of the game. I have tried another copy so I presume these are genuine bugs. But if you want a joystick copy anyway here it is. The keyboard scan starts at location 0647H, it is called from 018AH and 01CBH;

1. Load disc and enter DOS
2. LOAD TRAXMAN.COM<E>
3. MOS<E>
4. M1B80<E>
5. 3E04<E> D338<E> DB38<E> FEOF<E> DAAB01<E> FEF0<E> D29A01<E> C9<E> DB20< E> CB47<E> CAD101<E> C9.<E>
6. M 018A<E>
7. ED4B8105<E> CD801B<E> 00000000<E> 00000000<E>.<E>
8. M 01CB<E>
9. CD911B<E> 0000<E>.<E>
9. Y<E>
10. SAVE 28 TRAXJOY.COM<E>

We haven't given up on the bugs yet, but if anyone out there has the patches why not put them in the UKEUG newsletter. The rest of the six pack will be done for next month, but you could do it yourself with ease now can't you!

If you have a favourite program that you would like converted to joystick, then just send it on disk together with 50p in stamps(p&p) to EAEA, 80 Dales Rd, Ipswich, Suffolk, IP1 4JR. and we'll put a joystick version for you on the other side for free.

~~DDOOUBLLLEE HHEEIIIGGHHTT~~

Ever wondered how they produce those DOUBLE HEIGHT characters in games programs -This routine will allow you to do just this, without being restricted to 4 sprites to a line!!

```

10 REM Subroutine for DOUBLE HEIGHT characters
30 REM The subroutine requires the machine-code file "DBLHT.OBJ" to be loaded at &E000.
70 CLEAR &E000
80 LOAD "DBLHT.OBJ"
110 REM MAIN PROGRAM HERE
140 BCOL 1:TCOL 6:PRINT CHR$(20);:CLS:REM Set background and text cols
150 REM Cursor off and clear screen.
180 REM Before calling the subroutine, WD$ must be declared as the string
190 REM to be printed in double height characters.
200 REM X% and Y% must be set to the horizontal and vertical text cursor positions where the string is to be printed.
240 WD$="EINSTEIN":X%=16:Y%=12:GOSUB 320
270 PRINT CHR$(30);:END:REM Cursor home, then end.
300 REM SUBROUTINE BEGINS
320 PRINT@X%,Y%,"":REM Position cursor.
330 L%=LEN(WD$)
340 POKE&E100,L%:REM Store length of WD$ at &E100 for use by the machine-code routine.
360 FORI%=1TOL%
370 POKE&E100+I%,ASC(MID$(WD$,I%,1)):REM Copy WD$ so it begins at &E101 for use by the machine-code routine.
400 NEXT
410 CALL&E000:REM Call DOUBLE HEIGHT routine.
420 RETURN:REM Return

```

This is the OBJECT code for the double height routine. Type it in in MOS. Return to BASIC with the 'Y' command and then save it with :-  
SAVE "DBLHT.OBJ",&E000,&E049

E000	21	00	E1	46	21	01	E1	E5
E008	C5	7E	6F	26	00	29	29	29
E010	11	00	18	19	E5	C1	21	10
E018	1C	16	08	E5	C5	CF	C2	C1
E020	E1	C5	E5	C1	CF	C3	03	CF
E028	C3	03	C5	E1	C1	03	15	3E
E030	00	BA	20	E7	3E	82	CF	D0
E038	3E	0B	CF	9E	3E	83	CF	9E
E040	3E	0B	CF	9E	C1	E1	23	10
E048	BE	C9						

BOUNCING PIANO'S

Ever had to design and wind your own springs out of piano wire? I have! Wish I'd done this program for myself years ago.

```

0 CLS
10 PRINT"*****"
20 PRINT"*"
30 PRINT"*      PROGRAMME SPRINGS      *"
40 PRINT"*"
50 PRINT"*      Version 1.1      *"
60 PRINT"*"
70 PRINT"*      by      *"
80 PRINT"*"
90 PRINT"*      P.W.H.Moon      *"
100 PRINT"*"
110 PRINT"*"
120 PRINT"*      Xtal BASIC      *"
130 PRINT"*"
140 PRINT"*      Copyright August 1986      *"
150 PRINT"*"
160 PRINT"*****"
170 PRINT:PRINT:PRINT:PRINT
190 FOR I=1 TO 1500: NEXT I
200 CLS
210 PRINT" The program calculates the spring"
220 PRINT"rate (extension or compression in"
230 PRINT"inches for a load of 1 lbf.) for a"
240 PRINT"helical coil spring in tension or"
250 PRINT"compression.":PRINT
270 PRINT" A modulus of rigidity of 11.5E6"
280 PRINT"lbf/sq.in is assumed (steel) unless"
290 PRINT"a different value is input.":PRINT
310 PRINT" The user can specify wire diameter"
320 PRINT"in inches (any value) or S>W>G>"
330 PRINT"between 1 and 40 guage."
340 G=11.5E6:PRINT:PRINT
360 INPUT "MODULUS OF RIGIDITY ? (PRESS <ENTER> FOR DEFAULT VALUE) ";G
370 IF G=0 THEN G=11.5E6
380 PRINT"DIAMETER OF WIRE: INCHES <I> ?"
390 PRINT"          OR S.W.G. <S> ?"
400 N$=INCH$:IF N$="I" THEN 430
420 IF N$="S" THEN 450:ELSE 380
430 INPUT "WIRE DIAMETER IN INCHES ";DW
440 GOTO530
450 INPUT "WIRE DIAMETER IN S.W.G. ";DS
460 IF DS<1 OR DS>40 THEN PRINT"GUAGE 1 - 40 ONLY":GOTO450
470 FOR I=1 TO DS:READ DW:NEXT I:RESTORE
480 DATA .3, .276, .252, .232, .212, .192, .176, .16, .144, .128
490 DATA .116, .104, .092, .08, .072, .064, .056, .048, .04, .036
500 DATA .032, .028, .024, .022, .02, .018, .0164, .0148, .0136
510 DATA .0124, .0116, .0108, .01, .0092, .0084,
515 DATA .0076, .0068, .006, .0052, .0048
520 PRINT"WIRE DIAMETER ";DW;"(";"DS;" S.W.G.)"
530 INPUT"DIAMETER OF COIL MEASURED BETWEEN WIRE CENTRES ";DC
540 INPUT"NUMBER OF ACTIVE TURNS ";N
550 CLS:PRINT:PRINT:PRINT:PRINT"      G=";G;"LBF/SQ.IN"
570 PRINT"      d=";DW;" inch":PRINT"      D=";DC;" inch"
590 PRINT"      N=";N;" turns":R=G*DW^4/(8*N*DC^3)
610 PRINT:PRINT:PRINT:PRINT"      SPRING RATE ";R;" lbf/in"
630 PRINT:PRINT"ANOTHER CALCULATION (Y/N) ?"
640 N$=INCH$:IF N$="N" OR N$="n" THEN840
660 IF N$<>"Y" AND N$<>"y" THEN630
670 PRINT"CHANGE G, d, D, OR N (WHICH)"
680 N$=INCH$:IF N$="G" THEN INPUT "G ?";G
    
```

```

700 IFG=0 THEN G=11.5E6:GOTO550
710 IF N$="G" THEN 550
720 IF N$="D" THEN INPUT "D ?";DC:GOTO550
730 IF N$="N" THEN INPUT "N ?";N:GOTO550
740 IF N$="d" THEN PRINT"INCHES <I> OR S.W.G. ?"
750 M$=INCH$:IF M$="I" THEN780
770 IF M$="S" THEN 790:ELSE 740
780 INPUT "WIRE DIAMETER IN INCHES ?";DW:GOTO550
790 INPUT "WIRE DIAMETER IN S.W.G. ?";DS
800 IF DS<1 OR DS>40 THEN PRINT"GUAGE 1 - 40 ONLY":GOTO790
810 FOR I=1 TO DS:READ DW:NEXT:RESTORE
820 PRINT"WIRE DIAMETER ";DW;"(";DS;" S>W>G>)"
830 GOTO550
840 END
    
```

#### HINTS & TIPS REVISITED

We have been getting a number of requests for information that has already been published in previous Hints & Tips sections so here is a recap of some of them.

#### First

#### REPLACING DOS

To put DOS on a disc that does not have DOS on it, wether it has been corrupted or is supplied without DOS.

1. Boot your machine with no disc
2. Insert a disc with the required DOS in drive 0
3. Type "R 1000 2FFF" This reads the System tracks into memory.
4. Place the disc with no DOS on it in drive 0
5. Type "W 1000 2FFF" This writes the System tracks onto the disc.
6. Press Ctrl/Break. It should now work.

#### 80 Column BASIC

To use XBAS on the 80 Column Screen:-

1. load XBAS as per normal
2. Type "MOS " <E>
3. press "Ctrl P"
4. type "Y" <E>

You should now be back in BASIC on the 80 column screen.

As the screen editing does not work in 80 columns, and if you try it, it will throw you back into 40 cols, you should now type 'IOM 0,0' . This will switch OFF screen editing and only allow LINE EDITing, thereby preserving 80 columns.

#### CHANGING KEYBOARD RESPONSE RATE

Locations FB42H and FB43H hold the keyboard delay, and keyboard repeat speed. Altering these values by poking them will alter the speed of response of the keyboard. Don't forget to change them back to their original values before exiting your program or you won't be able to type quickly enough to load your next program. (Unless you re-boot).

#### MATHS

Don't forget that X\*X is NOT equal to X^2, so if accurate results are necessary use X\*X.

#### ALPHA LOCK TOGGLE

The value in location FB3EH determines wether or not upper case is selected. If it holds 8 then Lower Case is selected. If it holds 136 then Upper Case is selected. Poke it with the value you require for whichever case you want. The Light is operated by port 22H. So doing an INP(&22) will switch it on if it is off and visa versa.

#### DATA CHECKING

Ever typed in a programme using DATA statements by the score and found out that one of them at least was chucking an elephant sized BUG into

the works. The only answer is to check each entry line by line. Do it this way and you will have no distracting lines around to put you off. First do a RENUM 10 to ensure that all the lines are numbered to an increment of 10 and then type in the following routine:

```

1 CLS:FOR A=50 TO 70 STEP 10
2 PRINT@0,20:REM OR WHEREVER YOU WISH TO PLACE THE LINE
3 LISTA,,A:REM DON'T FORGET THE TWO COMMAS
4 X=INCH:IFX=32 THEN CLS:NEXT
    
```

With the above listing, I am assuming you wish to inspect lines 50 to 70 though of course you simply use the line numbers you are interested in. I added line 2 since it helps to have the line displayed somewhere lower-midscreen. When you find the error, don't attempt to amend it just yet. Mark it on the copy and continue to check. Then after amending errors simply type RUN 10 and if all is well you can do a DEL1,4 to remove the check routine. Happy huntin'. George Longden (Idiot 2nd class)

These are the most requested ones, if there is something special you want to know write and ask us, we will do our best to find out for you.

### HIDDEN BOMB

An appealing little game to while away a few moments.

```

10 BCOL6
20 CLS 40
30 PRINT"ALBERT HAS HIDDEN
  A BOMB SOMEWHERE IN"
40 PRINT"THE GRID. YOU
  MUST FIND IT BEFORE IT"
50 PRINT"GOES OFF."
60 PRINT:PRINT"BE CAREFUL
- IT HAS A DELICATE FUSE !"
70 PRINT:PRINT"AWAY YOU GO
  MY BRAVE ONE AND MAY THE "
80 PRINT"SPIRIT OF THE
  GUARDIAN OF THE SACRED"
90 PRINT"UNDERPANTS BE
  WITH YOU"
100 PRINT:PRINT"PRESS SPACE
  BAR WHEN READY"
110 X=INCH:IF X<>32THEN 110
120 CLS:X=0:Y=0
130 COUNT=1
140 GOSUB440

150 CX=RND(17)+1:
  CY=RND(17)+1
160 ?@23,5,"PRESS SPACE"
170 ?@23,6,"WHEN READY"
180 ?@23,8,"YOUR LAST"
190 ?@23,9,"COORDINATES : "
200 ?@23,10," _____ "
210 ?@23,12," X Y"
220 ?@23,13,X;"",Y;
230 D=INCH:IFD<>32 THEN 160
240 IF D=32 THEN CLS
250 PRINT@0,22
260 INPUT"MOVE LEFT";L
270 INPUT"MOVE RIGHT";R
280 INPUT"MOVE UP";U
290 INPUT"MOVE DOWN";D
300 COUNT=COUNT+1
310 X=X-L:X=X+R
320 Y=Y-U:Y=Y+D

330 IFX>CX AND Y>CY THEN PRINT"YOU ARE LOW AND RIGHT ":GOTO410
340 IFX>CX AND Y<CY THEN PRINT"YOU ARE HIGH AND RIGHT ":GOTO410
350 IFX<CX AND Y>CY THEN PRINT"YOU ARE LOW AND LEFT ":GOTO410
360 IFX<CX AND Y<CY THEN PRINT"YOU ARE HIGH AND LEFT ":GOTO410
370 IFX=CX AND Y>CY THEN PRINT"YOU ARE LOW ":GOTO410
380 IFX=CX AND Y<CY THEN PRINT"YOU ARE HIGH ":GOTO410
390 IFY=CY AND X<CX THEN PRINT"YOU ARE LEFT OF BOMB ":GOTO410
400 IFY=CY AND X>CX THEN PRINT"YOU ARE RIGHT OF BOMB ":GOTO410
410 IFY=CY AND X=CX THEN GOTO690
420 GOSUB440
430 GOTO670
440 PRINT@0,0
450 PRINT" 11111111"
460 PRINT"Y 012345678901234567>X"
470 DRAW12,176 TO 120,176
480 PRINT" 0";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
490 PRINT" 1";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
500 PRINT" 2";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
    
```

```

510 PRINT " 3";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
520 PRINT " 4";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
530 PRINT " 5";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
540 PRINT " 6";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
550 PRINT " 7";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
560 PRINT " 8";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
570 PRINT " 9";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
580 PRINT "10";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
590 PRINT "11";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
600 PRINT "12";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
610 PRINT "13";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
620 PRINT "14";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
630 PRINT "15";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
640 PRINT "16";MUL$(CHR$(189)+CHR$(161),9);CHR$(181)
650 PRINT "17";MUL$("On",9);"{"

```

```

660 RETURN
670 PRINT@(X+2),(Y+2),"*"
680 GOTO160
690 CLS
700 FOR FLASH=1 TO 75
710 F=RND(14)+1:BCOLF:REM
    OMIT THIS IF FLASHING
    SCREENS ARE HARMFUL
720 FOR J=1 TO 4
730 PSG6,31:PSG7,71
740 PSG8,16:PSG9,16
750 PSG10,16:PSG12,100
760 PSG13,0:PSG3,0
770 T=RND(2000):FOR I=1 TO
    5:NEXT I,J

```

```

780 FOR PAUSE=1 TO 2000:
    NEXT
790 FOR FLASH =1 TO 75
800 F=RND(14)+1:BCOLF:REM
    OMIT THIS IF FLASHING
    SCREENS ARE HARMFUL
810 NEXT:BCOLF
820 CLS:PRINT"AH! .. I
    SEE YOU FOUND IT !"
830 FOR PAUSE=1 TO 2000:
    NEXT
840 CLS
850 PRINT"IT TOOK YOU ";
    COUNT;" TRIES"
860 PRINT

```

```

870 IF COUNT<2 THEN PRINT"HOW LUCKY CAN YOU GET ?"
880 IF COUNT>1 AND COUNT<3 THEN PRINT"THAT WAS LUCKY !"
890 IF COUNT>2 AND COUNT<5 THEN PRINT"THAT WAS PRETTY GOOD !"
900 IF COUNT>4 AND COUNT<7 THEN PRINT"TOOK YOU LONG ENOUGH !"
910 IF COUNT>6 THEN PRINT"IF YOU ARE THINKING OF NAVIGATION AS A
    CAREER ---- FORGET IT !"
920 PRINT:PRINT"LIKE ANOTHER GO ? <Y/N> "
930 X=INCH:IFX=89 THENGOTO120:ELSE END

```

MAST.CAT SQUASHED

This program has been around for a while and has now been further modified to run on the Einstein. It prints out the contents of MAST.CAT in a much condensed form with no loss of data. To get the best out of it you should set up your printer appropriately.

```

10 CLS:PRINT@0,10
20 PRINT"This program will
    input your MAST.CAT"
30 PRINT"or other listing
    file and print either"
40 PRINT"to screen or
    printer.":PRINT
50 PRINT"On prompt enter
    column width of the"
60 PRINT"chosen device.
    <space> to continue"
70 PRINT" any
    other key to end "
80 X=INCH:IF X=32 THEN
    90:ELSE END
90 ON EOF GOTO290

```

```

100 CLS:INPUT"NAME OF FILE
    TO READ ? ";FIL$
110 INPUT "OUTPUT TO
    PRINTER ? <Y/N>";OPT$
120 INPUT "HOW MANY COLUMNS
    ON OUTPUT DEVICE ? ";W
130 B$="":CLS
140 SEP13:C=0
150 OPEN FIL$,FDS
160 I=I+1
170 INPUTEFDS;A$
180 FOR J=1 TO 12
190 P$=MID$(A$,J,1)
200 IF P$="," OR P$="+"
    THEN220
210 X$=X$+P$

```

```

220 NEXT J
230 IF X$=B$ THEN I=I-1:
    GOTO290
240 IF OPT$="N" OR OPT$="n"
    THEN260
250 PRINT£1
260 PRINTTAB(C);X$;
270 C=C+15
280 IFC>W THEN C=0:PRINT
290 B$=X$:X$="":GOTO160
300 PRINT:PRINT"
    ";I;" FILES LOGGED"
310 END

```

FRUIT MACHINE

For all you inveterate gamblers.

```

10 REM*****
20 REM*****
30 REM IF YOU MUST CHEAT, THEN TRY FIRST
40 REM CHANGING THE VALUES OF THE RND
50 REM STATEMENT FOR THE CENTRE DRUM
60 REM*****
70 REM*****
80 RST:CLS40:BCOL4
90 TCOL15,6:PRINT@7,2,"THIS IS A 10p SLOT MACHINE"
100 TCOL15,4
110 PRINT@1,6,"PAYOUT IS £1 FOR ANY LINE OF THREE "
120 PRINT"20p FOR CERTAIN OTHER (X2) COMBINATIONS"
130 PRINT:PRINT"ALL THREE DRUMS SAME COLOUR WINS 20p"
140 PRINT"THREE OF A KIND OF SAME COLOUR WINS £5"
150 PRINT
160 PRINT
170 PRINT"A SCORE OF MORE THAN £1000 ON A £1"
180 PRINT"BANK WINS FREE MEMBERSHIP OF"
190 PRINT"GAMBLERS ANONYMOUS"
200 PRINT"    GOOD    LUCK !"
210 PRINT:PRINT"HOW MANY 10p COINS DO YOU HAVE? "
220 PRINT:INPUT M
230 M=M*10
240 CLS:PRINT@0,15,"YOU START WITH £";INT(M/100);".";M MOD 100
250 VOICE 0,0,10,3,36,3
260 TEMPO7:MO$="VOR6F6R6DE6R6C6C6DE6G£6F9R1"
270 M1$="V0-F6R6-DE6R6-C6-C6-E6-F£6-B6-A9R1"
280 MUSIC MO$,M1$,"R"
290 PRINT@8,20,"PRESS 'S' TO SPIN OR "
300 PRINT@8,21,SPC(6);"'X' TO FINISH"
310 PRINT
320 Y=INCH:IF Y=83 OR Y=115 THEN CLS:GOTO390
330 IF Y=88 OR Y=120 THEN END:ELSE GOTO 320
350 REM*****
360 REM***** DRAW BOX *****
370 REM*****
390 CLS32
400 DRAW 60,80 TO 60,120
410 DRAW 60,120 TO 186,120
420 DRAW 186,120 TO 186,80
430 DRAW 186,80 TO 60,80
450 REM*****
460 REM***** SPIN ROUTINE *****
470 REM*****
490 SPEED 200
500 SHAPE 130,"FF818181818181FF"
510 SHAPE 131,"0814224122140800"
520 SHAPE 133,"007E424242427E00"
530 SHAPE 135,"0808087F08080800"
540 SHAPE 136,"4122140814224100"
550 SHAPE 137,"0000000000000000"
560 A$=CHR$(130):B$=CHR$(131):C$="*":D$=CHR$(133):E$="£"
570 F$=CHR$(135):G$=CHR$(136):H$=CHR$(137)
580 GOTO800

```

```

590 TA$=H$+H$+H$:RA$=H$+F$+H$:LA$=H$+H$+H$:RETURN
600 TA$=H$+H$+H$:RA$=H$+G$+H$:LA$=H$+H$+H$:RETURN
610 TA$=H$+H$+H$:RA$=H$+H$+H$:LA$=H$+H$+H$:RETURN
620 TA$=H$+H$+H$:RA$=H$+A$+H$:LA$=H$+H$+H$:RETURN
630 TA$=H$+H$+H$:RA$=H$+B$+H$:LA$=H$+H$+H$:RETURN
640 TA$=H$+H$+H$:RA$=H$+C$+H$:LA$=H$+H$+H$:RETURN
650 TA$=H$+H$+H$:RA$=H$+D$+H$:LA$=H$+H$+H$:RETURN
660 TA$=H$+H$+H$:RA$=H$+E$+H$:LA$=H$+H$+H$:RETURN
670 TA$=A$+A$+A$:RA$=A$+H$+A$:LA$=A$+A$+A$:RETURN
680 TA$=A$+A$+A$:RA$=A$+A$+A$:LA$=A$+A$+A$:RETURN
690 TA$=A$+A$+A$:RA$=A$+B$+A$:LA$=A$+A$+A$:RETURN
700 TA$=A$+A$+A$:RA$=A$+C$+A$:LA$=A$+A$+A$:RETURN
710 TA$=A$+A$+A$:RA$=A$+D$+A$:LA$=A$+A$+A$:RETURN
720 TA$=A$+A$+A$:RA$=A$+E$+A$:LA$=A$+A$+A$:RETURN
730 TA$=A$+A$+A$:RA$=A$+F$+A$:LA$=A$+A$+A$:RETURN
740 TA$=A$+A$+A$:RA$=A$+G$+A$:LA$=A$+A$+A$:RETURN
760 REM*****
770 REM***** LEFT HAND DRUM ****
780 REM*****
800 COLA=RND(12)+3
810 IF COLA=3 OR COLA=4 OR COLA=6 OR COLA=7 THEN 800
820 IF COLA=9 OR COLA=11 OR COLA=13 THEN 800
830 TCOL15,COLA:A-RND(7)+1
840 ON A GOSUB 590,600,610,620,630,640,650,660
850 PRINT@9,10,TA$
860 PRINT@9,11,RA$
870 PRINT@9,12,LA$
880 PSG7,126:PSG8,15:PSG0,80
890 FOR T=1 TO 30:NEXT T
900 PSG8,0
920 REM*****
930 REM***** CENTRE DRUM ****
940 REM*****
960 COLB=RND(12)+3
970 IF COLB=3 OR COLB=4 OR COLB=6 OR COLB=7 THEN 960
980 IF COLB=9 OR COLB=11 OR COLB=13 THEN 960
990 TCOL15,COLB:B-RND(16)+1
1000 ON B GOSUB 590,600,610,620,630,640,650,660,670,680,690,700,
710,720,730,740
1010 PRINT@14,10,TA$
1020 PRINT@14,11,RA$
1030 PRINT@14,12,LA$
1040 PSG7,126:PSG8,15:PSG0,80
1050 FOR T=1 TO 30:NEXT T
1060 PSG8,0
1080 REM*****
1090 REM*** RIGHT HAND DRUM ****
1100 REM*****
1120 COLC=RND(12)+3
1130 IF COLC=3 OR COLC=4 OR COLC=6 OR COLC=7 THEN 1120
1140 IF COLC=9 OR COLC=11 OR COLC=13 THEN 1120
1150 TCOL15,COLC:C-RND(7)+1
1160 ON C GOSUB 590,600,610,620,630,640,650,660
1170 PRINT@19,10,TA$
1180 PRINT@19,11,RA$
1190 PRINT@19,12,LA$
1200 PSG7,126:PSG8,15:PSG0,80
1210 FOR T=1 TO 30:NEXT T
1220 PSG8,0
1240 REM*****
1250 REM*** WIN HOUSING ****
1260 REM*****
1280 TCOL15,4:SPEED255:PRINT@6,15

```

```

1290 IF COLA=COLB AND COLA=COLC AND A=B AND A=C THENPRINT"JACKPOT!
YOU WIN £5":M=M+500:GOTO1360
1300 IF COLA=COLB AND COLA=COLC AND A=B THEN PRINT THREE OF A COLOUR
AND A PAIR":WIN=20:GOTO1740
1310 IF COLA=COLB AND COLA=COLC AND B=C THEN PRINT"THREE OF A COLOUR
AND A PAIR YOU WIN 50p":WIN=20:GOTO1740
1320 IF COLA=COLB AND COLA=COLC THEN PRINT"THREE OF A COLOUR - YOU
WIN 20p":WIN=20:GOTO1740
1330 IF A=B AND A=C THEN PRINT"THREE OF A KIND - YOU WIN
£1":M=M+100:GOTO1360
1340 IF A=B OR B=C OR A=C THEN PRINT"A PAIR - YOU WIN 20p":
WIN=20:GOTO1740
1350 GOTO1470
1360 VOICE 0,0,10,3,36,3
1370 TEMPO7:MO$="VOR6F6R6D£6R6C6C6D£6G£6F9R1"
1380 M1$="VO-F6R6-D£6R6-C6-C6-E6-F£6-B6-A9R1"
1390 MUSIC MO$,M1$,"R"
1400 IF M=0THEN1640
1410 TCOL15,4:PRINT@22,0,"£";INT(M/100);".";M MOD 100:GOTO290
1430 REM*****
1440 REM***** LOSE ROUTINE *****
1450 REM*****
1470 M=M-10:I=I+1
1480 IFI>1 THEN1500
1490 PRINT:PRINT"SORRY YOU LOST 10p":GOTO1400
1500 X=RND(5)+1
1510 ON X GOTO 1520,1530,1540,1550,1560
1520 PRINT:PRINT"TOUGH! YOU LOST AGAIN":GOTO1580
1530 PRINT:PRINT"SHAME BUT YOU CAN'T WIN EM ALL!":GOTO1580
1540 PRINT:PRINT"I HATE TO TELL YOU THIS BUT...":GOTO1580
1550 PRINT:PRINT"YOU MUST BE A JONAH -":PRINT"YOU LOST AGAIN":
GOTO1580
1560 PRINT:PRINT"THIS JUST AINT YOUR DAY .....":GOTO1580
1570 PRINT"YOU'VE LOST AGAIN!"
1580 IF M=0 THEN 1640:ELSE 1400
1600 REM*****
1610 REM***** BROKE ROUTINE *****
1620 REM*****
1640 PRINT"SORRY - YOU ARE BROKE! "
1650 PRINT"I DO SYMPATHIZE "
1660 PRINT:PRINT"TRY AGAIN ? <Y/N> "
1670 Q=INCH:IF Q=89 OR Q=121 THEN 210
1680 IF Q=78 OR Q=110 THEN END:ELSE 1660
1700 REM*****
1710 REM***** GAMBLE ROUTINE ***
1720 REM*****
1740 PRINT"GAMBLE? <Y/N>"
1750 Q=INCH:IF Q=78 OR Q=110 THEN1770
1760 IF Q=89 OR Q=121 THEN1790:ELSE 1750
1770 IF WIN=50 THEN M=M+50:GOTO1360
1780 IF WIN=20 THEN M=M+20:GOTO1360
1790 P=1
1800 GAMBLE=INT(RND(3))+1
1810 IF GAMBLE MOD 2=0 THEN TCOL15,6:PRINT@10,5," W I N "
1820 FOR PAUSE=1 TO 200:NEXT:TCOL15,4:PRINT@10,5," "
1830 IF GAMBLE MOD 2=1 THEN TCOL15,6:PRINT@10,5," L O S E "
1840 FOR PAUSE=1 TO 200:NEXT:TCOL15,4:PRINT@10,5," "
1850 P=P+1:IF P<10 THEN 1800
1860 IF GAMBLE MOD 2=0 THEN PRINT@10,5,"YOU WIN":ELSE GOTO1900
1870 IF WIN=50 THEN M=M+100:GOTO1360
1880 IF WIN=20 THEN M=M+20:GOTO1360
1890 FOR PAUSE=1 TO 500:NEXT
1900 PRINT@10,5,"YOU LOSE":M=M-10:GOTO1400

```

P.D.SOFTWARE

As you have probably noticed from the front page, we now have a member dealing specifically with the P.D.Software. This is because of the demand. Richard has been the person most instrumental in obtaining that which we already have and has very kindly volunteered to not only collect, catalogue and test all the P.D.Software he can obtain, but also do the copying and distribution of same. So, from now on all P.D.Software enquiries should be sent to Richard Foulser 20 Wentworth Close, Barnham, West Sussex., along with a blank FORMATTED disc and £1.50. We have every confidence that Richard will be able to build on what we already have to provide a library that will be truly worthwhile. His first review should be appearing in the January issue. (which will hopefully be printed in January)

SCIENCE and SORCERY - THE ADVENTURER'S COLUMN  
( DAMMIT I'VE DIED AGAIN!!)

We had a call from Tony Stansfield to say that INFOCOM are no longer producing adventure games for the EINSTEIN. He is however working on a method to enable us to supply or convert or reconfigure their games from other formats to EINSTEIN format. As soon as we have any more information on this we will let you know. He is still available at:-  
8 Coltsfoot Drive, Altrincham, Cheshire

ELECTRONIC BOOK

Peripherals and add ons for the Einstein seem to be few and far between, so if you want any it seems to be a case of converting existing stuff for other machines. I happened to be in a TANDY shop and looking round I noticed their ELECTRONIC BOOK. At £16.95 it seemed a reasonable price to experiment with. The book is just like a ring folder. It has three rings in it with those clever little levers to open them. The really clever bit is the back cover which has twelve little key pads, connected to a resistor network which terminates, via a block and cable in the spine, to a 5 pin DIN plug. Each of the pads is about 1.5in sq.

The first thing to do is to reconnect the lead. Get a five pin DIN socket and a seven pin DIN plug. The plug to go into the EINSTEIN joystick port. Wire up the socket to the plug as follows:-

Pin on Socket	Pin on Plug
1	5
3	2
4	3
5	1

Plug into joystick port 1. ADC(0) will read pads 1 to 6 and ADC(1) will read pads 7 to 12. This line will illustrate it working.

```
10 A=ADC(0):B=ADC(1):?@0,0,A,B:GOTO10
```

You will get a continuous readout of the values read at the port. It won't take long to realise that the values obtained vary wildly. But what is a computer for if not to rectify problems. The following routine will produce a value in 'C' equivalent to the pad pressed.

```
2000 PRINT@0,0,"";A,B          2110 IFA=4 THEN C=3:RETURN
2010 GOSUB2040                 2120 IFA=3 THEN C=6:RETURN
2020 PRINT@1,1,"C=";C         2130 IFA=2 THEN C=5:RETURN
2030 GOTO2000                 2140 IFA=1 THEN C=4:RETURN
2040 A=INT(ADC(0)/40)         2150 RETURN
2050 IF A>0 THEN GOTO2090     2160 IFB=6 THEN C=7:RETURN
2060 B=INT(ADC(1)/40)         2170 IFB=5 THEN C=8:RETURN
2070 IF B>0 THEN GOTO2160    2180 IFB=4 THEN C=9:RETURN
2080 A=0:RETURN              2190 IFB=3 THEN C=12:RETURN
2090 IFA=6 THEN C=1:RETURN    2200 IFB=2 THEN C=11:RETURN
2100 IFA=5 THEN C=2:RETURN    2210 IFB=1 THEN C=10:RETURN
```

I have had a quick play with it and have got it running PICPEN quite effectively, but it still needs some work on it. Hope to publish details next issue.

DISC DRIVES

E.Longdon  
119 Cemetery Rd  
DARWEN  
Lancs  
BB3 2LZ

I have been in touch with a supplier of second/external disc drives for the EINSTEIN and he has invited me to accept orders on his behalf from UKEUG members.

On receipt of orders, I will advise him whether the drive is to be configured for DRIVE 1 or external etc, and will also enclose a brief explanatory note on fitting them.

Now for the good part. The cost of a second drive for Albert is FORTY-FIVE pounds inclusive of postage and this will include everything needed. i.e. DRIVE, TWIN RIBBON CABLE, POWER CONNECTING CABLE and SCREENING SHROUD.

Other drives also available are 40 track double sided 3.5" and a switchable double sided 5.25" drive. These two costing £90 and £160 respectively and will include PSU and all necessary connecting cables/ribbons. There is also a double sided 5.25" 80 track which will cost £150 including PSU etc.

There is currently a shortage of black fronted drives so members will have to be prepared to accept a white fronted job. If you are really fussy you can always get cracking with a paint pot.

All cheques to me please and if any delay above 7 days is likely, the sender will be advised.

Geo

MORE DISC DRIVES

In a previous issue there was an offer for the ACC 10 Mb HARD DISC drive at £584.00 plus vat and postage.

This price has now been reduced to £499.00 plus vat and postage which comes to £581.85.

But we have come to an arrangement where if it is ordered through us then the price would be £520.00 TOTAL COST. If you would like to order one then please send a cheque for the above amount made out to K.Stokes Disk A/C to me at the following address.

K. Stokes, Hillcroft, Codsmore Hill, Pulborough, West Sussex .RH20 1BQ.

~~~~~  
MAILBOX

This is a new section which will appear when ever it has been updated. It is a directory of our members who are on TELECOM GOLD or PRESTEL with their MAILBOX numbers. If YOU are on either of these systems and your name is not here then let us know so that it will be included next time.

| NAME          | GOLD     | PRESTEL   |
|---------------|----------|-----------|
| KEITH STOKES  | MAG90044 |           |
| DAVE WEST     | MAG95189 | 219994851 |
| JEAN SKILLERN |          | 903725931 |
| JOHN RAPER    |          | 219994920 |
| LESLIE WARNER |          | 919999523 |

**CORRESPONDENCE!!**

As a new member to the UKEUG I have a few comments to make about the October newsletter. **THERE WAS NO ADDRESS FOR CORRESPONDENCE** H.Spence

If I have written to the wrong address I apologise - the magazine does invite comment and asks letters to be sent to the usual address but I found it difficult to find any address within its pages. S.Blaires

If the editor of UKEUG would like any contributions it would be helpful to include his address. Jim Makin

For mercy's sake put your address on the front page of the newsletter. I've had to load a -- file to find it. Geo GD3IQS

**ANSWER** Sorry, sorry, SORRY. I hope the Front Page will get around a problem that we have caused, and to remember we would like to have a lot more names and addresses and/or tele nos. to put on it. We do try hard but it is only with the valued help of those of you who do write in that we can produce what you require, so keep it coming in.

**ASSEMBLY LANGUAGE**

I have recently received my first newsletter (Issue 11) since becoming a member, and have noticed from this that you have been running a series on A L P. This is a subject of which I have no experience, and am interested in learning more about. Could you tell me how long the series has been running for and how I go about obtaining the relevant back copies.

My secondary hobby is Electronics, and I have recently been experimenting with practical interfacing projects with the Einstein. As the machine offers a good range of ports it is the ideal machine for this area of electronics. Would you be interested in publishing articles and circuits for any successful projects, so that they may be of benefit to other users who have an interest in this type of application. I could support them with circuit diagrams and example software routines.

Lucien H. McQueen

Well Lucien, Back copies are available from Jean Stillera (on the front page) The ones you require are 6,7,8, and 9. We hope to soon be resuming the series. Interfacing. A.D.Panting was asking for precisely this type of information in issue twelve so I think that the answer is a very strong YES PLEASE.

**BREAK DOWN**

Issue twelve of the newsletter is the best yet (I like this ED) and look forward to next years issues.

I Cannot get Chris Giles' ULTIMATE BREAK program to run as expected. Program entered as written using ZEN. Location 0030H changed to C3 0001: Jump to ZEN. On testing a break from a loop it finishes up in NOS. A.P.White

**ANSWER**

I don't know! The routine was written as a quick and dirty solution to a current problem and since I use NOS for debugging (I feel that it has better facilities than ZEN for this). You could try replacing both the RST 30H instructions with C3 00 01, but I have a feeling that in use, the stack would be so full of junk (particularly if you have any CALLS in the routine) that you could end up in all sorts of trouble!! The other difficulty could be the way that NOS routines are called via RST 0H and you may find that on doing the last RST30H NOS is switched in rather than the

Memory bank that holds your C3 0001. I do hope this helps.

**SYNTHESIS**

I am currently equipping an 8 track recording studio and I was wondering if it was possible to have my Einstein Retrofitted, and if you knew of any company that writes software to enable the Einstein to sequence keyboards, drum machines etc. or sample sounds. I have seen similar software for the C64/128 and was wondering if this could be adapted for the Einstein. Paul Stott

**ANSWER** All we have been able to dig out so far is that a company called MARK TIME in Orpington Kent have been working on this. We have tried to contact MARTIN on 0689 78424 (who is meant to know all about it) but so far to no avail. If anyone else out there knows anything please write in.

**WHO'S A CLEVER BOY?? 10/11/86**

Who's a clever boy then? Well perhaps I was being a little presumptuous on Saturday and assumed that the stuff you were copying to my disc was the index of the PD software you have on hand. When I got home I discovered that it contained NS, CATVD etc. which I already hold. I really wanted that list of PD stuff which I saw on the screen. I enclose herewith stamp for return and could you please (very pretty please) load the enclose disc with the list of PD titles which you have on hand. Geo GD3IQS

**STILL WAITING 10/11/86**

Back gun lad - the talk the time w/ you disc!....enclose a sort of silly little program which could well amuse the young - or perhaps those of a silly masochistic disposition. Geo. GD3IQS

**ANSWER** By now (9/1/87) you should have had your disc back, and thanks for your contributions. We have re-arranged the supply of PD software and it should now get a very much quicker turn around. See PD page.

P.S. If you want your call sign after your name when we publish your missives then please put it on each letter, I've had to load a ----- file to find it!!!!

**FREE SOFTWARE!!!!**

Using the KUMA "Discnod" program I have been looking at the directories of the commercial software I have bought over the years. To my amazement I have discovered that a lot of these discs contain erased files which, with the help of the Discnod software, can be restored and successfully run.

I have obtained in this manner a different form of BASIC with more commands, a different DOS with a different opening screen, two copies of TANSORD and many other programs. What is confusing me is that when I examined the directory on ----- disc "-----" I found many erased programs, after having "un-erased" them and went back into DOS and asked for a Directory - sure enough they all showed up, but the message at the bottom of the screen read - 242K used 2K free 190K total

How can a 190k disc hold 242k of files. When I erased 20k of files it then read 222k used 22k free 190k total.

Is this some sort of error or can discs actually hold more than 190K.

**ANSWER** It is our belief that when software houses are developing programs they have a disc that they are working