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M.O.C.

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E D I T O R I A L (March 1986)

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Several things have caused this month's magazine to be a couple of days late, the first is Memotech. All month they have been holding us on tenderhooks by not answering their phone, this all helped along with rumours about their financial and market position being none too stable, ...finally, and unexpectedly they phoned us!! (the first time in 2 years!), they did not phone to let us know that they are moving premises and so will not be able to supply hardware until the second week in April, but more to moan about us spreading rumours about their stability. Well, all I can say is, if it makes them phone us then we'll continue to spread rumours. Secondly, I have been away all month on a COBOL programming course in London, this has caused me to be somewhat behind with my mail, so sorry for any delays.

This month's mag. is however well worth the wait, we have several offerings from the Swiss user group, not least of which is the Newword Install feature for setting up the Custom commands. Also of great interest is the article about Forth, next month we should have a tape based Forth on offer, it will include a Ram disc facility to allow physical disc emulation and to help you along the way a 200+ page book called Forth Fundamentals, it is hoped this will retail at somewhere around £16.

Thanks to everyone who has used our Hotline on Monday evenings between 6 & 7pm, remember we always look forward to hearing from you, the number to phone is Bursledon (042121) 5489. Ask for Rich!

If anyone would like back issues they are available for the small remittance of 80p. At present there are 15 back issues, 10 for volume 1 and 5 for volume 2.

It should be noted that all articles are the copyright of the sender and M.O.C., anyone wishing to have articles published elsewhere should inform us first.

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INTERFACING PROJECTS

Why not make a break which will lead you into the exciting world of micro electronics. Infact what better way to start than with an MOC D.I.Y. kit. Everything you need is supplied, except a soldering iron, wire cutters and of course a few hours of your time!! So why not order now.

Interface price list

A full set of components and instructions for the LED kit. -->£6.95
A full set of components and instructions for the Speech Synthesiser kit-->18.00
Connecting cable for the internal port (needed for projects) -->£4.50
All prices are fully inclusive. Please allow 14 days for delivery and make cheques payable to MOC.

POLYNOMIALS

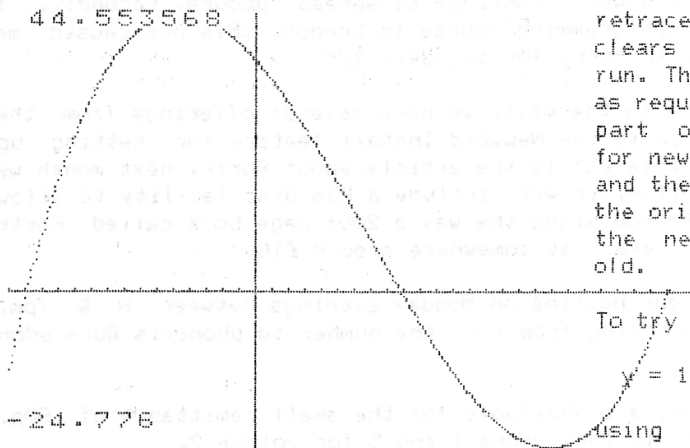
By
John Green

The following basic routine allows graphs of the form:-

$$y = ax^n + bx^{(n-1)} + cx^{(n-2)} + \dots + d$$

to be plotted. The scale of the graph is automatically adjusted to fit the graph onto the screen for a particular range of x-values.

The plotting can be stopped at any time by pressing "S" for stop. At this point the values of x and y at the plotting position will be displayed. This allows roots of an equation to be extracted and also allows maximum and minimum values to be examined. plotting can be resumed by pressing any key. The values of ymax and ymin for the given range are shown on the left side of the screen when the graph is complete.



After the graph is completed it can be retraced by pressing "R" for re-run. This clears any values printed on the previous run. This procedure can be printed as often as required. If it is desired to examine a part of the graph more closely, press "N" for new graph and then enter the new range and the new cell interval. On pressing "N", the original screen is not cleared so that the new values are super-imposed on the old.

To try out the program use the equation:-

$$y = 1.5x^3 - 6x^2 - 15x + 37$$

using a range of 12, a cell interval of 1 and a least value of x of -5. Note the number of powers is 3 and the values are 1.5, -6, -15 and 37.

When $y=0$ the values of x are about:-

$$x = -2.8, \quad x = 1.8, \quad \text{and} \quad x = 5.$$

To obtain a closer approx. to $x = -2.8$ re-run using "N" with a range of 1, a cell interval of 0.1 and a least value of -3. A more accurate value of $x = -2.78$ will be obtained.

Using the same equation, we can display turning values without waiting to press "S" if we ensure that these particular values are the max and min of the function in the stated range. Examination of the plot on this page shows that if we use a range of .8 with a cell width 1 and a least value of -3 the turning values of y are in fact ymax and ymin respectively.

One small point, for some reason this program when run for the first time even though the colours have been set, the COLOUR 2,N does not take till a re-run.

```

10 REM CURVE PLOTTING
20 REM *** JOHN GREEN ***
30 REM *** DEC 85 ***
100 REM *INITIAL INFORMATION*
110 CLS
120 CLEAR
130 INPUT "Range for X-axis? ";RX
140 INPUT "Cell interval? ";CX
150 IF CX<=0 OR CX>RX THEN GOTO 140
160 LET NI=RX/CX
170 DIM X(NI+1),Y(NI+1)
180 INPUT "Least value of X? ";LX
190 GOSUB 510
200 LET YMAX=-1E5: LET YMIN=1E5
210 FOR N=1 TO NI+1
220 IF Y(N)>YMAX THEN LET YMAX=Y(N)
230 IF Y(N)<YMIN THEN LET YMIN=Y(N)
240 NEXT N
250 LET RY=YMAX-YMIN
260 LET SX=INT(250/NI)
270 LET SY=190/RY: LET CY=RY
300 VS 4: CLS : COLOUR 0,11: COLOUR 1,5: COLOUR 2,11: COLOUR 3,15: COL
OUR 4,11
310 ANGLE PI/2
320 PHI 0: IF LX<=0 AND LX+RX>=0 THEN PLOT -LX*SX/CX,0: DRAW 190
330 ANGLE 0
340 IF YMIN<=0 AND YMAX>=0 THEN GOTO 350 ELSE GOTO 400
350 PLOT 0,190*(-YMIN)/RY: PHI 0: DRAW 250
360 PHI PI/2
370 FOR N=0 TO NI
380 PLOT (N*SX),190*(-YMIN)/RY: DRAW 1
390 NEXT N
400 FOR N=LX TO LX+RX+.1*CX STEP 0.1*CX
410 GOSUB 1120
420 LET PY=SY*(Y-YMIN)
430 IF PY<0 OR PY>190 THEN GOTO 460
440 PLOT SX*(N-LX)/CX,PY
450 IF INKEY$="S" OR INKEY$="s" THEN GOSUB 1500
460 NEXT N
470 PRINT YMAX: CSR 0,22: PRINT YMIN
480 IF INKEY$="R" OR INKEY$="r" THEN GOTO 250
490 IF INKEY$="N" OR INKEY$="n" THEN VS 5: CSR 0,0: GOTO 120
500 GOTO 480
510 REM Polynomial input
520 INPUT "Highest power of X? ";K
1000 DIM P(K+1)
1010 FOR N=K+1 TO 1 STEP -1
1020 PRINT "Input the co-eff of x^";N-1,: INPUT P(N)
1030 NEXT N
1035 INPUT "Input the constant term ";P(1)
1040 FOR N=1 TO NI+1
1050 LET X(N)=LX+(N-1)*CX
1060 LET Y(N)=0
1070 FOR M=K+1 TO 1 STEP -1
1080 LET Y(N)=Y(N)+P(M)*X(N)^(M-1)
1090 NEXT M
1100 NEXT N
1110 RETURN
1120 LET Y=0
1130 FOR M=K+1 TO 1 STEP -1
1200 LET Y=Y+P(M)*N^(M-1)
1210 NEXT M
1220 IF Y>YMAX THEN LET YMAX=Y
1230 IF Y<YMIN THEN LET YMIN=Y
1240 RETURN
1500 PRINT N,: PRINT Y
1510 PAUSE 1000
1520 IF INKEY$="" THEN GOTO 1520
1530 PAUSE 1000: RETURN

```

```

10 REM -----
20 REM   H I D D E N   L I N E S   G R A F I K 1
30 REM -----
40 REM
50 REM 1985 by Leopold Asboeck
60 REM
70 REM MTX 512
80 REM
90 VS 4: PAPER 1: INK 15: CLS : PAPER 1: INK 15: COLOUR 4,1
100 LET UX=120: LET UY=100
110 LET X1=-180: LET X2=180: REM X-Extreme
120 LET Y1=-180: LET Y2=180: REM Y-Extreme
130 GOSUB 2000: REM SET-UP CO-ORDINATES
140 DIM P(2,256)
145 FOR F=1 TO 2
150 FOR I=1 TO 256
160 LET P(1,I)=-1: LET P(2,I)=-1
170 NEXT I
180 REM
190 REM MAIN PROGRAM
200 REM
210 FOR Y=Y1 TO Y2 STEP U*1.2
215 FOR S=-1 TO 1 STEP 2
220 FOR X=X1 TO X2 STEP U*1
250 GOSUB 1000: IF Z=-1000 THEN GOTO 360
270 REM
300 LET GX=INT(UX+(X-Y/2.0)/2.0+0.5)
310 LET GY=INT(UY-(Y/2.4+Z)/2.4+.5)
320 IF (GX<0) OR (GX>255) THEN GOTO 360
330 IF P(1,GX+1)=-1 THEN GOTO 420
340 IF GY<=P(1,GX+1) THEN GOTO 520
350 IF GY>=P(2,GX+1) THEN GOTO 550
360 NEXT X: NEXT S: NEXT Y: NEXT F
380 STOP
390 REM
420 IF (GX=0) OR (GX=255) THEN GOTO 480
430 IF P(1,GX)=-1 THEN GOTO 480
440 IF P(1,GX+2)=-1 THEN GOTO 480
450 LET P(1,GX+1)=INT((P(1,GX)+P(1,GX+2))/2)
460 LET P(2,GX+1)=INT((P(2,GX)+P(2,GX+2))/2)
470 GOSUB 580: GOTO 360
480 LET P(1,GX+1)=GY: LET P(2,GX+1)=GY
490 GOSUB 580: GOTO 360
500 REM
510 REM
520 GOSUB 580: LET P(1,GX+1)=GY
530 IF P(2,GX+1)=-1 THEN LET P(2,GX+1)=GY
540 GOTO 360
550 GOSUB 580: LET P(2,GX+1)=GY
560 IF P(1,GX+1)=-1 THEN LET P(1,GX+1)=GY
570 GOTO 360
580 PLOT (GX+VX)-30,191-(GY+VY): RETURN
590 REM
600 REM Angabe der Funktion z=f(x,y) ab Zeile 1000
900 REM
910 REM Saturn
930 REM Schaltvariabel S (-1 oder +1)
940 REM Bildvariabel F (1 oder 2)
1000 LET Z=-1000: LET R=SQR(X*X+Y*Y)
1010 IF F=2 THEN GOTO 1060
1020 IF (S=-1) AND (R>R1) AND (R<R3) THEN GOTO 1140
1030 IF R<=R1 THEN LET Z=SQR(R1*R1-X*X-Y*Y)
1040 IF (R)=R2) AND (R<=R3) THEN LET Z=-0.1*X
1050 GOTO 1120
1060 LET W=(X-M4)*(X-M4)+(Y-N4)*(Y-N4)
1070 IF R4>=SQR(W) THEN LET Z=SQR(R4*R4-W)+S*H4
1080 LET W=(X-M5)*(X-M5)+(Y-N5)*(Y-N5)
1090 IF R5>=SQR(W) THEN LET Z=SQR(R5*R5-W)+S*H5
1100 REM
1120 IF Z=-1000 THEN GOTO 1140
1130 LET Z=S*1.3*Z
1140 RETURN
2000 LET U=4: LET VX=10: LET VY=10
2010 LET R1=110.05
2020 LET R2=130: LET R3=180.05
2030 LET M4=120: LET N4=-120: LET R4=26: LET H4=150
2040 LET M5=-150: LET N5=-10: LET R5=30: LET H5=-80
2050 RETURN

```

```

10 REM -----
20 REM   H I D D E N   L I N E S   G R A F I K 2
30 REM -----
40 REM
50 REM 1985 by Leopold Asboeck
60 REM
70 REM MTX 512
80 REM
90 VS 4: PAPER 1: INK 15: CLS : PAPER 1: INK 15: COLOUR 4,1
100 LET UX=120: LET UY=100: REM KOORDINATENURSPRUNG
110 LET X1=-160: LET X2=160: REM X-EXTREME
120 LET Y1=-160: LET Y2=160: REM Y-EXTREME
130 GOSUB 2000: REM SCHRITTW.KOORDINATEN
140 DIM P(2,256)
150 FOR I=1 TO 256
160 LET P(1,I)=-1: LET P(2,I)=-1
170 NEXT I
180 REM
190 REM Hauptprogramm
200 REM
210 FOR Y=Y1 TO Y2 STEP U#1.2
220 FOR X=X1 TO X2 STEP U#1
230 REM
240 REM Funktionsaufruf
250 REM
260 GOSUB 1000: IF Z=-1000 THEN GOTO 360
270 REM
280 REM Berechnung der Graphik-Koordinaten
290 REM
300 LET GX=INT(UX+(X-Y/2.0)/2.0+0.5)
310 LET GY=INT(UY-(Y/2.4+Z)/2.4+.5)
320 IF (GX<0) OR (GX>255) THEN GOTO 360
330 IF P(1,GX+1)=-1 THEN GOTO 420
340 IF GY<=P(1,GX+1) THEN GOTO 520
350 IF GY>=P(2,GX+1) THEN GOTO 550
360 NEXT X: NEXT Y: STOP
390 REM
400 REM Horizontberechnung
410 REM
420 IF (GX=0) OR (GX=255) THEN GOTO 480
430 IF P(1,GX)=-1 THEN GOTO 480
440 IF P(1,GX+2)=-1 THEN GOTO 480
450 LET P(1,GX+1)=INT((P(1,GX)+P(1,GX+2))/2)
460 LET P(2,GX+1)=INT((P(2,GX)+P(2,GX+2))/2)
470 GOSUB 580: GOTO 360
480 LET P(1,GX+1)=GY: LET P(2,GX+1)=GY
490 GOSUB 580: GOTO 360
510 REM
520 GOSUB 580: LET P(1,GX+1)=GY
530 IF P(2,GX+1)=-1 THEN LET P(2,GX+1)=GY
540 GOTO 360
550 GOSUB 580: LET P(2,GX+1)=GY
560 IF P(1,GX+1)=-1 THEN LET P(1,GX+1)=GY
570 GOTO 360
580 PLOT (GX+VX)-30,191-(GY+VY): RETURN
590 REM
600 REM Angabe der Funktion z=f(x,y) ab Zeile 1000
900 REM
910 REM Sinusprodukt geschnitten mit
920 REM zwei Halbzylindern, Z=max(Z1,Z2,Z3)
930 REM
1000 LET Z=0: LET Z1=0: LET Z2=0: LET R=SQR(X*X+Y*Y)
1010 IF ABS(X)<=R1 THEN LET Z1=SQR(R1*R1-X*X)
1020 IF ABS(Y)<=R2 THEN LET Z2=SQR(R2*R2-Y*Y)
1030 LET XW=PI/160*X: LET YW=PI/160*Y
1040 LET Z3=150*ABS(SIN(XW)*SIN(YW))
1050 IF Z1>Z THEN LET Z=Z1
1060 IF Z2>Z THEN LET Z=Z2
1070 IF Z3>Z THEN LET Z=Z3
1080 LET Z=1.3*Z
1090 RETURN
2000 LET U=4: LET VX=40: LET VY=50
2010 LET R1=80: LET R2=100
2020 RETURN

```

HARDWARE AND SOFTWARE PRICE LIST

Due to Memotech doing their re-shuffle this month, orders for hardware can only be placed, they will not be sent out before the second week in April. Software, however remains the same as before, all 'Super Cheapies' will be despatched by return of post.

MEMORY EXPANSION BOARDS

32K £40.00
64K £50.00
128K £80.00

SPECULATOR £40.00
NEWWORD ON ROM £40.00
PASCAL ON ROM £40.00

DMX80 PRINTER £200.00
(INCL. CONN. CABLE
AND P & P)

SDX500K +I/F £250.00
SDX1MB +I/F £300.00

SDX500K +I/F
+80 CDL, +CP/M
NW & SC £400.00

Software prices for the best and most popular software:-

Zarkos £6.00
Bogo2 £6.00
Surface Scanner £6.00
Chamberoids £6.00
Fathoms Deep £6.00
Quazzia £6.00
Crystal £6.00
Cee-5 £6.00
Roller Bearing £6.00
Downstream Danger £6.00
26*26 Spread Sheet £7.95
Ed/Asm £7.95
Memosketch £7.95

Dust cover's Only £3.50

!!! SUPER CHEAPIES !!! (ONLY FROM STOCK)

DESC	QTY	PRICE (Each)	DESC	QTY	PRICE (Each)
DUNGEON ADV.	2	£7.00	THE ZOO	1	£4.50
ADV. QUEST	1	£7.00	COBRA	1	£4.50
EMERALD ISLE	1	£7.00	BRIDGE	1	£4.50
MAXIMA	1	£3.50	FIRST LETTERS	1	£4.50
BLOBBO	4	£4.50	WORD & PIC MATCH	1	£4.50
KILOPEDE	1	£4.50	BASIC BUSINESS	2	£5.00
REVERSI	2	£4.50	HELI-MATHS	2	£4.00
MINEFIELD	3	£4.50	SPELLI-COPTER	2	£4.00
BACKGAMMON	1	£4.50	FIRE HOUSE FREDDIE	2	£4.00
OBLOIDS	3	£4.50	ASTROMILLON	1	£4.50
NEMO	2	£4.50			
SNAPPO	2	£4.50	FROM ELSTREE COMPUTING		
PAYROLL	1	£10.00	CUSTOMER INF FILE	1	£5.00
PURCHASE LEDGER	1	£7.00	INVOICE & CR NOTE	1	£5.00
PHYSICS 1	2	£5.50			
MATHS 1	1	£5.50			

GO FORTH AND LEARN

BY

DAVE THOMPSON

For quite some time I have wanted to know more about the FORTH language as an alternative to BASIC and recently have developed a version of FIG (Forth Interest Group) FORTH for the Memotech MTX 512. Most FORTH programs are supplied on and used with a disk drive and can cost anything from £40 (Work FORTH for the Amstrad by MPE) to £95 (Super FORTH for the C64 by MPE). I don't have a disk drive and I certainly don't have £40 to spend on any one program, so I got hold of a Z80 Assembly listing and installation manual from MPE and decided to make it work for the MTX512.

The result is a cassette based FIG-FORTH implementation using high RAM memory to simulate disk which makes an ideal and cheap method of learning this very powerful language.

"So what!", I hear you say, "How is FORTH different?".

There are two broad categories of high level language. Those which are compiled and those which are interpreted. A compiled language is one which uses source code to produce machine object code, which is later executed directly by the processor. An interpreted language does not produce object code, but translates statements in the source directly and executes built in functions to achieve the desired effect. The interpreter does this translation while the application program is running, and thus necessarily executes more slowly than the equivalent compiled program.

"So why FORTH and not any other compiled language?".

FORTH differs from other microcomputer languages in that it offers a complete integrated development environment. It is fast, with execution speeds up to 10 times faster than BASIC, yet the programs can take up less memory than machine code! FORTH begins life as a selection of named functions known as 'words', and the original set of them is called the 'nucleus' or 'kernel'. This dictionary of words is then used by the programmer to define his or her own words which subsequently becomes part of the dictionary. These newly defined words are then strung together to make and be part of the users program, it may be seen, therefore, that final listings can be made to look almost like English.

FORTH makes extensive use of it's stack for all it's calculations, stack being like a pile of numbers arranged so that any numbers added go on top of the pile, and only the very topmost number can be removed. Anyone familiar with machine code will understand this principle. This means that any numbers to be worked on, must be on stack before you tell FORTH what you intend to do with them, this notation is known as 'Reverse Polish'! For example :-

10 * 4 becomes 10 4 *
5 + 2 + 8 becomes 5 2 + 8 + etc

I must stress at this stage that I am far from being an expert, simply an enthusiastic learner who is keen to share his interest with others.

My implementation on the MTX512 is aimed at being a low cost tutor which will bring the language to those, like myself, who have a curiosity which exceeds their finances.

... Test Results

We have had quite a good response to last month's test's, they were infact quite (intentionally) difficult, and the resulting programs varied somewhat, in the end however, it was quite apparent that two members, Liam Redmond and John Green, really had the situation under control. Their programs for Prime numbers and Smith numbers are listed below, Liams on the left and Johns on the right. For scoring they came up just about identical over the two programs, I however have awarded the prize of CRYSTAL to John because of the exceptional speed at which his program detected prime numbers.

Hopefully space permitting more problems next month!!!.

```

10 FOR I=2 TO 99
20 FOR J=2 TO 99
30 IF I/J<>INT(I/J) OR I=J THEN NEXT J
40 IF J=100 THEN PRINT I;
50 NEXT I

10 DIM PRIME(15)
20 FOR I=1 TO 15
30 READ PRIME(I)
40 NEXT I
50 DATA 2,3,5,7,11,13,17,19,23,29,31,37,41,43,47
60 INPUT "Number (1-32767) ";NUM
70 IF NUM<1 OR NUM>32767 OR NUM<>INT(NUM) THEN GOTO 60
80 LET NUM%=STR$(NUM)
90 LET TOT=0
100 LET TOT1=0
110 LET NUM1=0
120 FOR I=2 TO LEN NUM%
130 LET TOT=TOT+VAL(MID$(NUM%,I,1))
140 NEXT I
150 LET NUM1=NUM
160 FOR I=1 TO 15
170 IF NUM1/PRIME(I)<>INT(NUM1/PRIME(I)) OR NUM1=PRIME(I)
THEN NEXT I;GOTO 120
180 LET NUM1=NUM1/PRIME(I)
190 LET TOT1=TOT1+PRIME(I)
200 GOTO 160
210 LET NUM%=STR$(NUM1)
220 FOR I=1 TO LEN(NUM1%)
230 LET TOT1=TOT1+VAL(MID$(NUM1%,I,1))
240 NEXT I
250 IF TOT<>TOT1 THEN PRINT: PRINT: PRINT "The number
";NUM;" is not a SMITH number."
260 GOTO 60
270 PRINT: PRINT "The number ";NUM;" is a SMITH number."
280 GOTO 60

```

```

5 LET N=100
10 FOR J=2 TO INT(SQR(N)+0.5)
15 IF N/J=INT(N/J+0.001) THEN LET N=N-1 ELSE GOTO 25
20 GOTO 40
25 NEXT J
30 PRINT N,
35 LET N=N-1
40 IF N>1.5 THEN GOTO 10 ELSE PRINT " 2"

5 LET SUMP=0: LET SUMN=0
15 LET K=1: LET J=3
25 LET PRIME$=""
30 INPUT "Number to be tested ";M
35 LET N=M
40 LET P=INT(LN(M)/LN(2)+0.5)
45 DIM X(P)
50 IF N/2=INT(N/2+0.001) THEN LET X(K)=2 ELSE GOTO 70
55 LET K=K+1
60 LET N=N/2
65 GOTO 50
70 IF N/J=INT(N/J+0.001) THEN LET X(K)=J ELSE GOTO 90
75 LET K=K+1
80 LET N=INT(N/J+0.001)
85 GOTO 70
90 LET J=J+2
95 IF J#J<=M THEN GOTO 70
100 IF N<>1 THEN LET X(K)=N
105 IF X(2)=0 THEN GOTO 170
110 FOR J= 1 TO P
115 LET PRIME%=PRIME#+STR$(X(J))
120 NEXT J
125 FOR J=1 TO LEN (PRIME%)
130 LET SUMP=SUMP+VAL(PRIME$(J))
135 NEXT J
140 LET NUMBER%=STR$(M)
145 FOR J=1 TO LEN (NUMBER%)
150 LET SUMN=SUMN+VAL(NUMBER$(J))
155 NEXT J
160 IF SUMP=SUMN AND X(2)<>0 THEN PRINT M;" is a SMITH
number." ELSE PRINT M;" is not a SMITH number."
165 STOP
170 PRINT M;" is prime!"

```

YOUR LETTERS

Questions and Answers

1. I was pleased to receive the SYNTAX ED/ASM from you recently and have found it to be very extensive while being easy to use. However, I have a question concerning its operation with which you might be able to assist.

Is there any simple method of loading/running object files created with ED/ASM?

To my knowledge:

(a) ED/ASM must always be loaded first and then the object code loaded with the "L" command, and

(b) The program is then run using the MTX's USR command or the Panel's "B" command.

In other words, the MTX loads/runs machine code which has been embedded in a BASIC program using the built-in assembler. SYNTAX's ED/ASM does not seem to create files compatible with this MTX "requirement".

I would appreciate any comments and assistance.

Ron Potter, Glenbrook, Australia.

A Dig In The Ribs!!!

Despite all that has been said and written about the neglect by computer magazines of the MTX, it would appear that nobody noticed - certainly nobody has commented on - the Re-number program published in November's PCW; nobody, that is, except me. But then it was my program! I also noticed the substantial cheque that followed shortly after.

Now, if I can do it, I'm sure other members can, so why haven't they? When I submitted the program, I was asked if I was prepared to act as an external referee and vet any MTX programs submitted for publication. Up to now I have seen NOTHING, absolute zilch. Come on you programmers, have a go. I know you can do it, and I know PCW is prepared to give any programs submitted their consideration.

Yours John Waller Drayton, Norwich.

Ed->In the past 6 months I have received several programs from members, they offer them because PCW and the like have rejected them, this is perhaps because of the type of program that they tend to be - Basic and fairly long - so taking up to much of there valuable space. I have had much

more success with short 'super-whizzo' assembler routines, they tend to like these, especially in TJ's corner. Just to make it an even more difficult challenge, if you can get MOC's name and address published with your program/article, we will remunerate you as best we can as well!!, infact any way of increasing membership would be welcomed, as the more there are, the better/cheaper/more interesting things will be.

Hints and Tips

1. Re: Vol.2 Iss.4 Page 9. <-Or should it have been iss.5?

There is a standard prime-numbers counting/listing program called 'The Sieve Of Eratosthenes', it is:

```
100 REM Sieve of Eratosthenes
101 REM BUT will not run on MTX
102 REM Because of starting Array/Count at Zero
103 REM Ridiculous, ain't it?
104 REM
110 LET START=0
120 LET HALFTOP=48
130 DIM PRIMEFLAG(HALFTOP+1)
140 REM
150 FOR ARRAY=START TO HALFTOP
160 LET PRIMEFLAG(ARRAY)=1
170 NEXT ARRAY
180 REM
200 LET PRIMECOUNT=0
250 FOR COUNT=START TO HALFTOP
260 IF PRIMEFLAG(COUNT)=0 THEN GOTO 350
270 LET PRIMENMBR=COUNT+COUNT+3
280 PRINT PRIMENMBR,
290 LET NOTPRIME=COUNT+PRIMENMBR
300 IF NOTPRIME>HALFTOP THEN GOTO 350
310 LET PRIMEFLAG(NOTPRIME)=0
330 LET NOTPRIME=NOTPRIME+PRIMENMBR
340 GOTO 300
350 LET PRIMECOUNT=PRIMECOUNT+1
360 NEXT COUNT
370 REM
400 PRINT : PRINT
410 PRINT "Done. ";PRIMECOUNT;" primes found."
420 STOP
```

If, however, you change 'START' to '1', 'HALFTOP' TO '49', and 'PRIMENMBR' to 'COUNT+COUNT+1' (in line 270), it should run O.K.

All The Best John Davidson.

NEWWORD: __TIPS/&_TRICKS

The use of the CUSTOMs

The "CUSTOMs" are CNTRL-F functions in which additional functions of the printer can be programmed. In our case the DMX has capabilities that Newword does not know about, (e.g. italics, elongated characters, condensed characters). We will call the new Newword with the enhancements NWX.

Enter only characters in heavy type.

A>NWINSTAL <RET>

Name of file to instal? NWU <RET>

Name to hold installed Newword? NWX <RET>

What is your choice? H

What is your choice? 3

What is your choice? B

0560 00 00 00 00 00 00 00 00 00 00 00 00.....
01 OF X

What is your choice? H

03 1B 57 01 X

What is your choice? I

02 1B 34 X

What is your choice? K

06 12 1B 35 1B 57 00 X

Return: X X N

The new file NWX.COM is aware of the following enhancements:-

CNTRL-PQ sets the condensed typeface

CNTRL-PW sets the elongated typeface

CNTRL-PE sets italics

and with CNTRL-PR these functions are turned off again.

!!! Many Thanks Memomucs !!!

SOFTWARE REVIEWS

Program - Crystal
Publisher - Megastar
Price - £6.50

Reviewed By Richard Siddall

After loading Crystal which takes quite some time, I was confronted by some pleasant music and the games title in very large characters. I must say that this did not really impress me, the characters were quite 'Chunky' and the colour was nothing special.

I opted for the instructions which tell you everything about the game, it claims 8 levels with a huge 2048 rooms.

The aim of the game is to find 8 pieces of the Crystal whilst avoiding various nasties such as the ghosts and the guards. There are also various items which can be found around the maze such as swords, axes, maps and food which aid you in your quest.

I must say the game is good with nice but simple graphics, adequate colour and very good sound.

I only have one complaint, when the game has loaded a pleasant tune starts, I would now advise you to rip out your TV speaker or the continuous music will make you pull your hair out. (The only way of shutting off the sound is to turn the volume down).

All in all though, a very good game.

= = = = =

Program - Quazzia
Publisher - Megastar
Price - £6.50

Reviewed By Sean Newman

From the cover I had no idea what the game was. I started it loading, the screen went black, make way for a super screen picture I thought, but unfortunately nothing materialised. The game loaded first time at my usual volume setting. Up flicked a rather simple menu which included the high score table. Whilst displaying this it played a nice tune (although I did not recognise it). The cassette cover said that full instructions were in the game, but this was not true, all that it said was that F8 would allow you to redefine the keys.

Now to the game itself, I pressed a key (not F8) and the game started. Up came a very colourful landscape scene which scrolled very smoothly from right to left. The ship was floating about halfway up the screen on the left hand side. I fumbled around the keyboard and eventually found that there were 5 control keys to master. These involve moving up and down, flying forward, firing and dropping bombs. The object of the game is to shoot or bomb anything that is on the ground or that moves. The sound has been used quite well with a variety of sounds for firing, bombing etc.

The game is along the same lines as mission alphasatron, but is a vast improvement. The colour and sound have been used fairly well, the game is quite easy to understand, and with quite a few different levels it has a good lasting interest.

Sound - 7
Graphics - 8

Lasting Interest - 9
Value - 8

Many Thanks Richard and Sean for these reviews

MAGAZINE INDEX

By PHIL EYRES

Since it has been 5 issues since the magazine index was updated, I have extended the magazine by two sides to incorporate an update. Perhaps by the next issue I will have been able to produce a separate booklet for this, which should make keeping track of those valuable snippets somewhat easier.

COLUMN HEADINGS :-

G - Group
 T - Type
 NUMB - Unique number given to each entry
 DESCRIPTION - Obvious
 V - Volume
 I - Issue
 PA - Page
 CROS - Number of related Entry

GROUP CODES :- TYPE CODES :-

A - Utilities
 B - Games
 C - Graphics/Screen
 D - Sound
 E - Programming
 F - Hardware
 1 - Article
 2 - Problem
 3 - Hints/Tips/Problems
 4 - Review
 5 - BASIC - program/routine
 6 - PASCAL - "
 7 - Assembler "

G	TYP	NUMB	DESCRIPTION	...	V	I	PA	CROS	G	TYP	DESCRIPTION	...	V	I	PA	CROS	
A	1	0001	Magazine index 1		1	1011			B	3	0037	Pot Hole Pete Update 3		2	3	0036	
A	1	0002	Utility Article		2	3	5		B	3	0038	Alice Hints!		2	2	9	
A	2/3	0003	PANEL M(ove) command		1	1	6		B	4	0039	Maxima		1	1	9	
A	2/3	0004	BASIC VERIFY breakout		1	1	6		B	4	0040	Cobra		1	2	9	
A	2	0005	Printing out double width graphics		1	2	8		B	4	0041	Felix in the Factory		1	3	9	
A	2	0006	PASCAL compiler option #F		1	4	8		B	4	0042	Obitoids		1	4	9	
A	2	0007	Neword embedded printer ctrl commands		1	6	7	0009	B	4	0043	Charmkatz		1	5	6	
A	2	0008	Date to week day conversions		1	7	9	0021	B	4	0044	Tumbledown Tower		1	5	6	
A	3	0009	Neword embedded printer ctrl commands		1	7	8	0007	B	4	0045	Emerald Isle		1	7	10	
A	3	0010	CBEN sprite generator correction		1	8	6		B	4	0046	Son Of Pete		1	7	10	
A	4	0011	Brunword		1	1	10	0012	B	4	0047	Escape From Zarkos		1	7	11	
A	4	0012	Brunword		1	2	10	0011	B	4	0048	Surface Scanner		1	8	12	
A	4	0013	Utilities		1	3	11		B	4	0049	Fathoms Deep		1	8	12	
A	4	0014	Datafile		1	7	11		B	4	0050	Lords Of Time		1	3	9	
A	4	0015	Simplex Tableaux		1	8	6		B	4	0051	Hogo2		1	7	10	
A	5	0016	Screen Dump Routine		1	2	7		B	4	0052	Iceburg		2	1	11	
A	5	0017	Clock		1	3	2		B	4	0053	Bouncing Bill		2	1	11	
A	5	0018	Drawing Board		1	4	10		B	4	0054	Miner Dick		2	1	11	
A	5	0019	Display used variables		1	6	7		B	4	0055	Quantum		2	2	11	
A	5	0020	Modprint		1	7	2		B	4	0056	Dr Frankie		2	2	11	
A	5	0021	Date to week day conversion		1	8	10	0008	B	4	0057	Roller Bearing		2	5	12	
A	5	0022	Convert CSR positions to PLOT positions		1	9	9		B	4	0058	Memosketch		2	5	12	
A	7	0023	Keyboard Debounce		1	4	3		B	5	0059	Farmer		1	4	2	
A	7	0024	PANEL LPRINT routine		1	4	5	0027	B	5	0060	Ski II		1	7	6	
A	7	0025	Typewriter program - uses ROM o/p routine		1	8	5		B	5	0061	Ball Fall		2	1	4	
A	7	0026	Clock program - uses interrupts		1	8	6		C	1/7	0062	Assembler Sprite Demo		1	10	4	
A	7	0027	PANEL LPRINT routine extensions		1	8	10	0024	C	2	0063	Avoiding adjacent distorted colours		1	4	8	
A	7	0028	Bubble Sort		1	9	7		C	2	0064	Loss of character off screen		1	5	7	
A	7	0029	Panel Find Article		2	2	7	0024	C	3	0065	Sprite coincidence flag		1	1	7	
B	2	0030	Dungeon Adventure - Gem gathering		1	3	8		C	3	0066	Screen control		1	6	8	
B	2	0031	Tri-com problems		1	9	9		C	3	0067	Wide Text Characters		2	5	9	
B	3	0032	Alice hints: ++ getting out of forest ++		1	2	7		C	5	0068	Polygons		1	1	4	0069
B	3	0033	Hackers guide to pot Hole Pete		1	8	9		C	5	0069	More Polygons		1	2	2	0068
B	3	0034	Alice/Zoo help line.		1	8	10		C	5	0070	Squares		1	2	5	
B	3	0035	Pot Hole Pete Update 1		1	10	9	0033	C	5	0071	Spiroplot		1	2	6	
B	3	0036	Pot Hole Pete Update 2		2	1	9	0035	C	5	0072	Sataloids		1	3	5	

CONT'D ON PAGE 15

PROGRAM LIBRARY
£1 Per Cassette, 2 Programs per Cassette

This month we have a fantastic array of new programs, this is largely due to the efforts of Christian Woehlbier and his Swiss/German colleagues. Also, thanks are due to Alan Dobson for all his effort and whilst I am at it, everyone else who has spent the time and effort to send in over the past couple of month's. I have already got some programs ready for the next magazine which arrived too late for inclusion in this magazine.

1. Basic & Assembler Programs

All programs available on cassette, 2 programs per cassette, £1 per cassette. Or on disc, £2.50 per disc, please enclose a disc, stating capacity. (Some programs are only available on cassette!!).

Reviews of all programs are available, please send a large SAE. All Swiss User Group programs are prefixed with 'Sw'.

1. Hex-Dec-Bin (Binary Bit In Assembler)
2. CGEN Sprite Generator.
3. 3D-Draw Rotate a skeleton of a cup & saucer in 3D.
4. Whist. The Card Game
5. Mem-Save. This Utility will Save a block of memory to tape and retrieve it.
6. MTX-Draw Two basic drawing boards, MTX DB has more
7. LOGO-Draw extensive commands.
8. Simplex Tablaeux. Applications Program.
9. Breakeven. Applications Program.
10. Statistics. Applications Program.
11. An Unsolved Prbm Applications Program.
12. Radio Routines Applications Program.
13. Light Cycles. Arcade Game
14. Hex/Dec/Bin Conversions using USER commands!
15. Renumber II Renumbers Including GOTO's etc
(14 & 15) are Utilities and as such reside high in memory transparent to the user.
16. RELOC Relocs Assembler Properly!!
17. Character Editor Yepp!! Another Sprite Gen!!
18. Quasimodo Excellent Arcade Game
19. Planner YASG (Yet Another Sprite Generator)
20. Hanoi Classic Puzzle (Brilliant simple use of
21. Noble Simple Text Game Graphics)
22. Hi-Lo Just like Bruce's Play Your Cards Right
23. Composer Our First Sound Generator!!
24. Anova Applications Program
25. CASHFLOW Applications Program
26. RenumIII Utility !!!26,27 & 28 cassette only!!!
27. Merge Utility
28. Money Manager Applications program
29. Word Word Processor
30. Reversi Strategy Board Game
31. Full Time Football Manager Game
32. PANEL3 Panel extensions
33. Texted Word-pro
34. SwMice Swiss Arcade game Written in Basic
35. TNTTIM Assembler arcade game.
36. Sw3D-FUNC.1 *** New *** First of two. Saturn!!!

37. Sw3D-FUNC.2 *** New *** Second of Above. Sinpr?.
38. SwSpr-Ed *** New *** YASG.
39. SwZ-Wandi *** New *** Number Base Conversion Prog.
40. DXO *** New *** Noughts & Crosses.
41. Solitaire *** New *** Strategy Game.
42. Cross-Num *** New *** Excellent strategy game!!
43. SwBiorythm *** New ***
44. SwShow-Jump *** New *** Arcade Style Game.
45. SwMaster-m *** New *** Mastermind.
46. SwHappy-Hol *** New *** Text Adventure. Several 'Lingos'
47. SwMathe *** New *** Arithmetic Tester.
48. Reversi2 *** New *** Assembler of no. 30. Great!!

2. Programs/Procedures in Pascal

(Available on disc. Please provide sufficient postage to cover club costs!!)

Note the compiled Pascal programs will run without the use of Pascal, ie they are .COM programs. All you need is CP/M

1. DBASE for Disc Turbo Pascal
- 1(a). Comprehensive Create File Procedure
- 1(b). Simple Display File Procedure
- 1(c). Add More Data To File
2. Pretty Disney Characters.
- 2(a). Thumper.
- 2(b). Bambi.
- 2(c). Mickey.

3. Articles From Previous Magazines

(Available as listings, please provide sufficient postage to cover club costs. TA!)

1. PANEL2 Utility. An updated version of PANEL1, which includes a second feature.
2. Undocumented Neword dot commands. (Vol1 Iss.7)
3. Hisoft Pascal Review (vol1 Iss.8)
4. Neword Rom Review (Vol1 Iss.5)
5. RST10 Codes Explained (Vol1 Iss.3)
6. VDP Explained Using assembler (vol1 Iss.4,5,6)
7. System Variables (Not Previously Published!!)

4. CP/M Programs/Utilities

(!!! Available only on disc !!!, please send in a formatted disc (stating capacity) for each item and enough postage to cover).

1. A simple mail label system for up to 3 across labels, written in EBasic. Disc includes Ebasic compiler and run-time program. Consists of a suite of half a dozen programs. Includes a sort routine.

2.PLOT33 A new graphics plotting package for Turbo Pascal owners. Create and print your own graphics. Set up for DMX type printers but will support most others. Must be seen to be believed. Please ensure you have at least two weeks free when ordering this one, you'll need it!!.

3. Z80.ASM This is a Z80 assembler to replace the ordinary CP/M assembler which uses the 8080 mnemonic command set. Z80.ASM supports all the features of the notable Ed/Asm, especially macro libraries and a slightly more standard Z80 mnemonic command set. The disc also contains a Z8 assembler.

4. SMALL C COMPILER. This is from the Swiss user group, it is however written in English so easily understandable. You will need to buy a Tutorial to use it, but even so it offers unbeatable value for money.

5.Reviews

1.Noughts & Crosses.

This is the first of three sent in by Alan Dobson, Basic Programmer Extraordinaire!. This game, although simple, would be very well suited to youngsters as the slightest slip on the players part and the computer jumps in for the kill!. Excellent simple use of graphics making it extremely easy to use.

2.Solitaire.

Alan's second program, again a classic one person board game excellently converted to run on a computer, 'simply' beautiful graphics makes it a treat to use. Well worth putting with the other games from your library.

3.Cross-Numbers.

This third program has you pitting your wits against the computer, a really 'brill' brain teaser for all those strategy enthusiasts, again good use of colour and board layout makes this an easy, exciting game, good for an evening's relaxing entertainment.

Many Thanks Alan!!!

4.Biorhythms.

This Swiss program lacks a little in screen 'style' but if you're the type that believes in such things then this should help you solve all your problems. Converted from Swiss by Christian Wohlbier it is not a literal masterpiece, but non-the-less understandable.

5.Show-Jumping.

Another Swiss game. It's the first such game that I've seen on the Memotech. First you have to choose how many riders are to compete, then choose horses and the type of competition you wish to enter. You then shift into real time and 'gallop' round the course collecting 'umpteenth' penalties on the way round.

6.Mastermind.

This is similar to the mastermind board game, except that it can be much more complicated, infact it can be a real 'brain stormer'.It differs from mastermind in that, as well as having colour combinations, you have shape combinations. To help, you have six possible coloured pegs giving you information as to how accurate your guess was. You set-up the number of pieces(3-6), colours(3-8) and shapes(1-4) available at the beginning of the run. This is a really good game easily adjustable to suit your skills, with good graphics, a game well worth having.

7.Happy Holidays.

This is a sort of text adventure, using several different languages, you have a certain amount of money with which to travel. As you travel around you have to accumulate 'Happiness' points. This is a good game using 3 or 4 languages all told. Should be good for around the holiday time.

8.Mathe.

This is a fairly short program that is designed to test your speed at '+', '-', '*', '/', there are 4 levels of difficulty and 10 questions to each set.

9.Reversi.

This brilliant game was sent in by Ron Potter from Australia, it is written totally in assembler, using commented code. Response times are typically too fast for the eye to see. This version supersedes my original Basic version, in just about every way, including it's efficient simple use of graphics. If you do not have Continentals Reversi then this one is a real must.

G TYP	NUMB	DESCRIPTION	...	V I PA CROS	G TYP	NUMB	DESCRIPTION	...	V I PA CROS
C 5	0073	Lisajoux patterns & figures		1 5 2	E 3	0127	Emulating HTX500 on a HTX512		1 6 7
C 5	0074	Rotation (with sound)		1 6 6	E 3	0128	Delete character in a string		1 7 9
C 5	0075	Basic Shape Filling		1 8 3	E 3	0129	Print ASCII of key pressed		1 6 7
D 2/3	0076	Fixed tone and duration sound		1 1 7	E 3	0130	Entering assembler via RST28		1 9 9
D 3	0077	Sound Demo		2 2 9	E 3	0131	DMX 80 User defined characters		1 9 11
D 5	0078	Recuados De La Alhambra		2 2 10 0077	E 3	0132	Pascal Update		2 3 8
E 1	0079	Assem. Prog Pt 1:Z80 & Hex/Bin notation		1 1 2	E 3	0133	Instring\$ Command		2 5 9
E 1	0080	Assem. Prog Pt 2:Bin/Dec & 2's compl.		1 2 3	E 3	0134	Noddy Colour Change		1 10 9
E 1	0081	Assem. Prog Pt 3:ROM RST10 info		1 3 3	E 3	0135	Assembler BIT 6,(HL)		1 10 9
E 1	0082	Assem. Prog Pt 4:ROM RST10 continued		1 4 4	E 4	0136	Memotech computing		1 3 8
E 1	0083	Assem. Prog Pt 5:VRAM memory		1 5 4	E 4	0137	Ed/Asm Review		2 2 12
E 1	0084	Assem. Prog Pt 6:VRAM & VDP		1 6 3	E 5	0138	Food - Stores DBASE		2 4 7
E 1	0085	Assem. Prog Pt 7:VRAM demo & pseudo ops.		1 7 5	E 5	0139	Pie Charts		1 10 8
E 1	0086	L Basic Pt 1: Main Menu		1 9 2	E 6	0140	Pascal Procedures		2 2 14
E 1	0087	L Basic Pt 2: New File		1 10 2	E 7	0141	16 Bkt Multiply		2 2 5 0142
E 1	0088	L Basic Pt 3: Data Save/Load		2 1 2	E 7	0142	16 Bit Division		2 3 4 0141
E 1	0089	L Basic Pt 4: Print File		2 2 2	F 1	0143	Digitising		1 10 10
E 1	0090	L Basic Pt 5: Delete Routine		2 3 2	F 1	0144	Speech Synthesiser		2 1 6 0156
E 1	0091	L Basic Pt 6: Additional Data		2 4 2	F 1	0145	RS232 Interface		2 3 9
E 1	0092	L Basic Pt 7: Amend Data		2 5 2	F 1	0146	Communications		2 3 15
E 1	0093	RST10 codes ..A full list!!		1 9 12	F 1	0147	SCART (Euroconnector)		2 4 10
E 1	0094	Preventing Hacking		1 10 6	F 1	0148	Spectrum Emulator		2 4 12
E 1	0095	Paging Basic		1 10 7	F 1	0149	Interfacing idea		2 5 11
E 1/5	0096	Basic Pitfalls 1		2 4 4	F 1	0150	Program Library 1		1 10 13
E 1/5	0097	Basic Pitfalls 2		2 5 4	F 1	0151	Program Library 2		2 1 13
E 1/6	0098	Pascal Music		2 3 10	F 1	0152	Program Library 3		2 2 13
E 1/7	0099	Assembler Menu Program		2 1 7	F 1	0153	Program Library 4		2 3 13
E 1/7	0100	Rom Calls 1		2 1 9	F 1	0154	Program Library 5		2 4 13
E 1/7	0101	Rom Calls 2		2 1 10	F 1	0155	Program Library 6		2 5 13
E 1/7	0102	Rom Calls 3		2 2 15	F 1/4	0156	Speech Synthesiser		1 9 6 0144
E 1/7	0103	Rom Calls (Emulating Basic)		2 3 7	F 2/3	0157	HTX RAM memory chips		1 1 6
E 1/7	0104	Rom Calls 4		2 4 11	F 2/3	0158	Unstable VDU Display		1 7 9
E 1/7	0105	Rom Calls 5		2 5 7	F 2/3	0159	ROM access		1 7 9
E 1/7	0106	Rom Calls 6		2 5 9	F 2	0160	Double characters when typing		1 1 8 0162
E 2/3	0107	Using LOGO		1 1 8	F 2	0161	Memory Management		1 7 9
E 2/3	0108	Program Auto - Run		1 7 9	F 3	0162	Key bounce solution 1		1 2 7 0160
E 2	0109	Decimal Point & other Tabulation		1 2 7 0120	F 3	0163	Key bounce solution 2		1 3 7 0162
E 2	0110	Adding Basic Commands; USER/OVERLAY		1 2 8 0124	F 3	0164	Interfacing to user port		1 4 7
E 2	0111	Cassette Baud Rates		1 3 8 0123	F 3	0165	FDX system problems		1 8 10
E 2	0112	Re-programming the F# keys		1 7 9	F 3	0166	Joystick Problem		1 10 9
E 2	0113	Hacking Early Continental Games		1 9 4	F 3	0167	Floppy Disc (laeg)		2 3 8
E 2	0114	Memory mapping		1 9 5	F 3	0168	Floppy Problems		2 3 8 0170
E 2	0115	Recovery of program after reset		1 9 9	F 3	0169	SDX 80 Col Problems		2 4 9
E 2	0116	Contact.COM Problem		2 3 9	F 3	0170	Floppy Cure		2 4 9 0168
E 3	0117	Program memory usage		1 2 7	F 3	0171	ROM Board Problem		2 5 10
E 3	0118	Program memory usage		1 3 7	F 3	0172	Touch Controller		2 5 10
E 3	0119	BASIC input using F# keys & abbr.		1 3 7	F 4	0173	Neword Word processor ROM		1 5 9
E 3	0120	Decimal point tabulation		1 3 7 0109	F 4	0174	Hisoft Pascal ROM		1 8 13 0177
E 3	0121	RST10 Sprite params		1 4 8	F 4	0175	250k single disc drives		1 9 13
E 3	0122	Decimal rounding		1 4 8 0120	F 4	0176	JUKI 2200 Electronic typewriter		1 9 14
E 3	0123	Cassette baud rates		1 5 7 0111	F 4	0177	Turbo Pascal V3.0		1 10 12 174
E 3	0124	Adding basic commands & intercepting errors		1 5 7 0110	F 4	0178	Silicon Disc Review		2 1 12
E 3	0125	Arrays		1 6 2	F 4	0179	500K SDX Review		2 3 12
E 3	0126	Decimal rounding		1 6 7 0122					

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