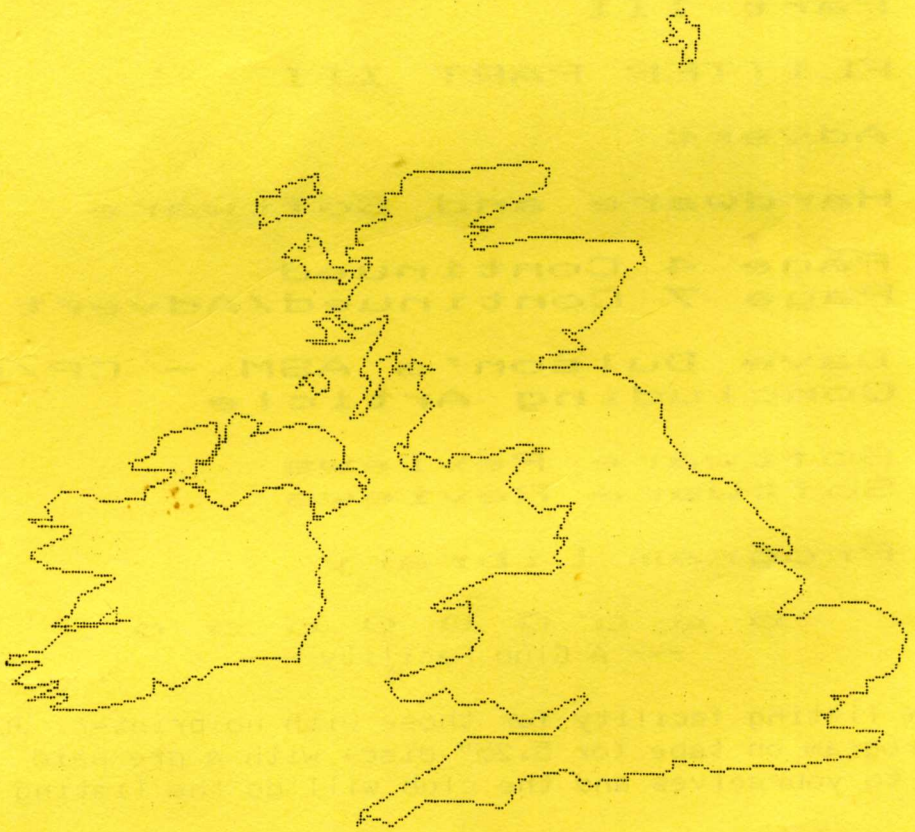
VOL 4 ISSUE 1 OCTOBER 1987

THE MEMOTECH OWNERS CLUB MAGAZINE

MEMOTECHNIQUES



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13 CLIPSE ROAD
TOWNHILL PARK
SOUTHAMPTON

CIRCA ...334

M.O.C.

VOLUME 4 ISSUE NUMBER 1

CONTENTS

o o o O O O o o o

--- A Club Facility ---

A program listing facility for those with no printer. Just send in your program on tape (or 5.25" disc) with a pre-paid envelope addressed to yourselves and the club will do the listing for you.

--- Names and Telephone Numbers. ---

i. Paul Wood for 3.5" disc copying, general info and Comms specific info.

Tel 0905 24260

ii. Alan Dobson for help with the following adventures:
Alice, The ZOO and Man From Granny
Tel 061-980-6288

E D I T O R I A L (October 1987)

Phil Eyres
13 Copse Road
Townhill Park
Southampton

Below are printed the year end accounts for the club. The turnover has remained much the same as for last year, but both running costs and stock have increased. I have been continually trying to find ways of increasing the speed at which mail passes through my 'system', the kitting out of the spare room with proper shelving and work surfaces has helped tremendously, and also the purchasing of a good second hand photocopier has helped. All this and the increased stock levels has used up most of last years surplus money, leaving us with a net gain of only just over £150.

I think for the coming year we should have money made available for some club projects. I was thinking along the lines of perhaps, some electronic kits, or the interfacing of one of the commercially available cheap robots, or maybe you have some ideas?!. If you are interested in having a chat about it, give me a ring (more about this below!) or write me a note.

We have a new 'worker' to welcome aboard; Hazel, my wife as from 24th October, is able, willing and all 'geared up' ready to go!!. However, between me you and the gate post, please bear with us, Hazel is not used to the phone ringing all evening and the whole house covered in paper. I think it will take a few weeks for any adjustments to take shape.

All mail is furiously being dealt with now, after the two weeks off on honey moon, so keep your eyes pinned to your front door mat!!.(Not literally of course!).

MOC ACCOUNTS YEAR - END OCTOBER 1987

Total Income including 1986 Balance

1986 Balance	944.63
Total Money From Membrship Etc	4661.73
Total	5606.36

Breakdown of Income

Magazine Costs	1425.60
Running Costs	1156.00
Stock	650.00
Holding Account	800.55
Current Account	302.76
Club Equipment	1271.45
Total	5606.36

I can read/write only disc's in 5.25" format and up to 500K, if anyone with 3.5" systems would like something from the club or has something to offer on 3.5" format please send to Paul Wood, his address is listed opposite.

Ready for the new year the club has purchased a limited quantity of 1988 Diaries. Because they have the club logo (in gold!) on the front cover they will obviously be the 'in thing' to have. The diaries are 'month page' and have several pages of useful figures at the front. At only £1.75 each(P&P 25p) they are an ideal Christmas present. Send off soon for them as they will be sent out on a first come first served basis.

I should now be in most evenings, except for the odd game of squash, so I think that it would be best to revert to having the club Hotline between 6 and 7 pm any evening, the same as it used to be many moons ago. I hope this is ok for everyone. The number to phone now is (0703) 585106, ask for Phil.

If anyone would like back issues they are available for the small remittance of 80p each. At present there are 30 back issues, 10 for volume 1, 10 for volume 2 and 10 for volume 3.

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.

ooo 0-0-0 ooo

Softwar e

Software prices for the best and most popular software:-

Zarkos	£7.00	Chamberoids	£7.00
Qogo2	£7.00	26*26 SpreadSht	£8.50
Karate King	£7.00	Son Of Pete	£7.00
S.M.6	£7.00	T.Snooker	£8.00512Only
Doodlebugs	£6.00	Super Bike	£6.00
J.J.Flash	£6.00	Ed/Asm	£8.50
Cee-5	£7.00	MTX Asm Lang Cse	£10.00
Highway Encounter	£8.50		

Some late news, Ron Gladwin of Uk Home Computers has reported to me that he has heard that some people are selling MTX500's boxed and badged as 512's. This is obviously a serious problem, so be careful to check properly when you buy.

SORTING IT OUT

PART III - BY Mr A Crawford

This is the third in a series of articles concerned with the sorting of data into a sequence. This month Alan Crawford has three new sorts on offer, They are all fairly short to type in and all differ in the way they set about sorting.

Over the page is an updated graph showing sort time relationships between the sorts tried out so far.

BIN SORT

The Bin sort is a fast sort, but also the most all-round useless sort algorithm I know. It has a sorting time of the order N but can't be used for anything more complex than sorting an array of numbers. Still, it's an interesting curiosity.

The algorithm's main disadvantage is that it requires a lot of store. In addition to the array of numbers being sorted it requires a second array used for storing the frequency of occurrence of each number in the main array. The size of the array is proportional to the maximum size of number in the main array, so it doesn't work too well for numbers over a large range.

When first called, the routine clears the frequency array F to zeroes. This isn't strictly necessary on the first call but is vital afterwards. It then makes a single pass over the main array and counts the frequency with which each number appears. The main array is then rewritten by working through the frequency array putting the appropriate number of copies of each number back into the main array.

SELECT SORT

The Select Sort is a slow sort, with a sorting time of the order N*n. It is, however, slightly faster than Bubblesort.

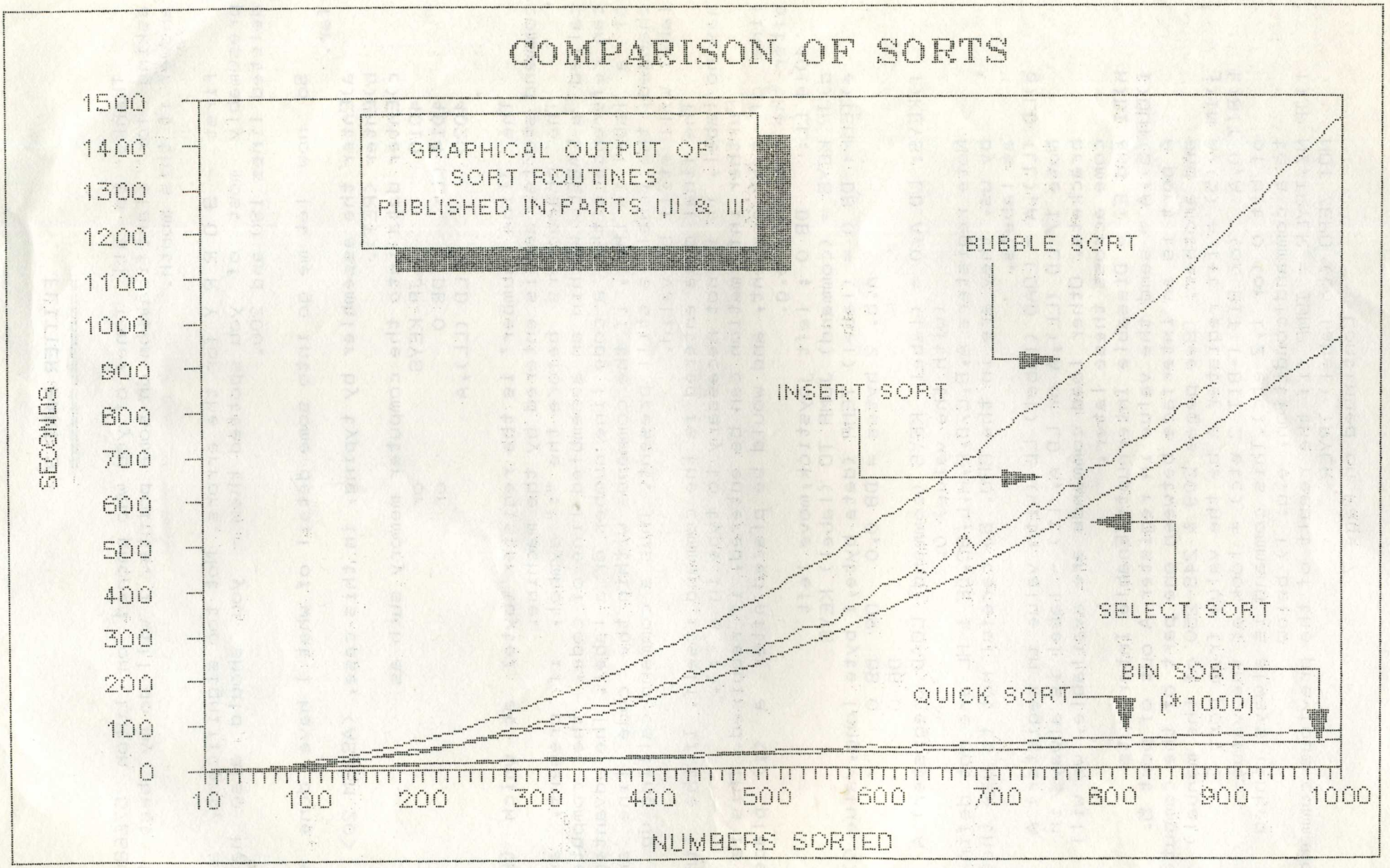
The routine works by scanning through the array and noting the largest element in it. It swaps this with the very last element then repeats the process only now ignoring the last element, as this has been established as the largest in the array. Eventually it reaches the stage where it is sorting a single character, which means that the array has been sorted.

INSERT SORT

The insertion sort algorithm is another with an N*N sort time. It considers the array to be in two parts - a sorted and an unsorted section. Initially the sorted section consists only of the last element. The algorithm takes the last element of the unsorted section (initially the second to last element) then find the place it should be in the sorted section. It shuffles the sorted section before the correct position, one element down in the array and adds the new element in the resulting space. It then repeats the process until the first element of the array has been placed at which time the sort is finished.

More Next Month!!!

```
100 REM          ----- SORT MAIN BODY -----
110 LET MAX=50
120 DIM A(5000),F(MAX+1)
130 INPUT "NUMBER OF ITEMS TO SORT (1-5000) ";N: IF N>5000
THEN  GOTO 130
140 FOR I=1 TO N
150 LET A(I)=INT(ABS(RND*MAX)): PRINT A(I);
170 NEXT I
180 PRINT: PRINT "SORTING...": PRINT
210 CLOCK "000000"
220 GOSUB 280
230 PRINT "TIME TO SORT ";N;" NUMBERS =";TIME$: PRINT
240 FOR I=1 TO N: PRINT A(I);: NEXT I
270 STOP
280 REM            --- BIN SORT ROUTINE ---
290 FOR I=1 TO MAX+1
300 LET F(I)=0
310 NEXT I
320 FOR I=1 TO N
330 LET F(A(I)+1)=F(A(I)+1)+1
340 NEXT I
350 LET C=1
360 FOR I=1 TO MAX+1
370 IF F(I)>0 THEN  FOR J=1 TO F(I): LET A(C)=I-1: LET
C=C+1: NEXT J
380 NEXT I
390 RETURN
280 REM            --- INSERT SORT ROUTINE ---
290 FOR I=N-1 TO 1 STEP -1
300 LET T=A(I): LET P=I+1
320 IF T<A(P) OR P>N THEN  GOTO 360
330 LET A(P-1)=A(P)
340 LET P=P+1
350 GOTO 320
360 LET A(P-1)=T
370 NEXT I
380 RETURN
280 REM          ---- SELECT SORT ROUTINE ---
290 LET B=N
300 LET L=1
310 FOR I=2 TO B
320 IF A(I)>A(L) THEN  LET L=I
330 NEXT I
340 LET T=A(B)
350 LET A(B)=A(L)
360 LET A(L)=T
370 LET B=B-1
380 IF B>1 THEN  GOTO 300
390 RETURN
```


COMPARISON OF SORTS
GRAPHICAL OUTPUT OF
SORT ROUTINES
PUBLISHED IN PARTS I,II & III
BUBBLE SORT
INSERT SORT
SELECT SORT
BIN SORT
(*1000)
QUICK SORT
SECONDS
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
10
100
200
300
400
500
600
700
800
900
1000
NUMBERS SORTED

FLITTER PART 3

Thanks to all (one) of you who phoned on Luton 576680, asking for clarification on some points. I will do my best to answer it this month.

First - S O R R Y for the errors. Not too significant, and presumably most of you spotted them - you should also have deleted lines 190 and 200.

So now let me go into some detail of what I have done so far.

a)Enter the assembler by typing, in this case, <ASSEM 20>
b)Enter <RET>.
c)Enter data into the computer memory such as

```
4010          JP KEYS          or
4014 LL:      DB 0             or
4020          LD (LL),A
```

The 'line number' is the register (byte) at which the command starts, and is entered by the machine.

The characters before the ":" symbol, if present, are called a LABEL. Within an assembled line of code, the computer can reference either a code line number or a label. The advantage of a label is that, if the commands within the code line are changed, the label is still present. Thus a command calling up a label will still be valid.

The final data entered is the command itself. If the line has no label, it is not necessary to type in a <:>.

Further information can be entered, if required. This is a line of text comment, and would be placed after a <;> placed after the command, e.g.

```
4014 LL:    DB 0 ; left joystick,move left
```

d)JP KEYS = (command) JUMP TO (label) KEYS
e)TEMP: DB 0 = (label) TEMP (data byte,1 byte long,value 0)
n.b. 2 bytes = DB 0,0 OR DB 0
DB 0
f)KEYS: LD A,0 = (label) KEYS (command) LOAD (register) A (with the value) 0.
Note registers A,B,C,D,E,H,L,BC,DE & HL are not defined by us, they are in the CPU. Be careful not to use these as labels.
g)LD (LL),A = LOAD (label) LL (with value in register) A
Note 1/ LD (LL),A or LD A,(LL) - label is always in brackets. Other load commands are available, we will come across these later.
h)DI and EI = Dissable Interrupts/Enable Interrupts
i)OUT(5),A = send the value in register A out of port 5.
A port is an interface between one part of the computer and another. (See pages 209 & 248-250 of the manual)
j)IN A,(5) = let register A be the value from port 5
k)BIT 0,A (or BIT 1-BIT 2 etc) = look at the value of bit 0 (or 1,2 etc).This command is always linked to a command+condition, e.g. l) below
l)JP NZ,TRYLR = JUMP (if the result of the previous command) NOT ZERO (to label) TRYLR

Continued on Page 7

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"I would like to thank you for the package you sent me,I can assure you that I found your programs very useful."

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Disc's are available in 5.25" 500K format for only £8.00, or 3.5" 1Meg format for only £13.00.

We can offer DMX 80 printer ribbons for only £7.00 each, so why not order one today and be prepared for the day your ribbon finally 'bites the dust'!!!

The MTX FIG-FORTH requires an MTX512 or expanded 500, the dictionary associated with Forth is held as part of the Ram-Disc which can be saved separately, fairly quickly. The Ram-Disc allows for 24 'edit' screens to be created and in memory simultaneously. A tutorial will be necessary for the beginner, for this the club has obtained a quantity of the publication Fundamental Forth (This may vary according to availability).

Fig-Forth Program	£6.00
Tech Data Sheets	£2.00
Tutorial Book	£7.50 (240 pages)

Ron Gladwin of UK Home Computers, (Tel 0793 695034) has on offer a Spectrum Loader that will convert your 512 into a 40K Spectrum, this will allow you to type in Spectrum programs, it is also said to load some Spectrum software. At £2.95 you may find it worth a try.

This month (and just in time for Christmas!) we have a new load of 'Super Cheapies' to add to the list. Please remember that we only have the quantity as stated, so to avoid disappointment, please state a second choice.

All 'SUPER CHEAPIES' will be despatched by return of post.

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

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The club has a special purchase offer, on The MTX ASSEMBLER LANGUAGE COURSE by John Grayson. We can supply this program at the NEW incredibly low price of Only £7.00.

Don't forget to order your 1987 Diary Today, only £1.75 + 25p P&P.

Cheques payable to MOC please, orders from stock normally despatched by return, else, please allow 2 working weeks.

Hence k) + l) jumps to TRYLR if bit 0 of register A is set to 1, otherwise it coninues to the next command. The other conditions available are

Z = ZERO C = LESS THAN NC = EQUAL OR GREATER

m)CALL SCAN = (call the routine at label) SCAN
Exactly the same as GOSUB

o)CP 127 = COMPARE (the value in register A to) 127
Again used with a command+condition as l) above. Note that the CP 127 is 'remote' from the JP NZ command. This is OK if no operations are to be performed on a register which could nullify the result of the comparison.
Note also that it is the result of the comparison (IF A=127 THEN JUMP TO (LABEL) ELSE CONTINUE)

p)Always ensure that, if you wish to return to BASIC, you have sufficient <RET>'s to enable this to occur. If not, the <BREAK> key, when running a CODED line will invariabley take you out to PANEL.

-=+=- -=+=- -=+=- -=+=- -=+=- -=+=- -=+=- -=+=- -=+=- -=+=-

NOW ONTO THIS MONTHS UPDATE.

Having reloaded the programme as ammended by last months update, lets first get rid of all the basic we no longer need.

We are going to incorporate the LIMITS part of the programme into the code line,therefore we can delete from line 120 to line 300 inclusive.

Type <ASSEM 20><RET>.

We are going to add the variables LX, LY, LZ, RX, RY, RZ, SPSN and SPLN to our list of variables. These need to be INSERTED into register 401E. This we can do by typing, after the 'Assemble' on the screen the address 401E in hex. (i.e. type £401E and <RET>). The screen will show 401E KEYS: LD A,0. Hit the <EOL> key, and type in <LX:DBO><RET>.

Whoops - forgot to mention - but you've probably found out anyway - before typing any command, I always hit <EOL> to get rid of what is currently in the register. If you find you have made a mistake, you can always recover, before hitting <RET>, by hitting <CLS><RET>.

Now continue to type <EOL><LY:DBO><RET>
<EOL><LZ:DBO><RET>
<EOL><RX:DBO><RET>
<EOL><RY:DBO><RET>
<EOL><RZ:DBO><RET>
<EOL><SPSN:DBO><RET>
<EOL><SPLN:DBO><RET>
<CLS><RET>

and you have inserted the extra variables into the code.

Some of the useful commands you can use with the assembler are listed in the manual pages 129-133, namely T,L and P. I will leave you to discover what they mean. Type <T><RET><L><RET>, and the programme will be listed.

Continued Overleaf

The next command we have to change is at the label 'ENDKEY', this currently holds the command to <RET>, we need to change this to enable the programme to continue with the extra commands we are going to insert this week. As we have added data to our programme, we could list the programme, looking for the label 'ENDKEY', enter the 'EDIT' mode at that register number and change the command. However, we will use the label itself. So type in, after 'Assemble', <E ENDKEY><RET>, and the computer brings that line up to edit. Change RET to read JP SETXYZ (use the direction keys on the keypad to move the cursor), and hit <RET><CLS><RET>.

If you now type <L><RET>,the final 'RET' command after the label 'SCAN' should be at 40DE. You can now add the extra commands from the attached listing by typing <£40DE><RET>.

Ignore the command DS XYZ - this is just to pack out the listing so that the register numbers are correct (for MTX512 users - MTX500 users will have to read the first 4 as an 8.).

The new commands used are ADD A,B (Add to register A the value in register B), SUB B (Subtract the value of register B from regiser A), and LD B,A (Load register B with A). Pretty simple stuff, what!

To exit the assembler, hit <CLS><RET>, repeatedly if necessary, until the 'Ready' symbol is displayed, and enter the basic lines.

If you are confused with anything you have done so far, please call Luton (0582) 576680 - I am in most evenings; if there is sufficient confusion, I will give more text, less programme in future articles.

P.S. Sorry again, I meant to go into RST 10 commands this time, but my enthusiasm cannot yet catch up with my workload. No promises, but I will try again for next time.

- -

PROGRAMMERS

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- -

ASSEMBLEY LANGUAGE PROGRAMMING WITH CP/M
BY DAVE DULSON
CONCLUDING ARTICLE

This is the third and final article on programming using CP/M. Parts I and II were printed in the previous 2 issues.

To assemble use the file DELAY.ASM but the file extension is not typed, so if the file to be assembled and the assembler are both on the same drive you would type when using the 8080 assembler.

```
ASM DELAY
```

If it assembles with no errors it will print on the screen,

```
0149
000H USE FACTOR
END OF ASSEMBLY
```

If it finds an error it will print the code line in which the error is to be found or associated with.

At the start of the line there will also be a error message letter to indicate what sort of error as been found, these error code letters are,

D	Data error
E	Expression error
L	Label error
N	Not implemented
O	Overflow
P	Phase error
R	Register error
S	Syntax error
V	Value error

If using a Z80 assembler you would type the name of the assembler then the filename and no extension, only files with the ZSM extension would be assembled.

```
ZSM Filename
```

The next step if the file was not already debugged and it assembled with no errors would be to test the program with DDT using the file DELAY.HEX this would be to test for logical errors. This stage will not be required in this case but was included to show where DDT would be used when producing your own programs.

If any errors were found then make a note of them then go back to your DELAY.ASM file and alter the changes required by using Newword then reassemble as before. Then you can use the DELAY.HEX with the LOAD.COM program to produce a COM file.

```
LOAD DELAY.HEX
```

This will produce DELAY.COM.

LOAD PROGRAM OPERATION

It is important to appreciate that the following are ASCII files and will not run as a program.

```
. ASM
. PRN
. HEX
. BAK
```

Hence if the following peace of program were written.

object	mnemonic
3E 05	MVI A,05H

Then it would be stored on disc as ;

3	E	0	5
33	45	30	35

In order that the program can run then it must be put in to the memory of the computer as the binary equivalent of ;

3	E	0	5
0011	1110	0000	0101

If the file is saved in this form it is known as a

```
.ASM
 /\
/  \
   \
.PRN  .HEX
    \
     \
    .COM
```

CONTINUED FROM PAGE 9

When assembly language source files (.ASM) are assembled a .HEX file is usually created. This is a ASCII file and therefore will not run as a program. In order to run this program each ascii character must be converted into its binary equivalent.

ascii		binary
33	-----	3
45	-----	E
30	-----	0
35	-----	5

This process is known as loading and a loader program is used to perform this task, the new file created will be a COM file.

This is the process for producing assembly language programs with CP/M and is only a brief example of what can be done, you will have noticed I did not go into any detail of how to use DDT as this would make an article on its own. Now you can have fun with those assembler's making your own CP/M programs.

--- 000 ---

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Flitter program (Article Page 4)

```
20 CODE
4007            DS 215
40DE SETXYZ: LD A,(LL)
40E1         LD A,(LX)
40E4         SUB B
40E5         LD B,A
40E6         LD A,(LR)
40E9         ADD A,B
40EA         CALL XLIMIT
40ED         LD (LX),A
40F0         LD A,(RL)
40F3         LD B,A
40F4         LD A,(RX)
40F7         SUB B
40F8         LD B,A
40F9         LD A,(RR)
40FC         ADD A,B
40FD         CALL XLIMIT
4100         LD (RX),A
4103         LD A,(LD)
4106         LD B,A
4107         LD A,(LY)
410A         SUB B
410B         LD B,A
410C         LD A,(LU)
410F         ADD A,B
4110         CALL YLIMIT
4113         LD (LY),A
4116         LD A,(RD)
4119         LD B,A
411A         LD A,(RY)
411D         SUB B
411E         LD B,A
411F         LD A,(RU)
4122         ADD A,B
4123         CALL YLIMIT
4126         LD (RY),A
4129         JP ZSET
412C XLIMIT: CP 83
412E         JP NC,XLIMIT1
4131         LD A,83
4133         RET
4134 XLIMIT1:CP 173
4136         JP C,XLIMIT2
4139         LD A,173
413B XLIMIT2:RET
413C  YLIMIT:CP 7
413E         JP NC,YLIMIT1
4141         LD A,7
4143         RET
4144 YLIMIT1:CP 183
4146         JP C,YLIMIT2
4149         LD A,183
414B YLIMIT2:RET
414C ZSET:   LD A,(LZ)
414F         LD B,A
4150         LD A,(LY)
4153         CALL ZSET1
4156         LD A,B
4157         LD (LZ),A
415A         LD A,(RZ)
415D         LD B,A
415E         LD A,(RY)
4161         CALL ZSET1
4164         LD A,B
4165         LD (RZ),A
4168         JP ZCOMPARE
416B ZSET1:  CP 16
416D         JP NC,ZSET2
4170         DEC B
4171         DEC B
4172 ZSET2:  CP 56
4174         JP NC,ZSET3
4177         DEC B
4178         DEC B
4179 ZSET3:  CP 136
417B         JP C,ZSET4
417E         INC B
417F         INC B
4180 ZSET4:  CP 176
4182         JP C,ZSET5
4185         INC B
4186         INC B
4187 ZSET5:  RET
4188 ZCOMPARE:LD A,(RZ)
418B         LD B,A
418C         LD A,(LZ)
418F         CP B
4190         JP C,ZCOMPARX
4193         LD A,1
4195         LD (SPLN),A
4198         LD A,3
419A         LD (SPSN),A
419D         JP ENDLIMIT
41A0 ZCOMPARX:LD A,1
41A2         LD (SPSN),A
41A5         LD A,3
41A7         LD (SPLN),A
41AA ENDLIMIT:RET
41AB         RET

Symbols:
XLIMIT   412C     YLIMIT   413C
XLIMIT1  4134     XLIMIT2  413B
ZSET     414C     YLIT1 4144
YLIMIT2  414B     ZSET1    416B
ZCOMPARE 4188     ZSET2    4172
ZSET3    4179     ZSET4    4180
ZSET5    4187     ZCOMPARX 41A0
ENDLIMIT 41AA     SEYZ  40DE
```

```
120 REM GET VAR DATA FROM LINE 20
125 REM MTX 500 = PEEK 32792
130 LET LF=PEEK(16408)
140 LET RF=PEEK(16413)
150 LET LX=PEEK(16414)
160 LET LY=PEEK(16415)
170 LET LZ=PEEK(16416)
180 LET RX=PEEK(16417)
190 LET RY=PEEK(16418)
200 LET RZ=PEEK(16419)
210 LET SPSN=PEEK(16420)
220 LET SPLN=PEEK(16421)
225 REM MTX 500 = 32805
310 REM FIRE
```

UK HOME COMPUTERS

1Meg Silicon Disc Only £120!! Interested in Newword on Tape? Why not give Ron Gladwin a ring on 0793 695034 and find out some more!.

If you are a bit of a 'dab-hand' at assembler, Ron is looking for someone to convert Spectrum Light Pen software to work on the MTX. Again ive him a ring on the above number if you are interested.

REVIEWS... REVIEWS... REVIEWS... REVIEWS... REVIEWS...

Z-Loader Review

By Mr A. Crawford

Z-Loader is a program that transforms an MTX 512 into a ZX Spectrum with 44K of memory. The difference between this figure and the 48K of a Spectrum is taken up by Z-Loader itself.

The program has a number of limitations. It can't run programs that use the top 4K of memory and it wont run most machine code programs. Since this rules out the vast majority of commercially available Spectrum software, Z-Loader isn't about to replace the Speculator ROM. It does, however, allow you to type in Spectrum listings as long as they are in Basic.

The program seems to consist of two main sections of code. The first of these is loaded in the 0-16K area of memory. This appears to be either a modified version of the Spectrum ROM or a completely new piece of code that has been written in such a way as to duplicate its functions without infringing copyright.

The second piece of code resides in the 60-64K region of memory and is responsible for performing the many tasks required to 'interface' the Spectrum pseudo ROM to the MTX hardware. These include converting the Spectrum screen memory into a suitable format for sending to the VDP and simulating the different keyboard layout, as well as maintaining the Spectrum system variables. All this work takes time, though, and it shows as programs run considerably slower than on a real Spectrum. The screen refresh rate is a lot slower which can have strange effects when listing programs. Also, since the program is regularly interrupted by the screen conversion routine, the sound quality of the BEEP command is terrible, even worse than on the Spectrum.

Don't let this put you off though, as the program performs very well. The author, Andrew Key, has paid great attention to detail. For example, the COPY, LLIST and LPRINT commands have been patched to allow the use of a printer connected to the Centronics port. The cursor keys and joystick have been mapped onto the Spectrum cursor keys and the author has even doctored the IN command so that trying to read the keyboard using IN gives the correct results. All of the Spectrum colours have been provided, with the exception of bright magenta and bright cyan for which the MTX has no equivalent.

There are one or two problems in using the program. The greatest of these is, surprise, surprise, the VDP. While MTX users are familiar with the missing column problem and can compensate for it while writing software, Spectrum software makes no allowance for it (why should it?). Also, there are times when I wish that my MTX had a rubber keyboard. The Spectrum's keyword entry system is fine if you have the words printed in red, green and white all round the appropriate keys but it becomes a bit of a pain on a standard keyboard. I'd really recommend that you make sure that you have a picture of a Spectrum keyboard available before you buy this.

I've tried typing in several programs from books and magazines and they all worked perfectly (if slowly). the author states in his documentation that programs containing machine code will almost certainly not run. I think he has been a bit pessimistic in saying this. If a program tries to address the hardware directly or makes use of interrupts it will almost definitely crash, but programs that only use short routines and steer clear of any machine specific features should run without much trouble. One problem to watch out for is use of the Basic OUT command. Several Basic programs that I've seen use OUT to send data to port 0. On the Spectrum this produces flashy border effects. On the MTX this will almost always be fatal! If you see this in a program, leave it out.

Z-Loader, by Andrew Key, requires 64K of memory.
It costs £2.95 on cassette (£4.95 on CP/M disc and £30 on internal ROM) and is available from UK Home Computers. I recommend it highly.

- -

ASSEMBLY LANGUAGE COURSE

By Allan Ayre

The Assembly Language Course consists of a tape, containing 7 programs, and an A4 size 60 page booklet. The first three programs on the tape loaded easily but the remainder required a high volume setting and did not always load correctly. The aims of the course are 'to be user friendly by the use of simple and clear English and to teach any inexperienced micro user assembly language in a few days'. Each program consists of a number of pages and most of them also display a prompt for a menu which enables the user to move to another part of the program. The pages are well set out and good use is made of colour.

Teach yourself programs are notoriously difficult to write since they have to explain, give practice, test and reinforce what has been learned. These programs do explain in simple and clear (but not always correct) English various topics such as Binary Arithmetic, MSB and LSB, the use of the MTX assembler, assembly language commands etc. As this, and more, is also covered in detail in the

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booklet it seems rather pointless. The good parts of the program are those involving user interaction (e.g. converting decimal to binary and vice versa; using the MTX assembler) and are rather sparse (and in need of some debounce building in to avoid multiple entries all the time).

In conclusion I would say that the booklet is of more use than the tape and although the package would enable a novice to get started there was no real help given with actually using the commands in a program. (eg AND, CPIR, LDIR etc the programs and the booklet explains the calculations these perform but why would these be needed to be used in a program?) I must admit I was disappointed by the package, as I would be if I sent for a German Language Course and received a dictionary and a few examples of sentences in German.

SDX Review
By Alan Hamilton

Ever since the advent of CP/M on the MTX micros, you have needed a monitor and a lot of money to run CP/M via the 80 column card. Not any more. UK Home Computers have developed a system that fits nicely inside the SDX controller box and allows the full CP/M system to be run without a monitor.

How does it work? Well, it's all to do with a special PROM that UK have made that doesn't give you 80 columns, nor 40, but 56 columns. This means that there is no need for the 80 column card,no RS232, and even better no monitor which brings the price down by leaps and bounds. You still get all the normal utilities that you would expect with the CP/M together with Newword and Supercalc.

The give you the choice of a 3.5" or 5.25" disc drive which is 1Meg unformatted. Ok, so how much does it cost?. Well, at £199.95 it makes the sensible choice for those upgrading from tape systems. It means you are saving yourself about £200 and it'll still let you watch Eastenders on the same screen.

P R O G R A M L I B R A R Y

This month I have taken over the running of the library and I must inform you all that the library is now available on ALL memory formats, 3.5" and 5.25".

Paul Wood is still doing the conversion service and has a copy of the library on 3.5" format - If you want anything on that format or have anything to submit, send it to him.

The main alteration to the library is that all discs now will contain no more than 20 programs. This is to make the whole system fairer to 250K disc users. Also, the BASIC (FDXB or SDXB3) is no longer contained and the discs are now made Read & Write rather than Read Only.

The tape based software is now separate from the rest of the programs to avoid confusion.

Also this month are some additions:-

FLIGHT - Sorry, lost the author! <<CASSETTE ONLY>>
This I believe is the first flight simulator ever, written for the MTX. Since there is nothing to compare it with, I cannot really say if it is good or bad but the flight is extremely realistic and there is a great deal of options from the actual flight taken, to wind speed & direction, to runway elevation. An absolute must for any budding games simulation player!!!

SPOOLER - By Membrain Software
This piece of software spools the graphics screen (VS 4) and/or the Panel screen to the printer. It comes complete with very comprehensive instructions on Noddy pages and has many technical details which I don't understand but you Assembler buffs out there will.

FILETECH - By Andrew Bishop << CASSETTE ONLY!!!>>>
This program is Andrew's first MTX program and is essentially a cardbox/database. It can hold up to 300 records with 5 fields on each one and there is a facility to load,save and verify files.
Please note that it is only for the MTX512 as the tape routines are held in high memory for the 512 but any 500 owners might like to try altering the program to see if it will work on the 500.

REVISED LIBRARY - CASSETTE SOFTWARE

£1.20 per cassette, 2 programs per cassette (we supply the cassette!).

CA1 - RENUMIII	CA2 - MERGE	CA3 - MONEY MANAGER
CA4 - FKEY	CA5 - DBASEII	CA6 - DBASE III
CA7 - FILETECH	CA8 - FLIGHT	

Continued Overleaf

REVISED LIBRARY - DISC SOFTWARE

NB - All disc software £2.50 per disc, please supply a formatted disc stating capacity.
NB - All Basic disc software is available on tape!

DISC 1

1	-	HEX/DEC/BIN	11	-	AN UNSOLVED PROBLEM
2	-	CGEN	12	-	RADIO ROUTINES
3	-	3D-DRAW	13	-	LIGHT CYCLES
4	-	WHIST	14	-	HEX-DEC-BIN
5	-	MEMORY SAVE	15	-	CHARACTER EDITOR
6	-	MTX DRAW	16	-	QUASIMODO
7	-	LOGO DRAW	17	-	PLANNER
8	-	SIMPLEX TABLEAU	18	-	HANOI
9	-	BREAKEVEN	19	-	NOBLE
10	-	STATISTICS	20	-	HI-LO

DISC 2

21	-	COMPOSER	31	-	SW3DFUNCTI2
22	-	ANOVA	32	-	SWSPRED
23	-	CASHFLOW	33	-	SWMATHE
24	-	REVERSI	34	-	OXO
25	-	FULLTIME	35	-	SOLITAIRE
26	-	PANEL3	36	-	CROSS NUMBER
27	-	TEXTED	37	-	AVOID SEVEN
28	-	SWMICE	38	-	NUMEROLOGY
29	-	TNT TIM	39	-	CHEMIN
30	-	SW3DFUNCTI	40	-	DICE

DISC 3

41	-	REVERSI	51	-	MASTERMIND
42	-	ISOT	52	-	CONNECT 4
43	-	DBASE	53	-	JOURNEY INTO DANGER
44	-	DIARY	54	-	CONNECT 4 V2
45	-	TERMINAL	55	-	PATIENCE
46	-	SKITTLES	56	-	LIFE
47	-	CARD-IND	57	-	ENIGMA
48	-	2*H&W	58	-	FKEY
49	-	HANGMAN	59	-	SKYDIVER
50	-	ACCOUNT	60	-	DIGGER

DISC 4

61	-	MPG	62	-	SPOOL

CP/M SOFTWARE

Available only on disc!

CPM1 - Z80 ASSEMBLER
CPM3 - MAIL LABEL

Alan Hamilton,
12 Roebank Road,
BEITH.
Ayrshire. KA15 2DX

CPM2 - EBASIC PROGGIES
CPM4 - ASSORTED PROGRAMS

Paul Wood,
12 Bishops Avenue,
WORCESTER.
Worcs. WR3 8XA

All Cheques Payable To Memotech Owners Club