TRS--80 USERS GROUP NEWSLETTER

VOLUME 2 ISSUE 1 JULY 1980

CONTENTS

2. Editorial
3. Members' letters
10. Disabling the break key
10. Random number generation
11. Machine code saver
12. Screen to memory transfer - Version 2
13. Sound input
14. Free cassette interface modification
15. Go West
16. Upper-case to lower-case conversion
17. Super Graphics Editor
18. Permutations
19. Some advice from Radio Shack, Fort Worth
20. Boiled eggs
21. Low-cost acoustic coupler
21. Quickprinter II
24. Program transfer between two TRS-80 systems
24. Sheffield workshop

EDITORIAL

Due to the number of contributions sent to me, it looks as though monthly publication of the Newsletter will be quite viable - my thanks to everyone who has sent me material for inclusion.

Now that I have the capability to handle any sort of input, whether or not the contributor has one of the word processors, I would like to reiterate my request for contributions in machine-readable form. Printed listings and items for publication are all very well, but many of the printers used by members have rather poor print quality, and I can produce a much better laid out Newsletter if I can put everything through SCRIPSIT. All tapes and disks will be returned as soon as possible - I'll even pay for the return postage if the packing is re-usable! All you have to do is write your contribution in the form of a BASIC program with text in place of the program statements and save it on cassette or disk. I can then read the file into my system, store it in ASCII text form, convert it to lower-case and edit it as necessary. I can also check that the programs run correctly!

It is very gratifying to see a rapid response to members' requests for assistance. We are considering a "hot line" system whereby members with particular areas of expertise will make themselves available to answer queries over the telephone. Please let Brian or me know if you are interested in providing such a service to the other members.

Leon Heller.

Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.
Tel. (0908) 613004

Publisher:-

Brian Pain,
40a High Street,
Stony Stratford,
Milton Keynes.
Tel. (0908) 566660/
564271

MEMBER'S LETTERS

From Ian Sinclair:-

Some time ago, you gave details of a low-cost serial interface using a buffer, latch and a couple of transistors. From the diagram, this appears to offer the possibility of two-way communication between the TRS-80 and external devices, and looks like solving a problem which my local college (Braintree) has. The college uses an old Elliott 803 mainframe, with several Teletype 33s. The Teletypes prepare paper tape, which is then used on the Elliott - this is ideal for student use, since students can prepare programs on tape, which are fed through later.

The college now has (due to prompting from me) a TRS-80, and the Elliott, sensing unfair competition, has expired. As an interim measure, until more computing power can be bought (2056 at the present rate of progress), they would like to be able to use paper tapes with the TRS-80 (not, of course, the tapes prepared by the Elliott) so as to preserve the advantages of having several people programming at the same time. Would the present software for the interface permit this? In particular, when a listing has been sent out to be punched on tape, how can we ensure that it is read back into the correct area of memory (starting at 42E9H) to be treated as a program with the key words correctly abbreviated - or is the abbreviation of key words carried out by the interpreter during listing?

I would be glad if someone could offer me any advice on these points, as I am strongly averse to re-inventing the wheel!

(As things stand, the software only supports the device for output to a serial printer using LLIST and LPRINT. LFH)

I noted in the Issue 12 Newsletter that there seems to be a lot of demand for a beginner's series. I have just written such a series for the U.S. magazine '80 Microcomputing'. The series, titled 'INTO THE 80's' is scheduled to start in the August (August issue) - if they get the proofs to me in time! The series will deal with the 16K Level 2 from scratch - and I really mean scratch! Level 1 is not covered because the Level 1 manual is so good anyhow. I have not extended the series to cover machine code, but the PEEK, POKE and VARPTR functions are dealt with in the last part (Part 7). 80 Microcomputing can be obtained direct (send your Access/Mastercharge or Barclaycard/Visa card number to the publishers, or it can be obtained from LP Enterprises, Room 8, Cambridge House, Barking, Essex IG11 8NT (12 issues for $20). The price looks high, but the magazine is a mine of information for the TRS-80 owner.

(80 Microcomputing is indeed an excellent publication. LFH)

Ian R. Sinclair,
89 Alexandra Road,
Sible Hedingham,
Halstead,
Essex CO9 3NP.
Tel. Hedingham 61004

From S.C.Bird

Dear National group,

After reading N/L 12 ,I wish to offer my help (and anyone in our group if I can't deal with it) to the following people:-
C.T.Dempsey and anyone else in the same situation.
D.F.Booth I have one or two ideas in that direction!

On page 6 Bill says the Anadex uses CHR$(14) and CHR$(15) to change to and from double size. The Tandy model III printer uses CHR$(30) and CHR$(31) so this would lead to confusion if such a feature was installed in Scripsit!

It is interesting that (on pages 22&23) Leon has drawn up an interface along the lines that when in my own local newsletter.The difference is that mine clocked itself ,which is not as good as Leons seperate clocking from the CPU.

Thank you Leon and Brian for an interseting Newsletter and very interesting workshops.Thanks also to Leighton for running the library ,this I have found is a very useful service (I normally use the library at workshops).

My thanks once again to all who make the group function ,and if you need any help I am willing to do what I can,

S.C.Bird,
Oxfordshire TRS-80 Users Group,
139 The Moors,
Kidlington,
Oxford,
OX5 2AF.

From Nigel Dibben

I enclose a cheque for £5.75 to cover the next 6 issues of the newsletter. You might like to make note of my new telephone number in your records. I further enclose a short programme as requested by Angus Ellefsen to translate machine code into a BASIC subroutine that can be merged into another programme. This programme writes the subroutine in BASIC on disk. neat??

I've now put in the lowercase screen mode (with some trepidation, but it's seem to stand up to my heavy hand better than I expected!) and carried out further mods to Electric Pencil. For example, it will now centre text automatically, viz!

```
                This text will be centered
              when printed to illustrate the feature
                    of Electric Pencil.
```

Another useful addition is to be able to indent selected paragraphs in justified (and unjustified) text, as you can see here, while a further feature is to allow gaps ( ) in the text which are treated as text for justification but spaces for printing.

Double width is possible also.

I have put in a listing of a version of Angus's screen to memory programme which he might find interesting. It takes a little less space and it is not necessary to say how many bytes to print, this is taken care of by setting an "end-of-file" marker in the memory area.

Nigel Dibben

FOR SALE
========

Level 2 TRS-80 (16K), complete with approximately £100 worth of compatible tapes. Excellent condition, having had very little use. Highest offer over £360 accepted. Please contact:-

L. de Guise,
01-228 2927.

From Derrick Rowe:-

It is well worth reflecting on the changes that are taking place within the micro-computing revolution. Not that long ago, everyone was pre-occupied by hardware but now it seems that it is the applications side that is receiving more attention. Certainly for the TRS-80, it now seems that it provides reliable and cost-effective computing which with the Model 2 ranges from the novice user well into the business market. Given that the five to ten thousand pound machines had the highest growth rate then the Model 2 looks likely to succeed in spite of some adverse criticism by dis-interested parties!.

This takes me neatly to my next point that within the U.K., there seems to be an anti Tandy band waggon in the computer press. Could it be that Tandy will not deal through distributors and you can guess where most advertising revenue comes from? Even so the ethics of some magazines leaves me cold. In one article headed "Tandy's Model 2 gets a bumpy ride", the only hard evidence was based on a managing directors statement that "he no longer stocked Model 1's and would not touch the Model 2 with a barge pole." What was left unsaid is that this was the managing director of a company to whom Tandy would not supply Model 1's and which now imports and sells a machine directly competing with the Model 2" - I need say no more!

On the model 1 front I have still not yet come across 2.4 DOS nor compiling BASIC although they both look imminent along with NEWDOS80 which will support variable length records (just like the Model 2) and mixed drives e.g 35/77 track mini floppies or 8 inch drives on the same system! All the systems I have been using are still proving to be reliable except for the dreaded oxidisation problem with the interface cable. Freddie Nichols of Optronics is looking into a solution involving gold plating of the edge connectors. In the meantime the oxidisation can be removed with an eraser.

I have also been using a 77 track disc system supplied by Optronics. My home system has a 77 track drive on 0 and a 35 tack drive on 1. This allows me to keep all my system library on 0 and do my development on drive 1. Any non-standard modifiction always makes me very cautious but this set-up has not developed any faults and increases disc storage by over 100%. I did find that the use of Percom's data separator was essential to avoid delays on reading inner tracks on the 77 track drive.

The Scriptsit v Pencil debate appears to to moving into high gear on both sides of the Atlantic. Now that the screens are stable and the latest keyboards can work at touch typing speed, the TRS-80 can provide true word proceesing capability. The Pencil is well tried and the

June PROG80 provides some useful ZAPs to simplify its use. The consensus verdict appears to be that the Pencil is much easier to use but that Scriptsit provides superior format control. Beware the Tandy lower case mod as this upsets the Video memory and some routines such as NEWDOS's JKL screen print will no longer work - for this reason even with Scriptsit it is better to use the Electric Pencil Modification.

I have now had a few months experience of using the Model 2. The hardware is much improved over the Model 1 and compares well with some up-market systems - the IBM 5110 looks a toy by comparison. Tandy seem to have learnt from the Model 1 and TRSDOS is reliable and from a BASIC programmers point of view, is almost as good as NEWDOS. For the user the enlarged and improved display, reverse video and all in one construction make this a very acceptable business machine quite apart from te fact that processing is twice as fast and disc storage six times the model 1. Because of a revised approach to disc access, disc input/output can be very much faster.

There are a number of useful DOS utilities covering use of serial printers and listing of files. The most significant gain in BASIC is the introduction of Variable length random access records. No need to worry about packing records into 255/6 bytes. Tandy already provide a Terminal program as a DOS utility - useful for transferring your Model 1 programs and both a Mailing List and General Ledger package are available as of now with Scriptsit due to appear within the next month.

Racet Computes can already supply a demon disc sort/merge package, generalised subroutines including the missing Peek & Poke and a Model 2 Superzap with an assembler and dis-assembler. Moreover Microsoft are advertising a compiling BASIC and COBOL to run under TRSDOS and the Electric Pencil is due to appear under either TRSDOS or CP/M.

As yet I have found no reason to use CP/M. Apart from the fact that the U.K. machines have a wobbly display unless running under TRSDOS - nice one Tandy!, CP/M is very difficult to drive and the documentation is appalling when compared to Tandy's TRSDOS. Could it be that CP/M is widely aclaimed mainly because it allows the independant software distributors to make some money?

My main complaint lies in the need to issue an Initialise command when discs are changed. The model 2 needs much more discipline in order to maintain disc integrity and all disc swapping should be under program control. Any software relying on the user to switch discs is certain to lead to loss of data. It is also bad news that the 64k model 2 BASIC interpreter provides some 2-3000 bytes less

user memory over the Model 1. However all of the 64 k is available to application systems such as word processing programs and compiled programs.

Model 2 BASIC has some differences:-

P$= "% %" - string delimiter % replaced by a reverse slash

IF statements must be followed by THEN:-
IF A=1:GOTO 20 is not allowed

PRINT @ is different in that the screen locations have altered.

PRINT @ is the main feature that is highly specific to Tandy Basic and it is good commercial sense to reduce reliance on PRINT @. This is achieved by using a sub-routine to handle PRINT @.

```
ZR-line of screen 1-24
ZC Column 1-80

10 DEF FNP(ZR,ZC)=(ZR-1)*80+ZC-1

50000 PRINT@FNP(ZR,ZC),"";:RETURN
```

The statement ZR=2:ZC=1:GOSUB 50000:PRINT "A" will print an A on line 2 column 1 of the display. For the model 1 the 80 should be changed to 64.

There is no problem in transferring data or programs onto the Model 2. The Model 2's terminal program can take input from the RS-232 port and store it in RAM. At the end of transmission this RAM buffer can be stored on disc. The Model 1 can use ST80D, KVP, the Electric Pencil, Scriptsit or Tandy's communication software to transmit programs or data. Except for KVP which uses BASIC's LLIST or LPRINT to directly access the RS232, the other utilities require that programs should have been stored under "A". I prefer ST80D because of the control which it allows and I configure ST80D and the Model 2's terminal program at 9600 baud, No Parity, an 8 bit word with 2 stop bits. In addition I transmit from ST80D at speed 2 - any faster and the Model 2 cannot keep up. - mind you this is in a range where 0 is flat out and 10 the slowest.

Derrick Rowe

(Derrick sent me this contribution on disk as a Pencil text file. I printed it out using SCRIPSIT - they are quite compatible! LPH.)

From C.T.Dempsey

Thank you for your reply to my letter. However, I don't feel that you have done anything to change my opinion regarding the UsersGroup being a small, cosy group, dedicated to the few. Unfortunately, I am at present involved in final examinations and have not the time to answer your letter at the length I feel it deserves. I shall be interested to see whether it produces any reaction on publication in the Newsletter, however, and whether anybody else can tear themselves away from their 'business applications' to help beginners.

In finishing, I would suggest that the last edition of the Newsletter was the best I have yet read - but why can we not have a critical appraisal of Level IV - it's a lot of money to spend on something.

C.T.Dempsey

P.S. I have just imported an American software tape called 'Soundware' which adds sound to the TRS-80. If you feel it might be of interest to other members I am willing to describe its use and effectiveness to them in the form of an article.

P.P.S. Have any members purchased the Scott Adams 'Strange Odyssey' and actually got any way with it? I would be interested to hear from them, as it is perplexing me!

C.T.D.

(* Mr. Dempsey's previous letter seems to have generated some response - see this issue.

Yes, I would be delighted to publish an article on 'Soundware'.

See Nick Robinson's Go West section for Adventure related problems. LFH *)

DISABLING THE BREAK KEY

There is often a requirement to disable the BREAK key, especially when writing programs for inexperienced users - they generally do not take kindly to being dumped out of the program if they accidentally press <BREAK>. I know they can continue with CONT, but they might panic and lose a lot of data, especially if the program does not update files as each record is entered (always good programming practice).

The following POKEs were given to me by Derek Bland, who is doing some interesting work with the aid of RSM-2D, modifying NEWDOS and TRSDOS for special purposes. He has worked out how to get Adventure on to disk - he hopes to write an article on how to do this for the Newsletter.

```
NEWDOS 2.1: POKE 23462,23
TRSDOS 2.3: POKE 23897,23
Level 2:    POKE 16396,23
```

POKE 25 into these locations to re-enable BREAK.

Leon Heller

RANDOM NUMBER GENERATION

Following your item on Random Number Generation in Issue 11 of the Newsletter (and also because its pouring with rain today and I can't get out!) I've done a bit of research into the Level 2 RND function.

The seed used is held in bytes 16554, 16555 and 16556, and if values are POKEd into them the same sequence of 'random' numbers can be generated eg. all set to zero gives RND(0)=.0222228, all set to 1 gives RND(0)=.476131.

Although I have not read Knuth's work, I've carried out some tests myself. I've found that RND(0) produces a very even pseudo-random sequence whilst RND(n) where n>=1 does not. Paradoxically, the INT(RND(0)*N)+1 form of construction works very well although it is logically the same as RND(n).

Roy Hughes.

MACHINE CODE SAVER

```
10 REM
MC CODE SAVER
N.J. Dibben  --  P0099  --  20/06/80  --  V1

20 REM   Programme will save a block of machine code by writing
a BASIC programme on disk.   The BASIC text can be MERGEd as
required.
30 REM   Give the name of the routine (put in a REM statement
in the programme), the destination filespec, the start and end
of memory (inclusive) containing the object code.
40 REM   The object code will then load into an INTEGER array
called IR that you must prepare first.   Start and end
addresses may be given in HEX (eg: 8000H) or DECIMAL.
50 REM   I will NOT use strings to hold machine code as I think
that that is BAD programming practice, leaving the user with
an unintelligable listing.
60 REM
70 CLEAR500
80 LINEINPUT"PROGRAMME TITLE? ";T$
90 LINEINPUT"DESTINATION FILESPEC? ";F$
100 INPUT"START OF SOURCE MEMORY";A$:GOSUB250:S=A:IFERTHEN100
110 INPUT"END OF SOURCE MEMORY  ";A$:GOSUB250:E=A:IFERTHEN110
120 INPUT"FIRST LINE NUMBER OF OBJECT";A$:GOSUB250:L=A:IFERTHEN120
130 OPEN"O",1,F$:A$="REM!   "+T$:GOSUB310:A$="DATA":K=0
140 FORJ=S TOE:A$=A$+STR$(PEEK(J))+",":K=K+1
150 IFK=32THENK=0:A$=LEFT$(A$,LEN(A$)-1):GOSUB310:A$="DATA"
160 NEXTJ:A$=A$+" 0, 999, 0":GOSUB310
170 A$="REM!  START OF LOADER":GOSUB310
180 A$="S=0:REM!  DIMENSION ARRAY IR() TO AT
LEAST"+STR$(INT((E-S+1)/24,5)):GOSUB310
190 A$="READA1:READA2:IFA1=9999RA2=999THEN"+STR$(L+30):GOSUB310
200 A$="A1=A2*256+A1:IFA1>32767THENA1=A1-65536":GOSUB310
210 A$="IR(S)=A1:S=S+1:GOTO"+STR$(L-20):GOSUB310
220 A$="RETURN: REM!   END OF ROUTINE":GOSUB310
230 A$="REM!  TO CALL, DEFUSRX=VARPTR(IR(0)) EACH TIME REQUIRED":GOSUB310
240 CLOSE1:END
250 XH=10:XL=LEN(A$):A=0:ER=0:IFRIGHT$(A$,1)="H"THENXH=16:XL=XL-1
260 IFRIGHT$(A$,1)="D"THENXL=XL-1
270 FORJ=1TOXL:C=ASC(MID$(A$,J,1)):IFC>57THENC=C-7:IFC<58ORC>63THEN300
280 C=C-48:IFC<0THEN300
290 A=A*XH+C:NEXTJ:RETURN
300 ER=1:RETURN
310 L$=RIGHT$(STR$(L+100000),5):L=L+10:PRINT#1,L$" "A$:RETURN
```

Nigel Dibben

SCREEN TO MEMORY TRANSFER - VERSION

```
SCREEN TO MEMORY TRANSFER     MACRO-80 3.35  02-JAN-80      PAGE  1


                                00100          TITLE  SCREEN TO MEMORY TRANSFER
                                00200          NAME   ('STORT')
0109                            00300  CLS     EQU    0109H
0A7F                            00400  LINK    EQU    0A7FH
3000                            00500  SCREEN  EQU    3000H
0000'                           00600          ASEG
0000                            00700  START1: ORG    0B000H
B000 CD 0A7F                    00800          CALL   LINK
B003 11 3FFF                    00900          LD     DE,SCREEN-1
B006 13                         01000  LOOP1:  INC    DE
B007 CB 72                      01100          BIT    06H,D
B009 20 11                      01200          JR     NZ,FINISH
B00B 1A                         01300          LD     A,(DE)
B00C FE 20                      01400          CP     20H
B00E 28 F6                      01500          JR     Z,LOOP1
B010 FE 80                      01600          CP     80H
B012 28 F2                      01700          JR     Z,LOOP1
B014 73                         01800          LD     (HL),E          ;CONVENTION IS LSB
B015 23                         01900          INC    HL
B016 72                         02000          LD     (HL),D          ;FOLLOWED BY MSB
B017 23                         02100          INC    HL
B018 77                         02200          LD     (HL),A
B019 23                         02300          INC    HL
B01A 18 EA                      02400          JR     LOOP1
B01C 36 00                      02500  FINISH: LD     (HL),0
B01E 23                         02600          INC    HL
B01F 36 00                      02700          LD     (HL),0
B021 C9                         02800          RET
B022                            02900  START2: ORG    0B100H
B100 CD 0A7F                    03000          CALL   LINK
B103 CD 0109                    03100          CALL   CLS
B106 5E                         03200  LOOP2:  LD     E,(HL)
B107 23                         03300          INC    HL
B108 56                         03400          LD     D,(HL)
B109 23                         03500          INC    HL
B10A 7A                         03600          LD     A,D
B10B B3                         03700          OR     E
B10C C8                         03800          RET    Z
B10D 7E                         03900          LD     A,(HL)
B10E 12                         04000          LD     (DE),A
B10F 23                         04100          INC    HL
B110 18 F4                      04200          JR     LOOP2
                                04300          END    402DH           ;BACK TO DOS


SYMBOLS:
CLS     0109    FINISH  B01C    LINK    0A7F    LOOP1   B006
LOOP2   B106    SCREEN  3000    START1  0000    START2  B022

NO FATAL ERROR(S)
```

Nigel Dibben

SOUND INPUT

A recent issue of Softside magazine had a short article on sound input to the TRS-80. Whilst these techniques are not really suitable for speech recognition, although a program to distinguish between a couple of dissimilar words might be feasible, they could be useful for certain games. They also illustrate the use of the cassette input to the TRS-80 as a rudimentary input line, not needing much in the way of external hardware.

An amplifier and microphone are needed, with the output of the amplifier connected to the cassette input to the TRS-80 (the plug going to the 'EAR' socket on the recorder). Run Program 1 and adjust the output level of the amplifier until you get 'SOUND!!' displayed in the upper left-hand corner of the screen when you speak into the microphone. If you are using a 100W amplifier, keep the level down so as not to fry the cassette input circuitry of your TRS-80! Alternatively, you could utilise your cassette recorder, which is how I originally tried the technique out.

The original programs were very difficult to follow, as everything was compressed onto one line (I don't know why - speed is not very important in this case) so I have rewritten them in, I hope, an understandable form.

When you get it working try Program 2 - it should show you how you might achieve some very limited speech recognition with this technique.

Program 1:-

```
10 CLS
20 PRINT CHR$(28)
30 IF INP(255)=255 THEN 40 ELSE 10
40 PRINT "SOUND!!"
50 GOTO 10
```

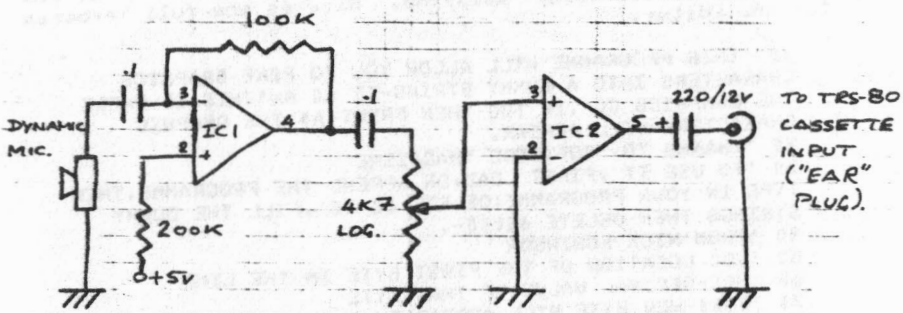
Program 2:-

```
10 CLS
20 FOR X=0 TO 127
30 PRINT CHR$(28)
40 IF INP(255)=255 THEN Y=22 ELSE Y=23
50 SET(X,Y)
60 NEXT X
70 GOTO 10
```

Here is the circuit of a suitable amplifier, if you would prefer something a little more convenient than your audio system. It might appear somewhat elaborate, but I intend to do some work on speech processing, and the spare amplifiers in IC1 will do very nicely as filters and TTL output devices with a 5V supply (IC1 is a quad Norton amplifier).

Leon Heller.

AMPLIFIER FOR SOUND INPUT.



IC 1 - LM3900 PIN 14: +5V PIN 7: GND
IC 2 - LM386 PIN 6: +5V PIN 4: GND

SUPPLY VOLTAGE CAN BE 4V - 12V
(USE HIGHER VOLTAGE OUTPUT CAPACITOR FOR V+ > 6V).

L.F.H.

FREE CASSETTE INTERFACE MODIFICATION!

With all their current software, Tandy issue a sheet with details of a FREE modification to the keyboard unit, making cassette problems a thing of the past. If the serial number on the bottom of the case does not end in -1, you have an un-modified unit, and Tandy will upgrade it free, gratis and for nothing! Merely take it to your local Tandy store and ask for the modification to be done. You might have some difficulty in convincing them it is free, however. The latest keyboard units have this mod. and it really seems to work.

Leon Heller

GO WEST

Does the Purple Worm baffle you? Have you been eaten by the Ice Hound? Then this is the column for all Adventure freaks/addicts: to provide hints, and for people to write to in desperation.

Hints:-

1. If you haven't found the advertisement for the NEXT adventure, you're not doing very well!

2. Pyramid of Doom - put the stone in the Hieroglyphic Room.

3. To 'GO WEST' - type 'W'.

4. Pyramid - if you can't find the 'Heart of Iron' count your treasures.

5. Voodoo Castle - chemicals need a powerful voodoo spell to keep them stable.

6. Strange Odyssey - "honest guv, I was looking for the Power Crystal and it came off in me hand!"

Questions:-

1. Pyramid of Doom - how does one defeat the Purple Worm?

2. Count - how does one stop the stake being stolen?
   - what must one leave outside the window?

That's all for now folks - I'm off to Adventureland

Nick Robinson

Please note change of address:-

130 The Grove,
Ealing,
London W5 3XP

UPPER-CASE TO LOWER-CASE CONVERSION

The following little program is one I wrote to convert upper-case ASCII text files to lower-case. It takes the file in a line at a time as a string, converts the string to lower-case a character at a time, puts all the characters together again, and outputs the line to another file.

Using this program, I can now accept contributions to the Newsletter in machine readable form, either as upper-case Electric Pencil, SCRIPSIT or BASIC program files, convert them to lower-case, edit them and incorporate them into the Newsletter with a minimum of effort. Text in the form of BASIC 'programs' will have to be saved with the ',A' appended to the filename, of course.

```
10 '              * * * CONVERT * * *
20 '
30 'A PROGRAM TO CONVERT UPPER-CASE ASCII TEXT FILES
40 'TO LOWER-CASE ASCII.  ALL NON-ALPHA CHARACTERS
50 'ARE UNCHANGED.
60 '
70 'WRITTEN BY LEON HELLER - 21/6/80
80 '
90 CLEAR 2000
100 CLS:PRINT:PRINT
110 PRINT"           * * * CONVERT * * *"
120 PRINT:PRINT
130 INPUT"SOURCE FILENAME";S$
140 INPUT"DESTINATION FILENAME";D$
150 PRINT
160 PRINT"CONVERTING FILE . . . "
170 PRINT
180 OPEN"I",1,S$
190 OPEN"O",2,D$
200 IF EOF(1) THEN 340
210 LINEINPUT#1,TEMP$
220 T2$=""
230 L=LEN(TEMP$)
240 FOR I=1 TO L
250 T1$=MID$(TEMP$,I,1)
260 V=ASC(T1$)
270 IF (V>=65) AND (V<=90) THEN 280 ELSE 290
280 V=V+32
290 T2$=T2$+CHR$(V)
300 NEXT I
310 PRINT T2$
320 PRINT#2,T2$
330 GOTO 200
340 CLOSE:END
```

Leon Heller

SUPER GRAPHICS EDITOR

In the last issue, Laurie Shields contributed an article about an enhancement to the Super Graphics Editor that was published in Softside magazine. Here is the full program for the Editor.

```
10 'THIS PROGRAMME WILL ALLOW YOU TO POKE GRAPHICS
CHARACTERS INTO A DUMMY STRING-IE 10 A="THIS IS WHERE
THE GRAPHICS GO".IF YOU THEN PRINT A$ THE GRAPHIC
CHARACTERS WILL APPEAR.
20 'THANKS TO "SOFTSIDE "MAGAZINE
30 'TO USE IT ,FIRST LOAD,OR APPEND THE PROGRAMME.THEN
TYPE IN YOUR PROGRAMME(DELETE 10-30).FILL THE DUMMY
STRING$ THEN DELETE 60000-.
40 'FROM NICK ROBINSON
50 'LOC LOCATION OF THE FIRST BYTE IN THE LINE
60 'DEC-DECIMAL VALUE OF THAT BYTE
70 'CHR$-HOW BYTE WILL APPEAR IN THE STRING
80 '?-*ENTER* WILL LEAVE THE BYTE UNCHANGED
90 '[-DISPLAY PREVIOUS BYTE
100 '1 TO 255-PACK STRING WITH SPACE OR GRAPHICS OR HEX
110 '0-EXIT FROM EDITOR
60000 CLS
60010 INPUT"WHICH LINE
NUMBER";N:E=17129:IFN>59999THEN60030
60020
S=PEEK(E)+256*PEEK(E+1):L=PEEK(E+2)+256*PEEK(E+3):IFL<NTH
ENE=S:GOTO60020ELSEIFL=NTHEN60040
60030 PRINT"LINE NOT IN PROGRAM":GOTO60010
60040 PRINT" LOC.   DEC.     CHR$","NEW
60050 FORI=E+4TOS-2
60060
X=PEEK(I):PRINTI;X,:IFX<192ANDX>128PRINTTAB(POS(0)+4*(I/2
-INT(I/2)))CHR$(X),:GOTO60080
60070
IFX=32PRINT"BLANK",ELSEIFX<32PRINT"CONTROL",ELSEIFX>191PR
INT"SP. COMP."X-192,ELSEPRINTCHR$(X),
60080
X$="":INPUTX$:IFX$=""THEN60120ELSEIFASC(X$)=91ANDI>E+4
I=I-1 ELSE60100
60090 GOTO60060
60100
X=VAL(X$):IFX=0ENDELSEIFX<0ORX>255PRINT"ERROR":GOTO60060E
LSEPOKEI,X
60110
IFX<192ANDX>128PRINTTAB(40+4*(I/2-INT(I/2)))CHR$(27)CHR$(
X)
60120 NEXT
```

Nick Robinson.

PERMUTATIONS

I came across a FORTRAN program to generate permutations in the June 1979 issue of Computer Education. In conjunction with a suitable randomisation procedure this program could be useful in certain types of experimental design. I hope no-one is going to ask me how it works, as the logic is rather complex. Apparently, the original algorithm was in the form of an ALGOL program which would have been much more understandable.

```
10 '* * PROGRAM TO GENERATE PERMUTATIONS OF * *
20 '* * THE FIRST N INTEGERS                 * *
30 '
40  'ORIGINALLY PUBLISHED AS A FORTRAN  PROGRAM IN  ISSUE
32
50 'OF  'COMPUTER EDUCATION'.  ORIGINAL  PROGRAM  WRITTEN
BY
60     'R.J.MARGETTS,  BRISTOL  POLYTECHNIC.     PROGRAM
TRANSLATED
70 'INTO BASIC BY LEON HELLER - 17/6/80.
80 '
90 CLS:PRINT:PRINT
100  PRINT'PROGRAM TO GENERATE  PERMUTATIONS OF THE FIRST
N INTEGERS (N<=100)'
110 DIM Q(100),Y(100)
120 PRINT
130 INPUT'N';N
140 FOR I=2 TO N
150 Q(I)=I
160 NEXT I
170 L=N
180 FOR I=1 TO N
190 Y(I)=I
200 NEXT I
210 FOR K=2 TO N
220 TEMP=Y(K)
230 Y(K)=Y(Q(K))
240 Y(Q(K))=TEMP
250 NEXT K
260 FOR I=1 TO N
270 PRINT Y(I);
280 NEXT I
290 PRINT
300 Q(L)=Q(L)-1
310 IF Q(L)>0 THEN 170
320 Q(L)=L
330 L=L-1
340 IF L>1 THEN 300
```

Leon Heller.

SOME ADVICE FROM RADIO SHACK, FORT WORTH

Here is a copy of a letter from Bruce Elliott of Radio Shack. I think the questions I put to him are fairly evident from his replies and comments.

Incidentally, I have used T-BUG for some time, but have only just found an odd quirk in its behaviour. If I use B, F and J followed by another F, all goes well. However, I had occasion to wish to carry out the same procedure twice at the same breakpoint and invariably the second Jump led to a loop situation which needed a reboot to get out of. I have since tried the double Break many times, liberally sprinkling 'F's and carefully checking the original instructions are restored, but the 'hang-up' always happens on the second Break. This also happens if I go to Level 2 (i.e. disconnecting the Expansion Interface and the disks). Has anyone else experienced this?

Bill Cowhig

(* If you have disks, T-BUG is really a waste of time. DEBUG is much better. LFH *)

Mr. Cowhig,

I just received your May 26th letter. I have not included a copy of the Microcomputer News. This publication is only available to U.S. customers. You might contact a Mr. J.D. Hartman in our U. K. office (Bilston Road, Wednesbury, West Midlands. WS10 7JN) about the possible existence of a similar publication in England.

If I understand your comment about Assembly Language, you are doing things properly. The process to create and edit (correct) a program is: create a source file using the Editor, Assemble (creating an object file), Link and execute the object file, recall Source file with Editor, locate and correct errors, Reassemble (creating a new object file) , Link and reexecute. There is no way to use the Editor to directly manipulate an assembly language object file. All work is done with the Source file, which is then Assembled and executed. If you create files of any length, you will need to KILL old file names frequently to maintain enough disk work space.

I assume you have discovered that you may not use the same filename twice. I get around this by alternating between two names, KILLing the first one once I have saved the corrected file using the second If further correction is needed, I use the first file name, KILLing the second.

Your comments regarding SCRIPSIT are valid. Unfortunately there are only so many features which can be included in one program. One possible solution is to create your main text file using SCRIPSIT, save your work using the ASCII (,A) option, enter BASIC and write a short program which will printout your double width heading, then read the SCRIPSIT file as a SEQUENTIAL file, sending the lines to your printer as they are read from disk. I have not tried this procedure, but with a little experimentation, it should work quite well. I would use a similar technique if I wished to combine a SCRIPSIT letter with a name and address file.

Best Regards,

Bruce Elliott

BOILED EGGS

At a recent Sunday-morning meeting of the TRS-80 Users' Group in Milton Keynes, my attention was attracted by a roar of laughter at the back of the room, where someone had inadvertently loaded a program I had left on the desk, causing the computer to flash up the message: "BOILED EGG?" Upon enquiry, I was asked to contribute an account of these circumstances to the Newsletter.

A year ago now, my college showed an unexpected degree of enterprise by buying, for students' use, a cassette-based Level II TRS-80. Unfortunately, the college does not always show quite the same high standards (!) when it comes to providing meals, and as a result it was decided a few weeks ago to hold a "food referendum", the results of which were to be analyzed using our very own TRS-80! So it was that I spent many happy hours typing away at the computer, entering data items such as "canneloni au gratin", "Jumbo U.S.-style beefburger", and so on. The end result is a program which will, when someone eventually gets around to feeding all the questionnaire results into it, printout a list of the college's entire menu in order of students' preference, save all data on cassette, and award percentage marks to each item. Whether at the end of it all the catering staff pay any attention remains to be seen!

Obviously the program is, as it stands, very specialised, since all the food items are contained in data statements; and the program, though concise and versatile, may appear badly structured to a conoisseur, since it was written in something of a hurry, - and anyway, I HATE flow diagrams! However, with an hour or so's editing it might be of use to somebody, and anyone interested is welcome to contact me for a copy.

Mike Hughes-Chamberlain,
Hertford College,
Oxford.

LOW-COST ACOUSTIC COUPLER

If anyone is interested in constructing a low-cost acoustic coupler, the March issue of Computing Today had what looks like an excellent design. I shall be trying to locate a source for the PCBs needed for this project.

As I have said before, Post Office approval for a device of this type would be difficult and expensive to obtain, but since it uses the modem chip I mentioned in my earlier article on the subject, it should conform to the required specification as far as the output is concerned, with the possible exception of the output level, so you are unlikely to have the authorities coming down on you like a ton of bricks for interfering with the network.

In the States there is currently a great deal of interest in personal computer networks, and recent issues of Byte and Doctor Dobbs Journal have contained many articles on this interesting aspect of our hobby.

Leon Heller

QUICKPRINTER II

I acquired this machine recently; unless I'm mistaken, it's the cheapest printer on the market, and will find its way into many TRS-80 systems.

The price is £169.95 and these units are currently "in stock" so you should only have to wait for the next delivery. Weighing only around 3lb. and measuring only about 9" by 6", it comes with 2 rolls of paper and a 22-page "manual", though there isn't all that much to say about such a simple machine.

The paper is only 2½" wide and is aluminium-coated; evidently it's a thermal printer which is silent during the actual printing although the carriage return mechanism does produce an audible whine. It's unidirectional and has a 32-character buffer which will automatically print one complete line as soon as it's full.

From the promotional literature put out by Tandy, you would conclude that here is a printer capable of producing capital letters of rather poor quality on very narrow paper. But this turns out to be wrong; as soon as you start reading the manual you find that the machine supports lower-case, and as soon as you produce some sample output it turns out to be quite attractive. It never fails to surprise me that Tandy consistently undersell the TRS-80 and related products, and this is just another example.

Of course, there are drawbacks. There are no lower-case descenders, so the difference between upper and lower case on q, p and y is only marginal, and the paper really is narrow. Nevertheless you are getting features not offered with some £400 printers.

The Quickprinter II understands precisely 2 format statements; it can be made to start a fresh line, and it will print double-width letters (16 to the line), a statement which must be renewed every line.

A ribbon cable is provided which allows the machine to be connected directly to the keyboard unit, although it can also be linked to the Expansion Interface or the RS-232C Interface. No doubt the majority of purchasers will plug it straight into the keyboard; it's not intended for business applications and it would be a weak link in any greatly-expanded system.

So what are the principal applications? If you are writing a long and complicated program you will get tired of scrolling bits of it up the screen, looking for the line that needs to be edited in order to prevent the crash in some other line. This printer will allow you to reel off four inches of silvery paper with the offending subroutine, take it down to the lounge and meditate on it while listening to a soothing LP; tests have established that this is a much more reliable way of finding bugs than hanging grimly onto the keyboard, determined not to give up. If the problem is that variables are assuming unexpected values during execution, you can have a document record of all these variables left over after execution. When the thing finally works you can LLIST it, but be warned - this process will continue (at 2 lines per second) until the RAM has told you all it knows, and there is nothing you can do if you want to change your mind. You do have an "off line" switch but this merely delays the inevitable - put it on line again and the inexorable process continues.

Of course, computer owners like nothing better than a challenge, and someone is going to come up with a way of using the Quickprinter as a word-processor. Well, it photocopies very easily, so perhaps we can do something to make it handle larger chunks of text. We will set the screen display to 32 characters per line so that the lines will match the printed lines, and use INPUT A$ followed by LPRINT A$ to get it onto the printer. No good? That's right, the "?-" can't be deleted and is interfering with the calculations of line length; also, the thing starts printing as soon as we use a sentence with a comma. All right, we will use INKEY$ and PRINT it on the screen to see what is going on, then tell the Quickprinter to LPRINT each character. It won't actually LPRINT until it has a buffer full of material, so it will still be producing one line at a time.

The catch here is that, although the screen display will echo the backspaces and deletions which are a normal part of typing, the buffer won't - it will LPRINT all the rubbish you thought you had cancelled out. The answer is obvious - wait until the screen is full, then RUN a program which PEEKS the video RAM and LPRINTS it. This works beautifully, but now you have lost lower-case; the video RAM apparently can only hold what the character generator sends it, and consequently never holds the ASCII values for lower-case letters.

The solution seems to be to set up DIM A$(1024) and fill it with the INKEYed characters, decrementing the vector address whenever backspace is entered, then LPRINT whenever the screen is full and start again. If I get this straightened out I will print it in the next issue, unless of course some kind soul gives me a better approach. Best of all, can we stick to a 64-character-per-line screen display, loading the left-hand side into one vector and the right-hand side into another? Then we could LPRINT both in succession, paste them side by side, photocopy them and have 64 characters to the line.

The conclusion seems to be that if you want sophisticated hardcopy you had better be prepared to spend more than £170 in the first place. If you want a document record of what's been going on, however, this printer may be quite adequate. It seems very reliable and is going to destroy the market for printers at twice the price which don't seem to offer any extra facilities. You will have to keep an eye on paper consumption, though; you might get through 1 roll a month and at £2 each, the cost in the first year would be a significant percentage of the purchase cost.

Mike Costello,
17 Langbank Avenue,
Rise Park,
Nottingham NG5 5BU

(* This was reprinted from the East Midlands Independent TRS-80 User Group Newsletter, available free from Mike for the time being. You ought to live in the East Midlands, of course, to join, although Mike tells me that the definition of the area will be interpreted loosely. LPH *)

PROGRAM TRANSFER BETWEEN TWO TRS-80 SYSTEMS

I recently paid a visit to Tandy HQ at Wednesbury where John Lynch told me about the NETWORK system, where a master TRS-80 sends and receives programs from up to 16 slave TRS-80s, via the cassette interfaces using the CLOAD and CSAVE commands. This is intended for educational applications, but it might be useful for some Members who have more than one system, like Brian, who has two systems - one disk-based and one cassette-based. He was therfore quite keen to investigate program transfer between the systems using this low-cost technique.

Since the output signal from the TRS-80 is only a fraction of a volt, whereas a couple of volts is needed for input (which usually comes from the cassette recorder, of course), an amplifier is needed, and for our experiments I breadboarded a simple unit using the National Semiconductor LM386, similar to the output stage of the sound input amplifier described on page 14. We then connected the cassette output from the disk-based system to the cassette input of the other system, loaded a BASIC program from disk into the first system, and transferred the program (after a bit of fiddling with the amplifier gain control) to the second system, using CSAVE and CLOAD.

I am now making up the amplifier in permanent form for Brian to put in a box with the battery, gain control and connectors. Not as versatile as the RS232 board and the Communication software package, or as fast, but far cheaper, as an Expansion Interface is not needed.

Leon Heller.

SHEFFIELD WORKSHOP - A NEW MEMBER'S VIEWPOINT

Sunrise over Milton Keynes saw the gathering of the clan outside Brian Pain's office. We then boarded the minibus for the two and a half hour drive to the rendezvous in the North.

The MK contingent got off to a good start at the Leicester service station where a bank of Space Invaders greeted the sleepy travellers. After zapping the Klingons we boarded the bus for the final stage via Chesterfield's crooked spire (so much for PET design capability) to the venue at Sheffield.

The workshop began well with a short introduction by Brian. This was followed by Leon giving an informative run down on FORTH and Pascal, with example programs and a weighty discussion of pros and cons relative to BASIC. FORTH seemed to come out on top and to somebody like me who struggles with BASIC it had many attractions.

The coffee break seemed seemed more for playing at FORTH programming rather than coffee. After the break Laurie Shields stepped into the arena with 'A Beginners Guide to Assembler/Machine Language'. Again this proved of great interest for beginners as he stepped through the mysterious workings of the TRS-80 with a clear method understandable to everybody (even me). This coupled with a demonstration of the 'ZEN' assembler and its capabilities made for a very interesting and informative talk.

After lunch a concise talk was given by Nigel Dibben. He gave his views about the TRS-80 and another well known 'system' and I'm glad to say the '80 came out best. He also outlined his method of 'common data base' used in his program suites and how he goes about programming. An important point was made:- if you are thinking of intelligent programming get a printer before disks as the time spent on trying to debug on screen rather than on paper can mean the difference between a successful or unsuccessful programmer.

Leon then gave a talk on 'add-ons'to the system. He covered many different aspects involving the attachment of existing accessories and the development of new applications. Although this was mainly intended for you experienced programmers and those of you who actually make use of the '80 at work, it did give an insight to us 'others' as to what you can actually accomplish. It also showed that 'Invaders' is greatly superior with an amplifier plugged in to your AUX jack.

Brian wound up the day by talking about business applications and programs. This was directed mainly at the business user rather than the hobbyist and concerned disk systems and the various programs available together with his experiences of their use.

We then had time for a short game and program session. It was here that I was able to pick the brains of Laurie and Nigel and found that they were a great help in my struggle to learn BASIC. They were more than willing to assist and actually understood what I was trying to do let alone say.

Unfortunately we had to pack up at 5.30 to go home but not without having gained a new insight into the world of programming and the TRS-80. (and Space Invaders at Trowel

service area on the way home!).

In conclusion, the first Northern workshop was a great success as shown by the attendance figures (about 20 members attended) and the information imparted to us 'new boys' and I would greatly recommend that you give serious thought to coming to the next - you will find that you will gain from it whatever your level of experience.

Bob James

INNOVATIVE

TRS-80 SOFTWARE

✓ Business ✓ Programming Aids

✓ Personal ✓ Custom

✓ Games ✓ Utilities

6 Years Microprocessor Experience!

BINDERS Our Software List is being updated so frequently now that we are supplying it pre-punched for a ring binder. We are also supplying, without profit, a handsome ring binder which will house the list and also has room for program instructions, notes etc. SAE for list alone, 85p plus 30p postage for list and binder.

A.J.HARDING (MOLIMERX)

28 COLLINGTON AVENUE, BEXHILL-ON-SEA, E.SUSSEX.

TEL: (0424) 220391

BARCLAYCARD VISA

● Circle No. 128

AVALON SOFTWARE

zen

Z80 EDITOR ASSEMBLER

Zen is a complete system for the Z80 assembly programmer, it's reliability proven on thousands of computers. All versions of Zen consist of a cassette, user manual and full assembly listing. Each version has these minimum capabilities:

- Full set of editor commands including string search.
- Compact source files, no line numbers. Free format text, no tabbing required.
- Read/Write named source files to cassette. Files may be merged.
- Superfast standard Zilog syntax assembler runs at four thousand lines per minute.
- Decimal, hex and octal parameters.
- Six math operators: addition, subtraction, multiply, divide, AND, OR
- Full range of pseudo ops for bytes, words, strings etc.
- Symbols of any length.
- Fully formatted List and Symbol Sort to video or printer.
- Paging for sheet feed printers
- Object to cassette or memory.

TRS-80 Level II..... £12·80 + VAT

- 4-8k, runs under L II at 4300H
- Same facilities as Sharp version, replaces EDTASM and TBUG.
- Cassette files in SYSTEM format.

NEWBEAR COMPUTING STORE Ltd.
40 Bartholomew Street
Newbury, Berkshire
RG14 5LL

ORDERS AND INFORMATION ON **0635 30505**

NATIONAL TRS--80 USERS GROUP NEWSLETTER

VOLUME 2 ISSUE 2 AUGUST 1980

CONTENTS

2. Editorial
3. Members' letters
16. Resurrecting a BASIC program
17. Electric Pencil - deluxe
18. Assembly language for the beginner
19. A dissatisfied user
20. MSF clock
21. Games paddle improvements
22. Input field length
23. TRS-80 in the Open University
25. Some useful POKEs
25. TRS-80 loading aid
26. Tape dump repeat
27. Machine code/DATA statement conversion
28. Go West
28. Book review
30. London Workshop report

EDITORIAL

It looks like our decision to attempt monthly publication of the Newsletter was justified. You excelled yourselves in the quantity and quality of material for this issue.

I was especially pleased to get Laurie King's article on an MSF clock for the TRS-80. This was a very nice illustration of what can be done when some simple hardware is combined with software, resulting in an excellent project. Laurie's program was written in Assembler, and whilst he admits that it is not particularly elegant (it was his first attempt at programming in assembly language) it works, and is quite an achievement for someone new to Assembler. Too many people think that computing is just software, and a great deal of fun can be obtained by attempting to integrate hardware and software.

It is also very gratifying to see Members' pleas for help answered, with articles like Angus Ellefsen's on assembly language programming, and the offers to start a beginners' section.

Leon Heller

Edited by:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8RD.
Tel: (0908) 613004

Published by:-

Brian Pain,
40a High Street,
Stony Stratford,
Milton Keynes.
Tel: (0908) 566661/
564271

MEMBERS' LETTERS

From John Wellsman

May I say how much I enjoyed the gathering at Holloway in July. In fact, I have always enjoyed the week-end meetings making new friends and seeing old ones and never failing to learn something new. But though new knowledge is always welcome, I don't always resolve the queries that I particularly wanted resolved. One cannot spend the entire time tapping people on the shoulder and saying "Excuse me, but can you explain to me what hash codes are?". After a time, people would see me coming. So, could we not have a question and answer session on these week-ends when the less knowledgable could learn from those who know. It could, in fact, be an open forum from which even those who know it ALL could benefit.

This leads me to the letter from C.T.Dempsey in the June letter about help and guidance for the beginner. I thoroughly understand his feeling that the News-Letter appears to be written for experienced computerers (!?!) rather than than beginners but beginners are always in the minority. However, I wonder if it would be possible to have a beginners' page in the N.L. And just to stick my neck out, if Leon is willing, I would be prepared to have a go at running it myself.

Another suggestion concerned our Library. It was my intention in this letter to suggest that a small fee be charged for each program that we take from our collection and to propose that 50p would not be exactly exhorbitant. But I understand from Brian that this is being pretty actively considered at the moment so I will say no more than this.

I would very much like to contact members who live in the London area for the purpose of forming a local 'branch' of the National TRS 80 Group. My office, where my TRS-80 lives, is at 292, Caledonian Rd, London N.1. (about a mile north of Kings Cross Station) and my telephone number is 01-607-0157 and we could meet in the evening at this address. Anyone interested, please write or phone.

When I think of all the TRS-80 users beavering away into the small hours of the night, creating Cosmic Empire programs, mailing and sorting routines and Super-Monitors, 90% of which may never be seen by the eager public, I weep to think of all this unrecognised talent. Can we not drag the veil away from these unseen masterpieces by holding a contest for the best program. Just for starters, how about the best five minute graphics program, to be shown and judged by public aclaim at a specified 'Week-end Workshop'?

Best wishes,

John Wellsman

P.S. What about a membership list !

From Chris Dempsey

Thank you for your reply to my letter. I too saw the advertisement for the Aculab floppy tape shortly after writing to you, and I have now obtained information from the company regarding this unit, which does appear to be far superior in its operating system to the Exatron unit. Strangely, although it appears to read information faster than the Exatron, their promotional literature does not claim a faster load time than the Exatron, perhaps they are just being cautious.

The attraction about the Exatron is that they offer an international kit - without transformer - for $199, i.e. around £90, plus shipping etc. Even with the cost of a power supply added, this is quite attractive considering the imported cost of Exatrons from a dealer in this country - well over £200, and Aculab's initial price of £190.

However, I feel that the operating system of the Aculab will probably decide me to purchase this unit, and I'd be grateful if you could publish in the Newsletter whether anybody has purchased either unit in this country, so I can get some more information. Also, whether anybody else is contemplating purchase, as Exatron offer discounts for five or more units purchased, and perhaps Aculab might also.

I am quite willing, by the way, to offer any help to beginners via the Newsletter, although I still consider myself a beginner!

Chris Dempsey,
36 Buller Road,
Barking,
Essex IG11 9UA.

(* I know of members who have purchased these units and hope to be able to publish a comparative review in the next issue. The Aculab Floppy Tape uses the Exatron drive, by the way. I agree that the Aculab operating system is much better than that for the Stringy Floppy. LFH *)

From Pat Martin

JUST A QUICKIE. FIRST - MANY THANKS TO NATIONAL TRS-80 FOR A MOST ENJOYABLE DAY IN ISLINGTON.

SECOND - PLEASE COULD YOU GIVE A MENTION IN THE TRS-80 USERS GROUP NEWSLETTER TO THE WLPCC (WEST LONDON PERSONAL COMPUTER CLUB). THIS (MACHINE INDEPENDANT) CLUB WAS FORMED ON JULY 16TH AND IT HAS A SMALL TRS-80 USER SUB-GROUP (WITH ITS OWN PREMISES) CONTACT FOR WLPCC IN GENERAL IS GRAHAM BRAIN OR NEIL CRYER ON 01-997-8986, AND FOR THE TRS-80 SUB-GROUP IS JOHN CARNE ON 01-993-1462 (DAY) OR 01-567-7873 (HOME). BOTH JOHN AND I ARE NATIONAL TRS-80 USER GROUP MEMBERS, AND WE HOPE THAT THE REMAINDER OF OUR SUB-GROUP WILL SOON JOIN.

Pat Martin

From Dennis Long

I am trying out my copy of SCRIPSIT for the first time, hence the following rather long letter.

PRINTER

I wonder how many people realise the incredible versatilty of the CENTRONICS P1 printer, it is somewhat limited when it comes to page width, and it does use aluminium coated paper. However, it can do as much if not more than most conventional printers, it can do it faster, quieter and above all cheaper.

The easiest way to demonstrate it, is to show an example of the printout of one of my programs:-

WEIGHTED MEAN RESULTS												
		FEED	SOLV	WASH	RELATIVE DENSITY @ 75°C				DEVIATION FROM TARGET			
DATE	GRD	RATE	CIRC	RATE				YIELD	YLD	—R.D. @ 75°C—		
		gph	gph	%V.	RAFF	EXT	FEED	%V.	%V.	RAFF	EXT
1	1	95	15000	26250	175	0.8415	0.9520	0.8955	51.1	-5.8	-0.0005	-0.0130

As you can see all I have to do is draw in the vertical lines for a fairly professional table of Process Unit Performance. You can also see that it Photo-copies very well.

COOL OPERATION

I have had very little trouble of the type so often described in these pages (Glitches, loss of data etc.). I think the fact that I am running both the keyboard and the interface at 145 volts is significant. When I first got my TRS 80, I used to sit with the keyboard on my knees, it got so hot that I eventually put a VARIAC (variable transformer) in the mains supply. I switched it on at the normal mains voltage and then reduced it until funny things began to happen at about 125 volts. I simply added 20 volts to this and have run at 145 V ever since (14 months now).

The Service Trading Company (Tel:01-437-0576) often advertise VARIACS in the electronics hobby magazines for about £15. If anyone has ever thought of installing a cooling fan then I suggest they forget it, and buy a VARIAC. (NOTE:The video display needs to run at 240 V.)

One advantage of buying the separate SHUGART disks (described in a previous newsletter), is that the power supply can be made a separate item; this helps to keep the disks cool.

WHAT DISK PROBLEMS ?

I have had very little trouble with disks, I haven't even had damaged centres. I think this is because I have mounted the disk units horizontally. Vertical mounting must increase the risk of the disk slipping in the cover during insertion. Another point about inserting disks is that I never close the gate in one movement, I partially close it a couple of times first to ensure that the disk is properly centered ; this procedure became 'second nature' after a very short while.

I have tried John Harding's (or is it N. Dibben's) modification to DOS for a 40 track drive. I cannot get 40 tracks on my SHUGARTS, but I can get 36. Whilst messing about with this system, my Son and I tried preventing the disk drive from adding it's own pulse to the one it gets from the disk controller (which it does whenever it is told to step to the next track). It worked OK, we even formatted 70 tracks ; however, when it came to verify them only the last one could be found. We learned from the SHUGART data sheets that the 'record head' is straddled each side by an 'erase head', which presumably erased each track after we had recorded it. That's life, I guess!

I wonder why so many of us like fiddling with the system so much? - - In the American Journal PROG 80 there were two items relating to speeding up the track seeking ability of disks. I tried this and found that it worked on drive 0, but not on drive 1. By reducing the capacitance of C12 to about 0.7 microfarads (see circuit on page 2-13 of the TRSDOS manual), I got both drives to work at the high speed. I did not gain more than a second or so in disk access time using this procedure, but it was fun trying, and I learned quite a lot. Anyway in case anyone is interested in the data to do this, here is the necessary information:---

NEWDOS: POKE 18007,18 and POKE 17484,2
TRSDOS 2,2: POKE 18007,18 and POKE 18122,2

To make the changes permanent it is necessary to SUPERZAP the disk by changing the following bytes:--

NEWDOS:	Track	0	Sector	7	Rel. Byte	0F	from	0B	to 02
	•	•	•	9	•	•	•	1E	• 12
TRSDOS:	•	•	•	7	•	•	52	•	1F • 12
	•	•	•	7	•	•	C5	•	0B • 02

HIGH SPEED MODIFICATION

Thank you for publishing the high speed modification. Can anyone describe the modification that uses a software poke to control it, rather than a mechanical switch?

BETTER LOWER CASE DISPLAY

I note you mention a TANDY modification, which gives true descending lower case characters on the screen. This presumably means buying a replacement character generating chip and adjusting the blanking lines. Does anyone know if the correct chip can be purchased and installed without too much difficulty? I for one would like to see the display tidied up, if only to better impress people who like to see how the TRS 80 works; that raised 'a' really annoys me!

While on the subject of lower-case, it might be worth pointing out to members, that the lower-case modification only gives lower-case when 'shift' is used otherwise you get upper-case. Maybe someone can provide us with a program to correct this (I think the one in the library is the same as the one I found in TRS-80 Computing). I know it can be done, because SCRIPSIT really does convert the keyboard into a true typewriter mode.

WORKSHOP GEMS

I have so far been unable to get to any of your workshops. From your brief descriptions of the proceedings, there seems to be scope for a section of the newsletter to be devoted to giving us more details of some of the 'gems'. It would mean extra effort on the part of someone, but it would really be appreciated by those of us unable to attend; reporting the fact that such gems of information came out of the meeting makes us feel even more isolated when we are not told the details.

DISK vs TAPE

It must be a bit annoying for many members to see so many references to the use of disk drives, especially when they are so expensive. It might be worth pointing out that getting your first disk drive is like removing a set of chains from around your neck. The freedom from the constraints of using tapes is incredible; that feeling of frustration one gets, when trying to load a program from a naughty tape (with a whistling radio alongside) well into

the early hours of the morning, completely disappears.

It is for this reason that so many of us have sacrificed the family holiday or the new car in order to get back to sanity. The purchase of the Interface unit and a single disk plus power supply will set you back about £450, cheaper if you build your own power supply. I, for one, have made considerable progress with my programming now that I do not have to worry about the particular problems of loading and saving long programs on tape (I never really found a tape supply which was free from 'drop-out',I even had trouble with RADIO SHACK tapes).

The main advantage of disks is that programs and data can be verified and re-read as often as necessary, without personally taking any active part in the procedure, and with a vast saving in time. With SUPERZAP available it is almost unnecessary to make extra copies of most of your disks (although most of us still do), such is the feeling of security that one gets.

Many of the programs that are available to disk users are extremely useful, in particular those associated with NEWDOS + , for example:- the REF utility really is a boon, it will locate virtually any variable, fixed value, or line number in a BASIC program. It not only lists the location of each item ,it also helps to get to the actual location of every entry of the item requested. Debugging programs is actually enjoyable!

HINTS FOR BEGINNERS

Rule 1.-Stop knocking the editor!
Seriously, I have some sympathy with Mr.Dempsey's comments in issue 12, but let's face it those of us who have been Ramming Rubbish into RAM for more than six months must seem expert to those new to the game. What I think he means is that every issue of the newsletter should make you feel that you have learned something useful, and that the price per issue is worth the money.

So here goes with a few ideas which may prove useful to the beginner:----

The only way to learn is to practice, it's no good copying other peoples programs and playing games. you've got to be creative! Set yourselves problems and then solve them. One way of doing this is to take a short program like LUNAR LANDER and alter it to random height, fuel supply or speed; or to make it print out more information and so on. To do this you will need to understand it first, maybe plot out the flow chart on paper then add more loops etc., until you know the program off by heart.

One of the worst programs I ever saw was GOLF, this was published by Creative Computing in the States. My son and I spent weeks figuring out how it worked in order to get a better display and more skill into it. This program appears to have grown rather than been designed, there is absolutely no structure to it at all.

What's 'structure'? I hear you ask. Well - I believe in making life easy for myself, in all the programs I have written I have reserved the first thousand line numbers for the CONTROL section of my program. Line numbers which are divisible by 1000 (ie. 1000,2000,3000 etc.,) are reserved as HEADERS or TITLE lines leading into various sections of my program.

For instance Lines 1000 up to 1999 are reserved for DATA INPUT to the program, lines 7000 to 7999 are for SAVING DATA TO DISK and so on.

To run most programs a MENU or TABLE OF OPERATIONS is used, here is a sample of one of mine:-

```
* PROCESS UNIT FILE *
====================        * DATA FOR JUNE 1980 AVAILABLE
YOU HAVE THE FOLLOWING CHOICES :-
1.  START A NEW FILE            2.  GET A FILE FROM DISK
3.  EDIT A FILE                 4.  ADD FRESH DATA TO A FILE
5.  LIST ALL MAIN DATA          6.  LIST A MONTHLY SUMMARY
7.  PUT DATA ON DISK            8.  LINEPRINT DATA
```

and so it goes on.

Now if anything goes wrong, particularly while the program is being developed, I can tell immediately where the trouble is, to within a line number or two. In effect every section above line 1000 is a subroutine which is entered from the menu and it returns to the menu.

In the above program the menu number e.g. 5. LIST ALL MAIN DATA tells me that this routine starts at line No. 5000, so if I want to make any changes I can go straight to it.

I have also evolved several other 'programming standards', which help to speed up the coding and debugging of programs. You probably know that the basic statement :- PRINT@XXX,CHR$(31); Puts the cursor at location XXX, and clears the screen from that position. (CHR$(30) will clear the rest of the line)

I have adopted the convention that BASIC line numbers from 101 to 116 are reserved for subroutines to clear the screen. For example if during a programming session I wish to PRINT on screen line 5 and clear the screen from line 5, all I need to do is GOSUB105. To clear from and print on line 9, I GOSUB109.

I don't heve to remember where I put the routine and I don't have to go back and look for it. Line 109 will look like this :- 109 PRINT@512,CHR$(31);:RETURN and all the other lines will be similar. These statements save memory space if you have to clear part of the screen regularly. You can always delete any of the lines 101 to 116 at the end of the program if they are not used.

A similar technique is used for timed delays of the type - 210 FORN=0TO100:NEXT Just add :RETURN and from now on a GOSUB210 gives a 1 sec delay, line 105 can be set to give 1/2 sec, and line 220 to give 2 secs and so on. This is all simple stuff, but I had to figure it all out for myself, it might save you some problems particularly if short of memory space. The important point is to ALWAYS put the same routine of this type on the same line in all your programs. My MENUS always start on line 150, there is no particular reason for that, it's just that I put it there in my very first program and there it stays.

SUPERZAPPERS SECTION

Superzap, for the uninitiated is a BASIC program for writing/reading floppy disks without using the normal Random or Sequential file routines available in BASIC. This means that DOS (Disk Operating System), Disk BASIC and any other program can be 'got-at' if necessary one byte at a time. This means that we can modify commercial programs which cannot be edited under any 'normal' circumstances.

SCRIPSIT MODIFICATION :-

I have modified my version of SCRIPSIT so that I can change the print size and underline on the CENTRONICS P1 printer. This has been done by adding two new commands to the print format line which is used to format the printer. These two commands have been designated:-

PS means Print Size, and can be 1,2 or 3 (which means 20,10 or 5 characters per inch cpi). Note: in BASIC, the instruction LPRINT CHR$(29) will tell this printer to print @ 20 cpi, CHR$(30) means 10 cpi and CHR$(31) means 5 cpi. If your printer uses different codes then use your correct Hexadecimal equivalent in the loacation indicated in the table below. I've put brackets round it.

PU means Print Underline status and can be Y or N (ie.YES or NO). Note: my printer codes for this are CHR$(15) for underline ON and CHR$(14) for underline OFF; change the equivalent value for your printer codes.

Thus a print format statement might now look like this:-

```
 >J=N C=N FR=N VC=N LM=0 RM=40 PS=2 PU=Y
                               =========
```

This formats the printer to print at 10 cpi and to underline as well. Note that the page width must be reduced to 40 characters (RM=40) as this is its effective width with this size of print.

To do this modification, we can interrupt the error routine within SCRIPSIT that checks the print format line, we then make it accept the new commands. In memory, this lies at 7771H and at present it says

7771 C2BD75 JP NZ,75BDH which means go to address 75BD which is a routine for checking errors. Change this to Jump to our routine which is at 7AA5H (spare location at the end of the program). Do this by changing the values 75 and BD to 7A and A5 respectively. This is done by using SUPERZAP to modify the values in the locations where these are stored on the disk. In SCRIPSIT/LC this location is on track 0B sector 8, and in SCRIPSIT/UC this is on track 0D sector 3. Change relative byte 0A (this means the eleventh byte) from BD to A5, and byte 0B(twelth byte) from 75 to 7A.

For those not yet used to SUPERZAP:- First display the sector for the SCRIPSIT program that you use, by using the 'DD' (Display Disk) routine in SUPERZAP and then type MOD0A. You won't see anything until you have typed it all, and then you will see a cursor next to the byte 0A. Check that this location contains the value BD. If it doesn't then you've got the wrong sector, if it does, next type A57A and press enter. This will put the modification on the disk.

Next, add my subroutine to the end of the SCRIPSIT program on disk. For SCRIPSIT/UC display track 0D sector 6, and for SCRIPSIT/LC display track 0C sector 1. This time type MOD49 and look at where the cursor is pointing. This should contain the bytes 02 02 00 52 which are the end of file marker and program start address. Starting at the first 02, type in the data given at the end of this section. Next press enter and permanently save the modifications. The program is now ready to use.

A word of warning :- when using HEADERS or FOOTERS, the print size must either be the same size as the print size used for the rest of the page, or the Print Size and Underline status must be defined for every page. This seems to be a another area in which the program could be improved... Any comments?

DATA FOR MODIFICATION to SCRIPSIT start at the disk address noted above:-
FE 53 C2 BE 7A 13 1A 13 FE 3D C2 BD 75 1A 13 E6 03 C6(1C)D5 CD 3B 00 D1 C9
This is the end of the Print Size (PS) routine, the signal to the printer is actually obtained by adding 28 (1CHex) to the number you enter in the instruction:- PS= For example if PS=2 then 28+2=30. This is the same as BASIC instruction LPRINT CHR$(30)
FE 55 C2 BD 75 13 1A 13 FE 3D C2 BD 75 1A 13 FE 59 3E(0E)20 01 3C D5 CD 3B 00 D1 C9
This ends the Underline routine, here I assume that DO NOT underline is normal. Hence the value 14 (0EHex) would normally be sent to the printer; if you put PU=Y then 1 is added to the 14 to give 15, which in BASIC command LPRINT CHR$(15) means DO underline.

Now add the end of file marker and the start address that have just been written over. The data for these are:-
02 02 00 52

Well that's it from me for a bit, I hope someone finds it of some help.

Cheerio and good programming,

Dennis V. Long,

With help from,

Duncan V. Long.

****

STOP PRESS

****

TANDY HAVE LAUNCHED 3 NEW TRS-80 SYSTEMS IN THE U.S.-

A POCKET COMPUTER($ 249), MODEL III($699)-($2495) AND

COLOUR SYSTEM ($399)

LEON HELLER

From Mike McManus

I apologise for ignoring your plea on page 2 of N/L I3 (sorry volume 2 issue I). However I'm not sure if you can load tapes off my level I machine.

Further to C.T. Dempsey's first letter and the various replies. I obtained the following book in preperation for my forthcoming promotion to level II. Details are as follows:-

TITLE :- TRS-80 (A Self Teaching Guide)
AUTHORS :- B.Albrecht, D.Inman, R.Zamora.
PUBLISHERS :- John Wiley & Sons.

I've found the book very easy to follow, even without a level II machine. It's written on similar lines to the level I handbook and starts with plugging your newly aquired TRS-80 into the mains. At £5.95 it should work out cheaper than the 80 Micro-computing series, sorry about that Ian. A follow up book is mentioned in the text, but I have yet to find a copy. Whether or not the second book goes into machine code, unlike the first, I don't know.

On the whole I tend to disagree with the general theme of C.T. Dempsey's letter. Although I must confess there are times that I haven't a clue what some of the articles are about. When this happens a mental note is made that there is yet another feature of my TRS-80 that I have to learn about.

So, from someone who hasn't yet even reached your level, keep at it C.T. One day your feet will touch bottom but life may not be as much fun.

Therefore keep the newsletter on much the same lines as before, but try and remember about thickies and one day we may be able to understand everthing in them.

If you haven't thrown this letter in the bin yet, can you help me with the following queries:-

I. I will be visiting the Cape Canaveral area of Florida, thanks to my employer, for about four weeks from the middle of September. I hope to pick up one or two goodies whilst I'm there.
   a) Do you have any suggestions what to look out for.
   b) Should I avoid anything, ie that does not like our 50 hz.
   c) Do you have any contacts in the area.
   d) Is there anything I could get for the group, C.W.O. sorry.
2. How do you identify the new expansion interface at a glance to ensure that's the type your buying.
3. You mentioned in N/L 7 that Tandy were bringing out a new monitor with a green display. According to Tandy my monitor, model 26-920IA, is a new one, yet the display is grey. Any comments for interset only, just maybe the dealer 'forgot' to give me a green screen.
4. Any later news on the high resolution graphics.
5. Any chance of getting the addresses of other members in my part of the world.

6. How and from where do you order the Group Special Offers.
7. Do you thick the following RAM chips would be suitable for use in the keyboard and/or the expansion interface. I think they are MOSTEK MK4II6J-3 chips.

CHIP SPEC.

Size:- I6384 words X I bit.
ACCESS TIME:- 200nS.
Supplies:- ± 5V; +I2V DC.
Power
Dissipation:- 462 mW (Active)
Package:- I6 pin D.I.L. cerdip.
Operating
Temperature:- 0^{o} C to $+70^{o}$ C.

Mike McManus

(* 1. I do not really feel that there is much to be gained by having things brought into the country. You still have to pay duty and VAT, although you might save on the carriage. It is very convenient to buy by post using a credit card. We do not have any contacts in the US. 50 Hz does not matter, just the voltage.

2. The old expansion interface has the RAM chips orientated lengthways. They are visible through the ventilation slots underneath the unit.

3. The earlier 'new shape' monitors appear to have a white phosphor. The latest ones are green.

4. Martin Hutchings of Tandy tells me that they now have no intention of introducing high resolution graphics for the Model 1.

5. We hope to produce a membership list soon.

6. Special offers have to be ordered from the supplier - e.g. Blandford Computers.

7. These RAM chips should be quite suitable. LFH*)

From Steve Deary

I have now had my TRS-80 for just over three months and thought that you might be interested in some of my experiences so far.

Although I live in Cheltenham my local Tandy dealer was out of stock of CPUs, and was unsure of when he could get one for me. Being rather eager to get started I approached Mr. Scott, the dealer in Gloucester. He was able to supply the CPU but did not have any new VDUs in stock, so lent me his spare showroom unit until new stocks arrived. Mr. Scott has obviously caught the computing bug as on my first visit he demonstrated the stock control system he has set up, and on my second visit (to swap VDUs) he was able to show me 'Database' (from A.J. Harding, I think), which looks like quite a neat package. He then showed me one of the new Model 2 computers which he had just taken into stock. I am looking forward to my next visit by which time he should have mastered the Model 2 and hopefully I will be treated to another demonstration.

The original VDU was one of the early models and had a definite shake at the corners of the display, which after a week or two developed into the top line being unreadable when the VDU had been on for more than half an hour or so. I am very pleased with the new VDU which has a green screen and a rock-steady display. However the image was not square with the edges of the screen. This was cured by removing the back, slackening the clamp holding the scan coil to the neck of the tube, and rotating the whole works until the image was aligned correctly. Warning - as this has to be done with the power on, be extremely careful because of the high voltages present.

I work for a large re-insurance company and one of our actuaries is very keen on mathematical posers. In our staff magazine he had asked for a palindromic square with an even number of digits. In the next issue he gave the answer as 836 = 698,986 and then went on to say that the next one was 798644 =637,832,238,736. He was unable to find the next such number (even with the aid of his PET) and offered a bottle of champagne to anyone finding it. A simple program and a few hours number crunching by TRS-80 and I am the proud owner of a bottle of champers (or will be when he parts with it). For the first correct answer only I will give a Tandy leaderless tape to anyone else who can find it.

I am submitting a tape to the program library with my version of the TV programme 'Winner Takes All'. It is not perfect but works quite well and should be a good game for Christmas or for testing your kids on their homework. All the questions and answers are held in DATA statements and it only takes a few minutes to change or add questions.

The program is not very big which leaves a lot of of room on a 16K machine for lots of questions.

The following program is probably too small to put in the library. It is based on an idea taken from one of the monthly magazines, and although it doesn't actually achieve anything it does serve to demonstrate the graphics of the TRS-80.

```
10 A=RND(20):B=RND(20):CLS
20 FOR T=0 TO 5 STEP .01
30 X=63*SIN(A*T)+63:Y=23*COS(B*T)+23
40 SET(X,Y)
50 NEXT T
60 GOTO 10
```

(* Keep it running for several minutes. LFH*)

I am very interested in having modifications made for high-resolution graphics and lower-case. Do you know if I can have this done without invalidating the warranty.

I am looking for a petname (pun intended) for my CPU. I have rejected Trash 80, Trusty 80, TGM (Thoroughly Obedient Moron) and FRED (Friendly Random Electronic Denominator) as being unsuitable or too common. Has ansone any other suggestions.

Keep up the good work with the Newsletter.

Steve Deary.

(* Tandy can now provide a lower-case modification. There is no way to obtain high-resolution graphics without invalidating the warranty. LFH*)

RESURRECTING A BASIC PROGRAM

If you have ever accidentally 'NEWed' a program without first saving it, the following tip might be of interest.

Provided you do not enter another program, your program can be retrieved by this sequence of operations:-

1. POKE 17130,1
2. SYSTEM
   */ 11395
3. LIST

This does not work for Disk BASIC.

Leon Heller

ELECTRIC PENCIL -- DELUXE

Just a quick note to demonstrate some further enhancements to Electric Pencil. I've completely rearranged the commands because I could not remember their 'sophisticated' system and it was necessary anyway with the additions. Since my last letter, I've added the following:

W: puts the text onto the screen in the same way that it will be printed. Thus one can check pagination before printing and get rid of 'widow' and 'orphan' lines.

O: causes the printer to overstrike and hence embolden the line following. This is useful for headings but I have not yet adapted it to words in the middle of text. Eg:

This is a bold heading, centred

CTRL-L ARROW now carries out the delete and close up while SHIFT-L ARROW will delete, backspace and close up -- just as the back arrow normally does. CTRL-SPACE simply erases preceeding characters.

Y: this is a nice one: after typing <Y>, all characters up to the next decimal point, space or closing bracket are aligned under the <Y>. This allows for typing figures in columns.

Eg:

Sales:	2344.56
Purchases:	33345.60
Profit/(Loss):	(3:001.24)

The next thing will be to write a simple maths pack for the Pencil.

CTRL-U ARROW will remove all marks in text in one keypress.

CTRL-R ARROW enters a tab mode in which a line is displayed at the foot of the screen with T wherever a tab occurs (or Y if the tab is a decimal column tab). Tabs are then set by pressing T, reset with R, cleared with C or set at 8 character intervals (default) with D. Y acts as T except that the tab is recognised as a decimal column. All this on Sunday night!

Subtitling Finally, I've modified the margin setting so that anything between the last CR and the tab marker (CTRL-T) is printed, giving the effect as on this page. I wanted that, I think you wanted something similar.

Nigel Dibben

```
                00100 ;    ****************************************
                00110 ;    *  SCREEN TO MEMORY TRANSFER - DIRECT  *
                00120 ;    ****************************************
                00130 ;
                00140 ;    A. O. ELLEFSEN - 28TH JUNE '80
                00150 ;
                00160 ;
                00170 ;         NAME - SCNMEM
                00180 ;
                00190 ;
7000            00200           ORG     7000H   ;START OF PROGRAMME
7000 CD7F0A     00210           CALL    0A7FH   ;LINK WITH BASIC
7003 21003C     00220           LD      HL,3C00H        ;LOAD SOURCE ADDRESS
7006 110070     00230           LD      DE,7100H        ;LOAD DESTINATION ADDRESS
7009 010004     00240           LD      BC,400H ;BYTE COUNT
700C EDB0       00250           LDIR    ;TRANSFER
700E C9         00260           RET
7000            00270           END     7000H
00000 TOTAL ERRORS
```

The above shows how the programme is produced by EDITOR ASSEMBLER.
and below the same produced by poking data directly into memory via BASIC

```
LIST
10 FORZ8= 28672 TO 28686:READZ9:POKEZ8,Z9:NEXTZ8
20 DATA 205,127,10,33,0,60,17,0,113,1,0,4,237,176,201
READY
>_
```

For those who tried out my 'Quick flash of data to the screen' programme SCRNMEM/CMD and MEMSCRN/CMD the above does the same thing, but everything on the screen, including blanks is squirted into memory. For those who find assembly programming a bit of a mystery I hope the following explanation will help to clarify things.

I regret that I have to introduce a bit of a sour note but if you have a level I machine I know of no way in which you can write machine language programmes into your system. With a level II it's a different matter you can POKE machine language directly into memory using BASIC. It's handy to have a clearly printed listing of the Z80 instruction set, the one I use is the "Z80 Instruction HandbooK" published by SCELBI but there are plenty of others.

The first thing to do is to decide the starting address of your programme. Have a look at the memory map in your level II manual and pick an address which is going to be well clear of any BASIC programme you may wish to run at the same time. In this example I've picked address location 28672 (see line 10 of the BASIC listing) in hexadecimal this would be 7000 (see the EDITOR ASSEMBLER listing - by the way, the H after the 7000 is just so that the Tandy EDITOR ASSEMBLER knows you are using a hexadecimal number). To make sure you do'nt corrupt your programme answer the initial prompt MEMORY SIZE with a value just below the starting address of the routine, in my case I would type in 28671 and ENTER.

I usually run my programmes in assembly from BASIC so have a look in your manual under the heading USR(x) where it tells you to start off with CALL 0A7F. The Z80 command for CALL (an address) is CD (hex) or 205 (decimal) this is POKED into the starting address (28672 in my case) then follows the ess you are calling and just to be difficult the low order byte (7F hex,127 decimal) is poked into 28673

followed by 0A (10 decimal) in 28674. This low byte before high byte method of entering addresses is fairly common to Z80 instructions so you will just have to get used to it. We are now ready to put something into address 28675 or 7003 hex. A quick look at the left hand column of the EDITOR ASSEMBLER listing will give the clue that these are the addresses we are using. CD was one byte, 7F the next and then 0A. Therefore into 7003 goes 21.

21 (33 decimal - see data line 20 of the BASIC entry method) means that you are going to load the HL register of the Z80 with a two byte number ie:- four digits or as it is called in the business "four nibbles". By the way a register, or more accurately a register pair in this specific case is just a place where the Z80 can do a bit of juggling with numbers, it's pretty well endowed with registers. The number that's going in is 3000 hex which interestingly enough if you look at you memory map is the starting address of the video display. If you don't believe me try poking a few numbers say between 33 and 90 into this address (15360 decimal). You will have guessed by now that LD means load, CALL means just that, RET means return and LDIR means load and increment (plus a lot more besides). These are just symbols to make programming easier for those who are lucky enough to own EDITOR ASSEMBLER, this is a handy bit of software which automatically translates these symbols (mnemonics in the trade) to the requisite numbers and additionally checks for errors in syntax and grammar.

The next instruction is to load the starting address of the memory area into which your 'screenfull' will eventually reside into yet another register pair DE. The address I have used is 7100 hex. I just stopped myself in time from making this 7000 which would have blown quite a few holes in the programme which its self starts at 7000.

Next we enter the number of bytes we wish to transfer. Looking at the memory map in the manual this would be from 15360 to 16383 inclusive ie:- 1024 decimal or 400 hex bytes. This value goes into yet another register pair BC and if you think that this is all the registers there are you only know the half of it.

The next instruction LDIR is the one that does all the work EDB0 (237,176 decimal) and we finish up with a RETurn to BASIC.

To get the programme to run have another look at the manual under USR(x) again where it tells you poke the starting address into addresses 16526 and 16527 and guess what - low order byte first. Therefore poke 00 into 16526 and 112 into 16527 this could be line 30 of the programme above. To execute the programme the command would be, for example X=USR(Y). All you will see, if you're lucky is a quick blink of the display.

To get your display back on to the screen you need to write another programme almost identical to the one listed here but starting at a different address say 7010 hex, when you then load HL with 7100 hex and DE with 3C00. I'm a great believer in the maxim that the best way to learn is to have a little fiddle about ones self rather than blindly copy programmes however if anyone really gets stuck don't hesitate to give me a ring at Ingatestone 2305

Angus Ellefsen

A DISSATISFIED USER

After considerable difficulties with Tandy in Leeds, we eventually returned our machine to them as we were having endless problems with large amounts of data on tape. There were continual malfunctions on the tape side and we really ought to have switched over to discs but Tandy gave us little grounds for confidence and eventually we decided to pack the whole thing in.

Under these conditions, we think we should no longer subscribe to your Organisation but wish you much success in the future.

Leeds Metal Spinning Company Ltd.

MSF CLOCK

Some of our members may be interested in reading the N.P.L. time as transmitted by MSF, Rugby on 60 KHz.

A simple receiver is all that is required and a design by G.Jackson is given in Wireless World May/80. I enclose a copy of same which requires only one CMOS NAND gate (* which should be an A series device. LFH *), a transistor and a few other components, plus a 74LS125 for interfacing.

I have written a program which since it is my first attempt atmachine code programming is not very elegant but at least it works.

There is a transmitter about 1.8khz higher than MSF which gives trouble in some parts of the country and may necessitate greater RX selectivity. A scope is useful for checking if your signal is clean. Wireless World references:- Jan, Feb, and Aug/1976 and the code as transmitted in Feb/1978.

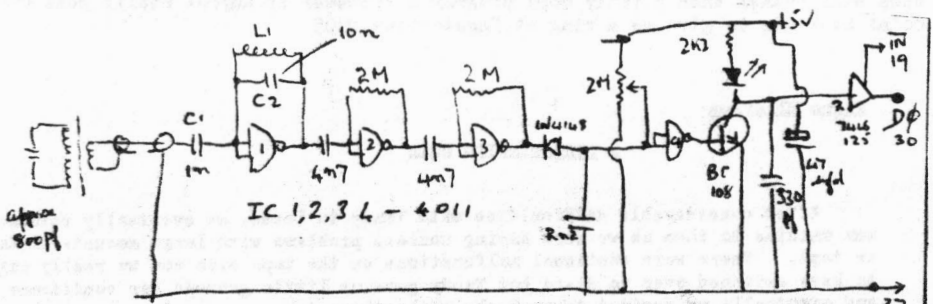
Parity checks on seconds 54 to 57 have not been included in the program as a bad read is obvious and corrects itself on the next minute count anyway.

With regard to the letter in the last Newsletter; for my part I like it as it is and think you strike a very good balance.

All the best,

Laurie Kins,
27 The Beeches,
Lydiard Millicent,
Swindon.SN5 9LT

(* Laurie has sent me the source and object code for his program. I shall be sending it to Leighton for inclusion in the Library. LFH *)



AERIAL
300T 36 SWG
35T 30 SWG
6"x 7/16 FERRITE

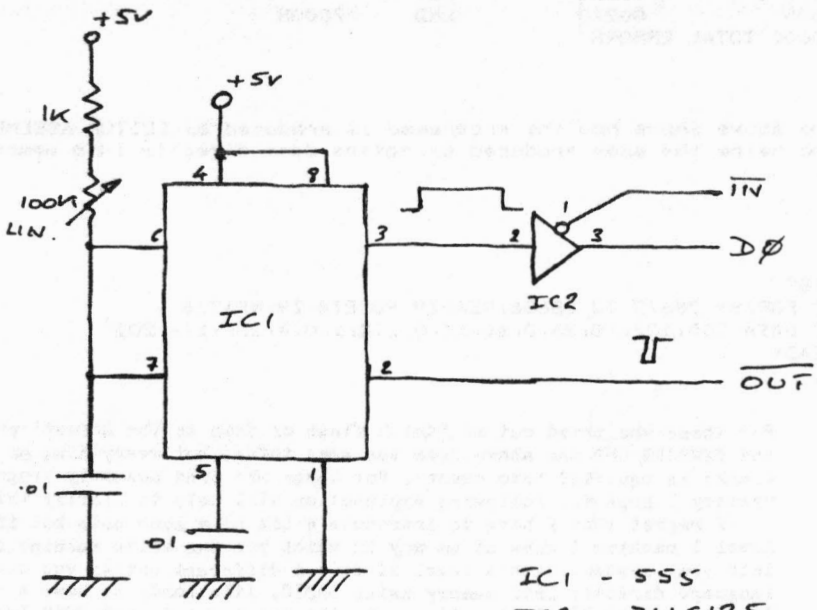
L1 ASSUMED TO BE INPUT WINDING OF YELLOW COLOUR IF TRANSFORMER

O/P = 1 CARRIER OFF
Ø " ON
SUGGEST AERIAL AT LEAST 2m FROM RS-80

GAMES PADDLE IMPROVEMENTS

The games paddle interface circuit described in Newsletter 12/1 is capable of some simplification; the software is simplified as an added bonus. Using the $\overline{OUT}$ signal to trigger the 555 timer directly means that the output port is not needed.

An assembly language subroutine that can be called from a BASIC program is included, together with a suitable test program written in BASIC, that displays a value corresponding to the potentiometer position at the top of the screen. Writing a BASIC program to manipulate a graphics block should be quite easy - see the earlier article for some ideas. Remember to reserve sufficient memory for the machine language subroutine.



N.B. ADEQUATE DECOUPLING OF PIN 8 OF IC1 IS ADVISED.

LFH

```
F000            00100           ORG     0F000H
                00110 ;
F000 0600       00120 PADDLE    LD      B,0             ;INITIALISE COUNT
F002 D300       00130           OUT     (0),A           ;TRIGGER TIMER
F004 04         00140 LOOP      INC     B               ;INCREMENT COUNT
F005 78         00150           LD      A,B             ;A <= COUNT
F006 FEFF       00160           CP      0FFH            ;CHECK IF 255
F008 2807       00170           JR      Z,FIN           ;YES - FINISH
F00A DB00       00180           IN      A,(0)           ;INPUT PORT 0
F00C CB47       00190           BIT     0,A             ;TEST BIT 0
F00E 20F4       00200           JR      NZ,LOOP         ;LOOP BACK IF BIT 0 HIGH
F010 78         00210           LD      A,B             ;A <= COUNT
F011 3215F0     00220 FIN       LD      (COUNT),A       ;STORE COUNT
F014 C9         00230           RET                     ;RETURN TO BASIC
F015            00240 COUNT     EQU     $               ;COUNT STORAGE LOCATION
F000            00250           END     PADDLE
00000 TOTAL ERRORS
COUNT   F015 00240   00220
FIN     F011 00220   00170
LOOP    F004 00140   00200
PADDLE  F000 00120   00250
```

```
10 'TEST PROGRAM FOR GAMES PADDLE INTERFACE
20 '
30 CLS
40 DEFUSR=&HF000
50 A=USR(X)
60 PRINT @ 32,PEEK(&HF015)
70 GOTO 50
```

This program assumes Disk BASIC. Make appropriate changes for Level 2.

Leon Heller

```
8 REM THIS WAS DEVELOPED FOR AN INVOICING PROGRAM TO LIMIT
    WITH AN ARROW THE LENGTH OF AN INPUT STATEMENT,
    SO THE VIDEO LAYOUT IS EVEN AND THE LINE PRINTED
    RESULT COMES WITHIN THE PREPRINTED LIMITS...
9 REM THIS ADDON WILL FIND THE CUSOR VIDEO POSITION AND
ADD A '<' 32 SPACES ON FROM THAT POS.
IT CAN BE ALTERED BY ADJUSTING THE POKE COMMAND IN LINE 100.
'
'
'
10 CLS
20 GOSUB100:INPUTT$
30 PRINTT$
35 GOTO20
100 P=PEEK(16416)+256*PEEK(16417):POKEP+34,60
110 RETURN'
'
'
'
200 REM    P . PAGE
           6A SHAFTESBURY ROAD
           BRIGHTON
           SUSSEX
           BN1 4NE
```

TRS-80 IN THE OPEN UNIVERSITY

The National Computer Centre and the Council for Educational Technology recently organised a conference on computer-based training in Manchester (CBT-80). The two-day event was very successful attracting a large number of training officers from industry and commerce.

As part of an Open University contribution I demonstrated some software developed under three research projects in the North-West Region using a TRS-80. I have enclosed a copy of a handout used at the conference which may be of interest.

The hard-copy of graphical outprint was produced on a microline 80 which I recently obtained from Blandford Computers. This followed a link made with Blandford at the Milton Keynes workshop. The printer has proved to be very satisfactory - in particular the ability to handle TRS-80 graphics is very useful.

(a) The use of low-cost computing facilities in a laboratory environment:

This project commenced in 1972 with the development of a time-sharing minicomputer system (DEC PDP8/E; 12K; 3 teletype terminals) in a Physical Chemistry laboratory. Computer assisted learning material was produced for Chemistry and Biochemistry students at the Undergraduate level.

More recently, 1978, the project has encompassed low-cost microcomputer systems. In particular, software has been developed on a TRS-80 microcomputer (32K) for the same laboratory environment as described above. The applications include:

Interplanar spacings from X-Ray powder data; the Fortrat diagram; pH titration simulation; kinetic equations; calculation of molecular parameters from electronic spectra; theoretical plate in distillation;

Publication: 1978, Computers and Education, Volume 2, pp. 49-69

(b) The use of voice synthesis in computer assisted learning:

The project is based on a TRS-80 microcomputer that is interfaced to a voice synthesizer. Initial research has been concentrated on the needs of Open University students who have visual impairments. The voice synthesizer has 62 phonemes available which can be used to provide a limited vocabulary in support of the interactive use of the microcomputer for computer assisted learning. In particular, a technique has been developed for regression analysis with options for the validation of data and interpretation of results.

The system has also been used to assist blind students to complete forms for registration of courses and completion of computer marked assignments. In the former example, assistance is given with the implication of answers provided as the form is completed.

(c) **Educational Administration - some applications of a microcomputer:**

Programs have been developed on a TRS-80 microcomputer to provide administrative support to specific groups of Open University students. One application relates to the identification of individual and groups of disabled students in one Region of the University; the other is a budgetary control program that is used to support special tutorial/counselling provision to students.

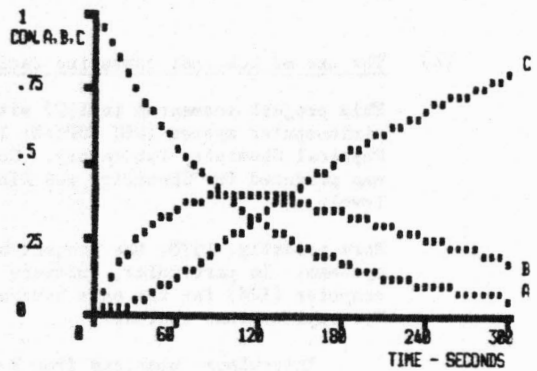
KINETICS - PLOTTING INTEGRATED

RATE EQUATIONS

EQUATIONS AVAILABLE FOR THE FOLLOWING REACTIONS:

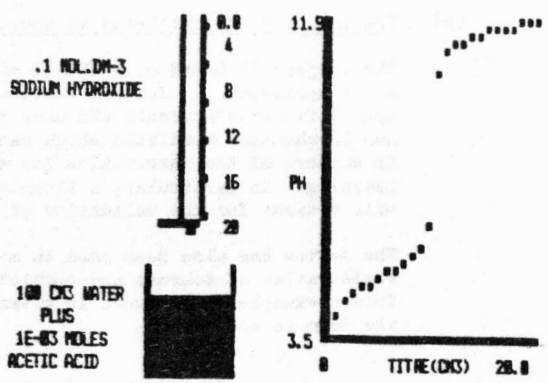
1. A → B (IRREVERSIBLE, RATE CONSTANT K1)
2. A → B
   A ← B (REVERSIBLE, RATE CONSTANTS K1 AND K=1)
3. A → B → C (IRREVERSIBLE RATE CONSTANTS K1 AND K2)

WHICH REACTION DO YOU WISH TO FOLLOW (1,2,3)? 3



PH TITRATION SIMULATION

WEAK ACID/STRONG BASE



Tom Vincent

SOME USEFUL POKES

Some Softsides have arrived recently, anf I thought that some items from their Hints column might be of interest.

1. Break disable:-

```
POKE 16396,165  Break disabled
                Shift Break functions
POKE 16396,233  Resets Break
```

2. LIST disable:-

```
POKE 16863,195
POKE 16864,114
POKE 16865,0
To reset: POKE 16836,201
```

3. Keyboard disable:-

```
POKE 16405,2
POKE 16401,1  to reset.
```

It seems to me that a good way of making a BASIC program unreadable and uncopyable would bw to have to load it under SYSTEM - with a machine code header which would disable LIST,BREAK and CSAVE, and would load in the BASIC tape automatically and initialise it. I presume that something similar is done with Microchess.

I'm having great problems with Adventure '9' - the Ghost Town is littered with booby traps and cow dung!

Nick Robinson

T R S - 8 0 LOADING AID

P.PAGE
BRIGHTON

AFTER UNPACKING MY TRS-80 AND CONNECTING IT UP, I WAS THEN FACED WITH THE TASK OF GETTING INTO THE COMPUTER, THE PROGRAMS I HAD RECEIVED WITH THE PACKAG
THE FIRST TIME WAS A SUCCESS, BUT THE SECOND AND FOLLOWING TIMES PROVED A TOTAL LOSS.
A SWIFT PHONE CALL TO TANDY'S, AND THE ANSWER TO MY PROBLEM WAS :-
AH! YOU WILL HAVE TO TRY YOUR RECORDER AT SEVERAL VOLUME SETTINGS UNTIL YOU FIND THE ONE THAT WORKS BEST FOR YOUR MACHINE ...
I NOTED THAT SOME LOADED IN AT '2' WHILE OTHERS REQUIRED A SETTING OF '4' THE NEXT THING WAS TO MAKE THIS PART OF COMPUTING MORE RELIABLE ! !
SO, I CAME UP WITH THIS DEVICE WHICH WOULD LOAD ANY OF MY TAPES IN BASIC, BUT WOULD NOT ALWAYS LOAD IN SYSTEM TAPES,
A SMALL ADDITION TO THE CIRCUIT AND ALL WAS WELL..
I HAVE USED MINE FOR OVER EIGHT MONTHS NOW, FOR LEVEL2 AND LEVEL 1 WITH Mr. HARDING'S 'LEVEL 1 IN LEV 2 ' TAPE, AND I LOAD ALL (LEV1,LEV2,DATA & SYTEM TAPES) SUCCESSFULLY.. THE ONLY PROBLEMS I HAVE EXPERIENCED IS AN OCCASIONAL FAULT IN THE TAPE ITSELF THIS, 9 TIMES OUT 10 IS A CREASE IN THE TAPE , WHICH I CURE BY RUNNING THROUGH THE TAPE IN E PLAY MODE, EACH WAY TO IRON OUT THE 'BUMPS'
(THE RECORDER VOLUME NO LONGER NEEDS ADJUSTING)

N O W T O T H E A I D . .

IT IS BASICALLY AN AUTO-VOL IN THE PLAYBACK LEAD WHICH CLAMPS THE VOLTAGE THAT THE COMPUTER RECEIVES, TO A CONSTANT LEVEL
(..IF OUTPUT IS TOO HIGH AND DISTORTED, THIS UNIT WILL ALSO FAIL TO LOAD PROG..
(1) THE 3.5mm PLUG IS REMOVED FROM THE RECORDER EAR SOCKET (BLACK)
(2) THIS IS PLUGGED INTO THE AIDS IN-LINE SOCKET
(3) AND THE PLUG FROM THE AID IS FITTED TO THE EAR SOCKET (OF RECORDER)
(4) LEADS ARE LONG ENOUGH TO TUCK THE UNIT INTO BATTERY COMPARTMENT
(5) THE VOLUME SETTING NEEDS TO BE INCREASED TO ABOUT ' 5 ' (CTR-80)
OR SLIGHTLY INCREASED, ABOVE THE NORMAL SETTING,
TO ALLOW THE UNIT TO CLAMP ALL TAPES TO THE SAME LEVEL

(* WHAT IS THE 'AID' - WHERE DOES ONE OBTAIN IT? LFH *).

M Y R E C O R D E R I S T H E C T R - 8 0
FITTED WITH THE 'BLIP' CURE. (AUGUST Hints & Tips)

HOPING THIS WILL AID YOU TO GET THE MOST OUT OF A SUPERB MACHINE ! !

(THIS WAS PRINTED ON THE NEW LINE PRINTER 2
WITH UPPER and lower case letters (ALSO DOUBLE WIDTH LETTERS))

```
0 REM THIS LITTLE PROGRAM ADDED ONTO THE END OF A NEW OR TRIAL
1 REM PROGRAM, ENABLES YOU TO DUMP ONTO TAPE AS MANY TIMES AS
2 REM YOU REQUIRE , THE UNFINISHED OR UPDATED PROGRAM, EACH HAVING
3 REM THE FILENAME, NEXT IN SEQUENCE TO THE PREVIOUS ONE.
4 REM  TO USE IT, LOAD ONTO TAPE FOR FUTURE USE.....
5 REM  WHEN A PROGRAM IS STARTED, LOAD THIS PROGRAM FIRST
6 REM AND WORK OUT THE PROGRAM AS FAR AS YOU HAVE TIME FOR
7 REM THEN DUMP IT ONTO TAPE ( SAY 3 TIMES ) BY RUNNING
8 REM   '' RUN 50000 ''
9 REM THIS WILL LOAD ONTO TAPE ( TAPE IN RECORD MODE )
10 REM THE PROGRAM SO FAR . . AND PUT A SPACE IN BETWEEN EACH
11 REM ONE ( APPROX 6 SECS) WITHOUT THE NEED TO REMOVE THE REMOTE PLUG..
12 REM SO SAVING TIME, SOCKETS, FIDDLING AND FORGETFULLNESS ..
13 REM    WHEN PROGRAM IS WORKING WELL YOU CAN DELETE 50000 ONWARDS
14 REM TO LEAVE ONLY THE COMPLETED PROGRAM ( TO YOUR SATISFACTION )
15 REM   NO NEED TO LOAD LINES 0 THROUGH 19 ( ONLY DESTRUCTIONS>>>)
16 REM
17 REM
18 REM
19 REM
50000 Z=65:A$="A"
50005 INPUT" STARTING LETTER  < IF NOT  'A'  >";A$
50006 S=(ASC(A$)-65)
50007 Z=Z+S
50010 INPUT" HOW MANY TAKES ";N
50012 INPUT"  CASSETTE READY";X
50015 FORT=1TO1500:OUT255,4:NEXT:   REM DELAY FOR LEADER
50020 FORI=1TON:Z$=CHR$(Z):PRINT I,Z$;:CSAVEZ$:PRINT,I:FORT=1TO1500:OUT255,4:NEX
TT:Z=Z+1:NEXTI
50025 PRINT" IS THAT ALL YOU REQUIRE  ? ? ?  < Y/N >"
50027  OUT255,0
50030 X$=INKEY$:IFX$="" THEN50030 ELSE IF X$="N" THEN50000 ELSE END
```

```
10 '    * * *   PROGDATA    * * *
20 CLEAR2000
30 E$="DATAPROG/BAS"
40 HX$="H0123456789ABCDEF"
50 CLS
60 D$="STARTING ADDRESS  (HEX) ":GOSUB240:ST=IN
70 D$="ENDING ADDRESS    (HEX) ":GOSUB240:EN=IN
80 OPEN"O",1,E$:LPRINTCHR$(31)E$:LPRINTCHR$(30)" "
90 A$=" 10 FOR Z8 ="+STR$(ST)+" TO "+STR$(EN)
100 A$=A$+": READ Z9: POKE Z8,Z9: NEXTZ8"
110 PRINTA$:LPRINTA$:PRINT#1,A$:A$=""
120 LN%=20
130 FOR Z=ST TO EN
140 IF A$=""T4EN A$=STR$(LN%)+" DATA":LN%=LN%+10
150 B$=STR$(PEEK(Z))
160 IF RIGHT$(A$,4)()"DATA" THEN MID$(B$,1,1)=","
170 A$=A$+B$
180 IF LEN(A$))55THENPRINTA$:LPRINTA$:PRINT#1,A$:A$=""
190 NEXTZ
200 IFA$()""PRINTA$:LPRINTA$:PRINT#1,A$:A$=""
210 CLOSE
220 PRINT"PROGRAM IS IN DISK FILE NAMED "+CHR$(34)+E$+CHR$(34)
230 END
240 PRINTD$;:C$="":INPUTC$
250 IFLEN(C$)(1THEN240
260 IN=0
270 FOR Z=1 TO LEN(C$)
280   Z1=INSTR(HX$,MID$(C$,Z,1))
290   IF Z1=0THEN240
300   IF Z1=1THEN320
310   IN=IN*16+Z1-2
320 NEXTZ
330 IFIN)65535THEN240
340 IFIN)32767THENIN=IN-65536
350 PRINT"DECIMAL =";IN
360 RETURN
```

Converts Machine Code to a DATA type program called DATAPROG/BAS.

DATAPROG/BAS

```
 10 FOR Z8 = 17341 TO  17372: READ Z9: POKE Z8,Z9: NEXTZ8
 20 DATA 213,33,0,60,125,230,63,62,13,204,59,0,126,203,116
 30 DATA 35,32,11,254,128,56,2,62,46,205,59,0,24,231,209
 40 DATA 175,201
```

```
STARTING ADDRESS  (HEX) ? 43BD
DECIMAL = 17341
ENDING ADDRESS    (HEX) ? 43DC
DECIMAL = 17372
 10 FOR Z8 = 17341 TO  17372: READ Z9: POKE Z8,Z9: NEXTZ8
 20 DATA 213,33,0,60,125,230,63,62,13,204,59,0,126,203,116
 30 DATA 35,32,11,254,128,56,2,62,46,205,59,0,24,231,209
 40 DATA 175,201
PROGRAM IS IN DISK FILE NAMED "DATAPROG/BAS"
READY
)_
```

JKL screen dump illustrating use of program.

BASED ON PROGRA[illegible]N 80-Micro (MAY). Laurie Shields

GO WEST

I've had several queries since last month's column but no answers to my queries! Some interest has also been shown in writing a new Adventure - the Adventure compiler in this month's Pract. Computing might be a great help. Please write if you are interested. We could write the Adventure if we could get the compiler converted to Z80 Assembler.

'Strange Odyssey' has caused a lot of trouble; it seems that it is difficult to get out of the spaceship - it really is quite simple, though. All you need is a spacesuit, an open airlock, and a good aim (and rememmber that if you meet pet rocks or ice hounds, they are friendly home-loving creatures.)

Back on the other side of the galaxy, visitors to Voodoo Castle will need bags of luck if they are to find missing spells (you musn't laugh at them, even if their long combs do glow in the dark).

Finally, the R.S.P.C.D. has written to me complaining that people are still blowing up dragons! Its:-

a) cruel.
b) messy.
c) doesn't work.

People must reflect, before dealing with dragons.

I'm off now to the Come Dancing finals to see if I can win another prize.

Happy adventuring,

Nick Robinson,
130 The Grove,
Ealing,
London W5 3XP.

P.S. In the course of my move to London, I seem to have mislaid all my correspondence. Would anyone who has written to me in the last few weeks please write again.

N.D.P.R.

BOOK REVIEW

We recently received a copy of a new book on BASIC programming for review. Successful Software for Small Computers by Graham Beech is TRS-80 oriented, although the programs should run without too many changes on any system using Microsoft BASIC.

A structured approach has been adopted, and all the programs are developed using a Program Description Language or PDL. PDL is a Pascal-like structured pseudo-code which enables programs to be developed using a clear, easy-to-follow language. When the program appears to be correct, it may be translated into BASIC and test

Whilst this may appear to be a roundabout way of doing things, many people have found this to be the best way to develop complex, lengthy programs using a primitive language like BASIC. It certainly works for me.

Apart from the use of PDL, the book is an excellent introduction to advanced programming techniques such as linked lists and other dynamic data structures, sorting and searching, and simulation.

Plenty of references are provided, and the book is chock-full of examples which are obtainable on cassette from the publisher for £7.50. The publisher is:

Sigma Technical Press,
5 Alton Road,
Wilmslow, Cheshire,
SK9 5DY.

and the book costs £5.50 - excellent value!

Leon Heller

DISK DRIVES FOR TRS-80

Shugart SA400 disk drives housed in one or two module cabinets for only
£249 and £458 — no extras
our prices include power supply, cables and V.A.T. units are ready to plug in and use.

Microline 80 printers, Blandford Boxes, disks, tapes, paper, sleeves, manuals etc complete systems all at bargain prices.
Hardware — software — components — ancillaries

BLANDFORD COMPUTERS
SHAFTESBURY LANE, BLANDFORD, DORSET
BLANDFORD 53737 (5 lines)
Including evenings and weekends.

aculab floppy tape,

The tape that behaves like a disc, For TRS-80 LEVEL II.

Connects directly to **TRS-80** Level 2 Keyboard. Operating and file handling software in **ROM**. 8 commands add 12 powerful functions to Level 2 **BASIC**. No buttons, switches or volume controls. Full control of all functions from Keyboard or program. Daisy chain multiple drives. Certified digital tape in endless loop cartridges. Reads and writes in **FM** format at 9000 Baud. Soft sectored with parity and checksum error detection for highly reliable operation—just like discs. Maintains directory with up to 32 files on each tape, tapes may be write-protected. Supports Basic and machine-language program files, memory image and random access data files. 12 character filespecs —: **"FILENAME/EXT:d"** (d is drive no. 0–7). Automatic keyboard debounce. Full manual with programming examples and useful file-handling routines.



COMMANDS (usually followed with a filespec and possible parameter list).
@SAVE, @LOAD, @RUN —for **BASIC** programs, machine language programs and memory image files. **@GET, @PUT** —moves a 256-byte record between a random access file and **BASIC**'s data buffer. **@KILL** —removes a file from the directory and releases tape sectors for immediate re-use. **@LIST** —displays file directory along with sector allocation and free sectors. **@NEW** —formats tape and creates a blank directory.

Master drive with PSU, Manual and a selection of tapes
£167-00 +£2-00 pp+vat.
Slave drives with P/ £122-00 +£2-00 pp+vat.
(Export orders pp charged at cost)

For further information, Telephone 0525 371393
aculab Ltd.
24 Heath Road, Leighton Buzzard, Beds. LU7 8AB

REPORT ON THE WORKSHOP HELD AT NORTH LONDON POLYTECHNIC 12TH JULY 1980

IT WAS SEEN FROM THIS EXERCISE, THAT THE GROUP CAN JOIN A LARGER "SHOW" AND ASSIST MEMBERS BY HOLDING A WORKSHOP IN VARIOUS AREAS. IT CAN BE SEEN BY THE REPORT ON SHEFFIELD THAT THERE IS TREMENDOUS ENTHUSIASM FOR THE WORKSHOPS. ORIGINALLY THE MAIN CONCERN SEEMED NUMBERS, BUT THIS HAS TAKEN A RELATIVE BACK SEAT AND NOW A DEGREE OF ENTHUSIASM PLUS DEPTH OF EXPERTISE BECOMES A MAJOR FOCAL POINT.

WHAT IS STILL VERY NOTICEABLE IS THE DEGREE TO WHICH MEMBERS SWOP TECHNIQUES AND PROGRAMS. SO FAR THERE HAS NOT BEEN A POLARISATION BETWEEN HOBBYIST AND BUSINESS USER. MY OWN ANALYSIS YIELDS THE SIMPLE REASON FOR THIS IS THAT THE HOBBYIST HAS BEEN A FUND OF EXPERTISE TO SOLVE PROBLEMS AS THE BUSINESS USER ENCOUNTERS THEM FOR THE FIRST TIME. AT SHEFFIELD I MADE A PLEA FOR PROGRAMMERS TO COME OFF THE SKI SLOPES AND MAKE CONTACT WITH LOCAL DEALERS AND BUSINESS USERS.

COMING BACK TO POLARISATION WE HAVE THE INGREDIENTS FOR THAT TO DEVELOP. VINCE MOORE FROM TANDY'S COMPUTER STORE VERY KINDLY LENT ONE MODEL 2 AND SEVERAL MODEL 1'S FOR OUR LONDON WORKSHOP AND FROM THE COMMENTS MADE BY HIMSELF AND OTHERS I COULD SEE THAT THIS COULD DEVELOP (POLARISATION THAT IS).

THE SHORT TERM SOLUTION IS TO PERSUADE MODEL 2 MEMBERS TO CONTRIBUTE REGULARLY TO THE NEWSLETTER, SPEAK AT WORKSHOPS AND BE AVAILABLE ON AN EVENING AND WEEKEND BASIS. IN MY OWN OFFICE OVER THE LAST 12 MONTHS WE HAVE REGULARLY ALLOWED LOCAL ENTHUSIASTS TIME ON BOTH THE 48K AND 16K INSTALLATIONS. ON BALANCE THE OFFICE HAS GAINED CONSIDERABLE EXPERTISE BY ENCOURAGING THIS ACTIVITY. THIS IS GOING TO BE FAR MORE DIFFICULT FOR MODEL 2 USERS TO DO, BUT THERE ARE SOME PRACTICAL WAYS OF TACKLING THE PROBLEM. AS MENTIONED MODEL 1 PROGRAMS WILL RUN ON MODEL 2 AND THIS COULD BE THE BEST IDEA. THE MAJOR DEVELOPMENT WORK IS DONE ON MODEL 1 AND TRIALS ARE THEN TRIED OUT ON MODEL 2. IT IS HOPED THAT IN THE NEXT FEW MONTHS THAT SOME MODEL 1 MEMBERS CAN GAIN MODEL 2 EXPERIENCE BY BEING PUT IN TOUCH WITH LOCAL MODEL 2 USERS (NOT NECESSARILY OWNERS). OR AT A WORKSHOP ARRANGE THE RUNNING OF THEIR PROGRAMS ON A MODEL 2, POSSIBLY TO EVALUATE LIVE, WITH OTHERS TO COMMENT OON A VARIETY OF FACTORS.

GETTING BACK TO LONDON, THE WORKSHOP CONSISTED OF THREE ACTIVITIES. FORMAL TALKS/LECTURES, LEIGHTON DAVIES' AND THE LIBRARY, AND THE FRINGE

TALKS, LECTURES

LEON HELLER OPENED THE FORMAL SIDE BY GOING THROUGH FORTH AND DESCRIBED ITS IMPLEMENTATIONS ON THE TRS-80. THE DECRIPTION WAS BY EXPLA NATION FIRST, FOLLOWED BY A DEMONSTRATION. I CAN ONLY SAY ITS SORTING LOOKS FAST AND IT APPEARS TO HAVE FLEXIBILTY AND SCOPE FOR CERTAIN FUNCTIONS IN MY OWN FIELDS - INVOICES, STUDENT RECORDS, MARKETING TO COMPANIES. WHETHER IT CAN COPE WITH MY FAVOURITE NOMINAL LEDGER APPLICATION, WE WILL HAVE TO WAIT.

OS HOUSE FROM BLANDFORD FORUM FOLLOWED BY SHOWING HOW HE HAS REPACKAGED THE TRS-80 INTO A SINGLE UNIT. JUDGING BY VARIOUS REMARKS OVER THE LAST FEW MONTHS THIS CONCEPT HAS BEEN VIEWED WITH ENTHUSIASM. OS DEALT WITH IDEAS ON POWER SUPPLIES, READ/WRITE PROTECTION SWITCHES (NOT TABS) AND OVERHEATING PROBLEMS (LACK OF 1 SHOULD SAY !). TOWARDS THE END, A QUESTION AND ANSWER DEVELOPED WITH IDEAS AND KNOWHOW BEING EXCHANGED. FOR MEMBERS WHO HAVEN'T MET OS AND HAVE A PROBLEM WITH SHUTGARTS OR OVERHEATING GIVE HIM A RING WHERE HE COULD JUST HAVE AN ANSWER TO YOUR PROBLEM

THIS WORKSHOP WAS IDEALLY LOCATED TO ASK DERRICK ROWE TO COME AND GIVE MEMBERS THE BENEFIT OF TRS-80 IN A BUSINESS ENVIROMENT. EVENTUALLY THE GROUP WILL HAVE VIDEO RECORDINGS OF CERTAIN WORKSHOP SESSIONS FOR MEMBERS TO BORROW AND RUN THROUGH. SOMETIMES A SPEAKER CAN THROW AWAY MORE THINGS WHEN GOING THROUGH A TOPIC THAN THE LATTER CONSISTS OF ON A INDIVIDUAL BASIS. SOME MEMBERS HAD TO HAVE VARIOUS POINTS EXPLAINED OR REPEATED. AS WHAT WAS EVERYDAY TO DERRICK WAS JUST ON THE HORIZON TO A MEMBER ! IN ESSENCE DERRICK EXPLAINED HIS DATA BASE PROGRAM AND A VARIETY OF TECHNIQUES TO ACHIEVE THIS STYLE OF PROGRAM.

THE QUESTION AND ANSWER SESSION AGAIN DEVELOPED WITH TECHNIQUE AND KNOWHOW BEING SWOPPED, PLUS TWO ACCOUNTANTS INTRIGUED WITH THE QUESTION "WILL IT PREPARE ACCOUNTS". THE ANSWER TO THAT WAS NO, BUT IT COULD WITH SOME MODIFICATIONS. AS I WRITE THIS, A MODIFIED VERSION IS ON MY DESK TO TRY OUT THE ARITHMETIC INTRODUCED AS A RESULT OF THAT QUESTION !

IN THE AFTERNOON LEO KNAGGS WENT INTO SUPERZAP, EXPLAINING ONE OR TWO POINTS OF THIS PROGRAM. FROM MY EXPERIENCES OF THIS AREA, LAST NIGHT IN PARTICULAR ! MUCH MORE EXPLANATION IS REQUIRED. MY OFFICE IS GOING THROUGH A PATCH OF DOS ERROR 22, AND LAST NIGHT (22 JULY 1980) TWO EOF WERE PUT ON THE END OF PENCIL TEXTS WHICH WERE SAVED SUCCESSFULLY. FOR THOSE OF YOU WITHOUT PENNINGTON, BUY IT, FOR THOSE WITHOUT DISKS JUST TRY AND SEE AN ELECTRIC PENCIL TEXT SAVED USING SUPERZAP. I AM ACCUSED AT HOME OF BEING IN A DREAM, BUT THE TRUTH IS THAT ALL THE TIME SECTORS ARE BEING FLASHED BACKWARDS AND FORWARDS AND MY IMAGINATION JUST ENJOYS THE TRIP. THANKS LEO FOR THE HANDOUTS, FOR THEY GAVE ME A START. THANKS NIGEL DIBBEN FOR A THROW AWAY - RE MODIFYING DOS, AS ALL OF THIS HAS FUELLED THE IMAGINATION AND DETERMINATION TO PUT MANY MORE ENJOYABLE HOURS INTO SUPERZAP.

FOLLOWING LEO, MODEL 2 MADE ITS FULL DEBUT AT ONE OF OUR WORKSHOPS. DERRICK ROWE REALISED THAT MOST MEMBERS HAD NOT SEEN ONE WORKING AND PROCEEDED TO GIVE THE MEMBERS AN OVERVIEW OF THE HARDWARE AND DOS. AGAIN THIS SESSION SHOULD BE AVAILABLE ON VIDEO, AS IT WOULD BE INVALUABLE FOR THOSE CONSIDERING ITS PURCHASE. REINFORCING EARLIER COMMENTS, OUR SESSIONS SHOULD ACCOMODATE BOTH MODEL 1/2 WITH A VARIETY OF "ANGLES" BEING PRESENTED, AS IN THE PAST SINCE WE STARTED OUR FIRST WORKSHOP IN LUTON - APRIL 1979 THERE IS AN OUTSIDE CHANCE WE WILL VIDEO SOME TALKS AT OUR SEPTEMBER WORKSHOP AT MILTON KEYNES ; THE VIDEO IS AVAILABLE FROM ONE OF MY CLIENTS AND ONE OF OUR LOCAL MEMBERS IS AN EX-CAMERAMAN.

LEON HELLER FOLLOWED DERRICK AND FOR THOSE WHO WERE INTERESTED, DEMONSTRATED THE NEW AVALON ZEN EDITOR/ASSEMBLER. THIS HAS CREATED INTEREST AS IT APPEARS TO HAVE EXCELLENT EDITING FACILITIES. VERY USEFUL WHEN USING FOR THE FIRST TIME!

FINAL CONCLUSION - MONEY.

SHEFFIELD.
THIS WAS KINDLY SPONSORED BY TERRY GOMERSALL OF SPECTRUM SYSTEMS AND THE ARRANGEMENT WORKED VERY WELL, GIVING A NEW DEALER THE CHANCE OF MEETING THE LOCAL TRS-80 OWNERS.

LONDON
THIS WAS SO SUCCESSFUL THAT EACH PERSON RECEIVED A REFUND OF $3.50 !

BLANDFORD FORUM

THIS IS BEING SPONSORED BY OS HOUSE OF BLANDFORD FORUM TO ENCOURAGE EXISTING MEMBERS AND MICRO ENTHUSIASTS IN THE AREA.

OXFORD AND CAMBRIDGE.
LOCAL DEALERS ARE BEING APPROACHED TO ASSIST WITH SOME SPONSORSHIP. THE COST WILL BE AROUND $25-40 TO THE DEALER.

REGARDING MEMBERS LAPSING, AS AN ACCOUNTANT I REGRET THAT NEWSLETTERS ARE BEING HELD BACK, UNTIL A SUBSCRIPTION HAS BEEN RECEIVED. MY VIEW IS QUITE SIMPLE "YOU GET SOMETHING FOR YOUR MONEY, BUT YOU DO NOT GET SOMETHING FOR NOTHING".

BRIAN PAIN

The long awaited
LEVEL IV BASIC For Tandy TRS 80 16K

Cassette based. Uses only 8K. Suitable 16K machines or over. Video Genie compatible. Return first class post service.

MERGE Enables any number of programs to be joined together, either with one residing in memory, or from separate tapes.

BYTE SAVER Runs through your program taking out all the unnecessary bytes, displaying the number as it goes along.

DELAY This command allows you to control the actual amount of delay you want on the screen's read-out. The speed can be varied by means of program statements.

RESCUE No more lost programs, as this command will bring a program back after accidently being NEWed.

DE-BOUNCE The Tandy keyboard's infuriating bounce is taken care of with Level IV.

SHIFT KEY ENTRIES It has 26 Shift Key entries, whereas with holding down the shift key and pressing a single letter, a complete instruction appears in your program. For example, if you were to press the letter G GOSUB is written out for you. Or if you press R not only is RUN written out, but is also activated without having to press the enter key!

OWN SHIFT KEY ENTRIES Any of the 26 Shift Key entries can be altered to suit individual needs, with entries up to 15 characters responding to any single letter.

RE-NUMBERING Level IV contains a complete re-numbering routine, allowing renumbering in eight different ways.

ERROR MESSAGES No need to look up those error codes anymore, all of them are fully spelled out.

LOCKOUT RECOVERY No longer need you be stuck in a loop and having to lose your program, for Level IV allows you to get out of the loop by using the Break key.

FASTER GRAPHICS You can generate graphics between points without having to define all the points. Graphs, pictures and amitation are all easier.

PUT@ AND GET@ Two extra graphic commands making graphics much easier to manipulate. Graphic arrays can be stored for later use on the same or a different portion of the screen.

£34 Includes extensive instruction manual
(The price usually asked for Level III)
NOTHING EXTRA TO PAY

NEW MIDS A new MIDS capability enables it to be used on the left side of an assignment statement as well as the right side, allowing use of MIDS to replace a portion of one string with another string.

INSTR This allows the searching of a string for a specified sub string. It allows designation of the starting point for the search.

MACHINE LANGUAGE Ten different machine language user routines can exist in the memory at the same time. It is no longer necessary to POKE the starting address.

LINE INPUT This statement gives added capability to the normal INPUT, allowing a string variable name, including punctuations, to be used as the input. The normal Level II question mark is also optional.

DEFINE OWN FUNCTION Enables the programer to define functions or operations that are repeated several times. All that is needed is to do a function call instead of writing the whole formula every time.

INPUT LEN This feature is used to give a time limit in response to an input statement. If the input is given before the limit the program continues normally, but if after it can be made to branch to any chosen line.

HEX AND OCT A routine is included that converts hexadecimal and octal numbers into decimal numbers.

SYSTEM CLOCK There is a command for either turning off, or on, the system clock, if you have an expansion box. Both commands can be program statements.

ACCESS TO RS-232 A command makes it easy to output either a line printer or any other device to the RS-232 port.

LOAD AND SAVE The major problem of loading tapes with the TRS80 is volume setting, which is all a thing of the past with Level IV, as this is software controlled by three new commands, LOAD; SAVE and SAVE?.

Kansas

Kansas City Systems, Unit 3, Sutton Springs Wood, Chesterfield, Derbys. Tel 0246 850357

GROUP LIBRARY.

LEIGHTON DAVIES CAME TO THE WORKSHOP WITH THE GROUPS LIBRARY AND WAS ENGAGED THE WHOLE DAY ASSISTING MEMBERS WITH THEIR REQUESTS. THOSE NEW MEMBERS WHO JOINED DURING THE DAY MET HIM AND TOOK ADVANTAGE OF SEEING HOW IT ALL WORKED. AT BLANDFORD FORUM THE LIBRARY WILL BE MADE AVAILABLE BY LEIGHTON AS HE IS ON HOLIDAY AND HE WILL BE AT MILTON KEYNES ON SEPTEMBER 20/21. ONE FEATURE IN SEPTEMBER WILL BE THAT OF MY NEW AMPLIFIER, WHICH IS LEON'S DESIGN. THE OFFICE CAN NOW TRANSFER BASIC BETWEEN 48K TO 16K, MY NOMLEG CMD BETWEEN 48K AND 16K, AND WE ALSO ASSUME PENCIL FILES

AT THE MILTON KEYNES WORKSHOP, MEMBERS CAN HOOK THEIR KEYBOARD TO LEIGHTON'S. TRY A PROGRAM OUT FIRST BEFORE DECIDING TO KEEP IT. OBVIOUSLY THEY CAN HOOK TO ANY BODY ELSE'S FOR THAT MATTER. DO NOT BOTHER WITH VDU'S AS THE COLLEGE HAS SPARE 26" MONITORS. THE ONLY PROBLEM IS - DO WE REALY WANT FOUR MONITORS, ALL WITH SPACE INVADERS AND 20 WATTS OF OUTPUT IN THE SAME ROOM WHILE NEXT DOOR SOMEBODY IS TRYING TO GIVE A LECTURE!

FRINGE ACTIVITIES.

THIS WAS EVIDENT FROM THE START OF THE MORNING (8.30 AM) TO DEPARTURE. MEMBERS BRING DISKS AND CASSETTES ALONG AND SWOP AND DISCUSS VARIOUS POINTS ETC. THE WEEKENDS ARE BY FAR THE BEST FOR THIS. THERE IS MORE TIME AND MORE INFORMALITY. YOU CANNOT BE FORMAL AT 12:30 (MIDNIGHT) WHEN STUCK IN A PIT AND REQUIRE HELP TO EXTRACT YOURSELF. THERE WAS SOME. SWOPPING OF MODEL 2 EXPERIENCE PLUS EXPRESSING OF VIEWS ON THE MARKET, MODEL 1/2 AND ALTERNATIVE EQUIPMENT. JOHN CHRISTIE HAD HIS STRINGY FLOPPY WHICH WILL BE SHOWN AT BLANDFORD FORUM AND MILTON KEYNES

CONCLUSION.

YES, WE ARE COMING TO LONDON AGAIN AND WE COULD USE THE POLY. MANY THANKS ROBIN BRADBEER FOR ALL THE ASSISTANCE. THANK YOU VINCE MOORE FROM TANDY LONDON SECOAL LANE FOR THE EQUIPMENT AND EXPERTISE. FOR THE TIME BEING THE ONE DAY WORKSHOP ARE TO CONTINUE UP AND DOWN THE M1 WITH THE WEEKENDS AT MILTON KEYNES. WE CAN ORGANISE AROUND A-S ONE DAY WORKSHOPS AND FOUR WEEKENDS IN 1981 WITH THE "ONE DAYS" IN LONDON (2), MANCHESTER, SHEFFIELD, BIRMINGHAM, OXFORD, AND CAMBRIDGE, AND THE SOUTH COAST.

THE WORKSHOPS COMING UP ARE:-

BLANDFORD FORUM	AUGUST 24
MILTON KEYNES	SEPTEMBER 20/21
OXFORD	OCTUBER 25
CAMBRIDGE	NOVEMBER 29
MILTON KEYNES	JANUARY 17/18

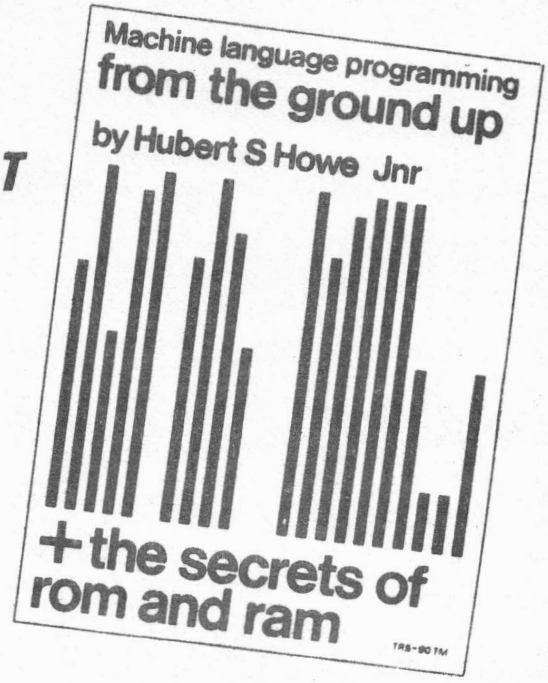
FOR THOSE IN THE NORTH WE WILL COME TO MANCHESTER AND SHEFFIELD IN THE SPRING

INNOVATIVE
TRS-80 SOFTWARE

FROM THE PROFESSIONALS

MACHINE CODE FROM A PROGRAMMER'S VIEWPOINT

- HOW TO M/C PROGRAM
- ROM CALLS LISTED
- RAM LEVEL 2 USAGE
- DISKS EXPLAINED



A book written by a well known programmer for people who not only want to learn machine code programming but who also want to use their knowledge in practical programming applications - from the ground up. Learning the Z-80 mnemonics, register handling and so on is important but what is essential is to be able to call the dozens of subroutines in Level 2 ROM, how to make use of the ROM user addresses in RAM and to know how the disk directories work. To learn your machine code programming from a book which does not contain this information is akin to driving a car without knowing the route you wish to take - it can be done but it is much easier knowing where you are going and how to get there !

Hubert Howe's book is written in easy to understand language and in a clear and logical manner. Two-thirds of the book is devoted to actual applications and examples. It assumes that the reader has no knowledge of the subject. If you can use Basic, you will understand this book.

£8.50 Plus 50p P & P.

Send large SAE (27p) for our current catalogue of TRS-80 software. Add £1.85 for a binder

A.J.HARDING (MOLIMERX)

28 COLLINGTON AVENUE, BEXHILL-ON-SEA. E.SUSSEX. TEL: (0424) 220391

TELEX 86736 SOTEX G FOR A. J. HARDING

BARCLAYCARD VISA

NATIONAL TRS--80 USERS GROUP NEWSLETTER

VOLUME 2 ISSUE 3 SEPTEMBER 1980

CONTENTS

2 Editorial
3 Members' letters
6 Copyright and the Library
6 Statistical analysis
7 Automatic lower-case driver for Newdos
9 Swapping PRINT and LPRINT functions
10 Converting machine language to BASIC - yet another program
15 Lower-case and two-speed - software selectable
17 Tandy relay problems
17 Speed-up cock-up
18 More on the automatic lower-case driver
18 Communication aids for the handicapped
19 Index program
20 Inter-computer communications
21 Changing PRINT to LPRINT
22 Yet more Scripsit
23 Some video matters
23 Quickprinter II 'typewriter' program
24 Book review - Machine Language Programming from the Ground Up
25 Software review - ZEN Editor/Assembler/Debugger
27 Hardware review - Aculab Floppy Tape
28 The Personal Computer World Show
30 Infinite BASIC SRTV
31 Some notes from Brian
33 TC-8 fast cassette system
34 Local TRS-80 groups

EDITORIAL

Yet another bumper issue! Jerry Dzaniec is to be commended for his efforts. Just as I was putting the finishing touches to this issue I received a disk containing another contribution that looks equally interesting. A nice touch was the inclusion of line-by-line explanatory notes which should enable his program to be understandable to beginners.

Many programs submitted to the Newsletter are rather poorly written in that the coding is rather difficult to follow, with multiple statements on a line, no spaces and no comments. I don't believe anyone actually writes their programs this way, and it would be of great help to the beginners if you could make your programs more readable. One way to learn programming is to take someone else's program apart and endeavour to understand how it works, and this is much easier if the tenets of good programming are followed - modular, clear code with a minimal use of GOTOs.

Leon Heller

Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.
Tel. (0908) 613004

Publisher:-

Brian Pain,
40a High Street,
Stony Stratford,
Milton Keynes.
Tel. (0908) 566670/
564271

MEMBERS' LETTERS

From David Haines.

I hope the enclosed letter is in the form you prefer, i.e. a print-out and a tape copy.

Can you tell me why, when I use RENUM, I get an OM error and what I might be doing wrong. It seems to occur when I try to input a new line or edit an existing one.

I have enclosed a copy of a form that I use when writing large programs. I have worked out what seem to be all the acceptable variables (no guarantees) and then lay an acetate sheet over. I then cross out the various items as I use them, thus ensuring I do not duplicate. Subroutines are on a separate acetate sheet and can easily be read through as well. If anyone wants to photocopy my work - please feel free to do so.

Leighton kindly sent me a copy of 'TRSMON' which I am finding very interesting. I think my BASIC is o.k. now but I really would appreciate some advice for the raw beginner on how to write machine code.

I have just purchased the Centronics P1 printer from Henry's which seems to be just what I need. Apparently there are still some left at about £225. Since they produce proper descenders they seem an excellent choice over the Quick Printer that Tandy offer, in spite of the fact that an interface is required as well.

Is anyone interested in forming a group in the North or does anyone know of a group near to me? My interest is, whilst purely amateur, fairly serious and I would be delighted to hear from fellow enthusiasts.

David Haines,
82 Westville Oval,
Harrogate,
North Yorks HG1 3JU.
Tel: 62526

(* Regarding your OM error when using RENUM. Have you checked that you are using the correct version for your memory size, and are you reserving the correct amount of memory before doing any programming or loading a program? LFH *)

* * * FOR SALE * * *

16K Level 2 keyboard and modulator. Many games and Editor/Assmebler on cassette. £350 o.n.o.

Mr. Lymbury,

Berkhamstead 71827.

PERMISSABLE VARIABLES EXCLUDING RESERVED WORDS.

USED IN PROGRAM :- Date:-

AØ	A1	A2	A3	A4	A5	A6	A7	A8	A9
BØ	B1	B2	B3	B4	B5	B6	B7	B8	B9
CØ	C1	C2	C3	C4	C5	C6	C7	C8	C9
DØ	D1	D2	D3	D4	D5	D6	D7	D8	D9
EØ	E1	E2	E3	E4	E5	E6	E7	E8	E9
FØ	F1	F2	F3	F4	F5	F6	F7	F8	F9
GØ	G1	G2	G3	G4	G5	G6	G7	G8	G9
HØ	H1	H2	H3	H4	H5	H6	H7	H8	H9
IØ	I1	I2	I3	I4	I5	I6	I7	I8	I9
JØ	J1	J2	J3	J4	J5	J6	J7	J8	J9
KØ	K1	K2	K3	K4	K5	K6	K7	K8	K9
LØ	L1	L2	L3	L4	L5	L6	L7	L8	L9
MØ	M1	M2	M3	M4	M5	M6	M7	M8	M9
NØ	N1	N2	N3	N4	N5	N6	N7	N8	N9
OØ	O1	O2	O3	O4	O5	O6	O7	O8	O9
PØ	P1	P2	P3	P4	P5	P6	P7	P8	P9
QØ	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
RØ	R1	R2	R3	R4	R5	R6	R7	R8	R9
SØ	S1	S2	S3	S4	S5	S6	S7	S8	S9
TØ	T1	T2	T3	T4	T5	T6	T7	T8	T9
UØ	U1	U2	U3	U4	U5	U6	U7	U8	U9
VØ	V1	V2	V3	V4	V5	V6	V7	V8	V9
WØ	W1	W2	W3	W4	W5	W6	W7	W8	W9
XØ	X1	X2	X3	X4	X5	X6	X7	X8	X9
YØ	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9
ZØ	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Z9

AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT
AU	AV	AW	AX	AY	AZ				
BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ
BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT
BU	BV	BW	BX	BY	BZ				
CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ
CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT
CU	CV	CW	CX	CY	CZ				
DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ
DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT
DU	DV	DW	DX	DY	DZ				
EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ
EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET
EU	EV	EW	EX	EY	EZ				
FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ
FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT
FU	FV	FW	FX	FY	FZ				
GA	GB	GC	GD	GE	GF	GG	GH	GI	GJ
GK	GL	GM	GN	GO	GP	GQ	GR	GS	GT
GU	GV	GW	GX	GY	GZ				
HA	HB	HC	HD	HE	HF	HG	HH	HI	HJ
HK	HL	HM	HN	HO	HP	HQ	HR	HS	HT
HU	HV	HW	HX	HY	HZ				
IA	IB	IC	ID	IE	IF	IG	IH	II	IJ
IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT
IU	IV	IW	IX	IY	IZ				
JA	JB	JC	JD	JE	JF	JG	JH	JI	JJ
JK	JL	JM	JN	JO	JP	JQ	JR	JS	JT
JU	JV	JW	JX	JY	JZ				
KA	KB	KC	KD	KE	KF	KG	KH	KI	KJ
KK	KL	KM	KN	KO	KP	KQ	KR	KS	KT
KU	KV	KW	KX	KY	KZ				
LA	LB	LC	LD	LE	LF	LG	LH	LI	LJ
LK	LL	LM	LN	LO	LP	LQ	LR	LS	LT
LU	LV	LW	LX	LY	LZ				
MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ
MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT
MU	MV	MW	MX	MY	MZ				
NA	NB	NC	ND	NE	NF	NG	NH	NI	NJ
NK	NL	NM	NN	NO	NP	NQ	NR	NS	NT
NU	NV	NW	NX	NY	NZ				
OA	OB	OC	OD	OE	OF	OG	OH	OI	OJ
OK	OL	OM	ON	OO	OP	OQ	OR	OS	OT
OU	OV	OW	OX	OY	OZ				
PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ
PK	PL	PM	PN	PO	PP	PQ	PR	PS	PT
PU	PV	PW	PX	PY	PZ				
QA	QB	QC	QD	QE	QF	QG	QH	QI	QJ
QK	QL	QM	QN	QO	QP	QQ	QR	QS	QT
QU	QV	QW	QX	QY	QZ				
RA	RB	RC	RD	RE	RF	RG	RH	RI	RJ
RK	RL	RM	RN	RO	RP	RQ	RR	RS	RT
RU	RV	RW	RX	RY	RZ				
SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ
SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST
SU	SV	SW	SX	SY	SZ				
TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ
TK	TL	TM	TN	TO	TP	TQ	TR	TS	TT
TU	TV	TW	TX	TY	TZ				
UA	UB	UC	UD	UE	UF	UG	UH	UI	UJ
UK	UL	UM	UN	UO	UP	UQ	UR	US	UT
UU	UV	UW	UX	UY	UZ				
VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ
VK	VL	VM	VN	VO	VP	VQ	VR	VS	VT
VU	VV	VW	VX	VY	VZ				
WA	WB	WC	WD	WE	WF	WG	WH	WI	WJ
WK	WL	WM	WN	WO	WP	WQ	WR	WS	WT
WU	WV	WW	WX	WY	WZ				
XA	XB	XC	XD	XE	XF	XG	XH	XI	XJ
XK	XL	XM	XN	XO	XP	XQ	XR	XS	XT
XU	XV	XW	XX	XY	XZ				
YA	YB	YC	YD	YE	YF	YG	YH	YI	YJ
YK	YL	YM	YN	YO	YP	YQ	YR	YS	YT
YU	YV	YW	YX	YY	YZ				
ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ
ZK	ZL	ZM	ZN	ZO	ZP	ZQ	ZR	ZS	ZT
ZU	ZV	ZW	ZX	ZY	ZZ				

F 1Ø 11 12 13 14 15 16 17 18 19 2Ø 21 22 23 24 25 26 27 28 29 3Ø 31 32 33
34 35 36 37 38 39 4Ø 41 42 43 44 45 46 47 48 49 5Ø 51 52 53 54 55 56 57

A 1Ø 11 12 13 14 15 16 17 18 19 2Ø 21 22 23 24 25 2[illegible] 28 29 3Ø 31 32 33
34 35 36 37 38 39 4Ø 41 42 43 44 45 46 47 48 49 5[illegible] 52 53 54 55 56 57

From Dusty Miller.

Brian remarked the other Sunday that as far as the Newsletter was concerned, I was conspicuous by my absence, so in an attempt to put that right ....

C.T. Dempsey's letter (issue 12) I found very interesting. (sorry C.T., I don't know your christian name). I don't agree with his definition that the group is "small and cosy being dedicated to experts". I've been to a couple of weekend "do's" and manage to get to Brian's a few Sunday mornings. chatting to other members, many, I feel, are like me in that although they might know quite a bit with regard to a specific field there's still "a hell of a way to go!".Don't be put off by the business user, C.T., after all if I could offset the cost of my TRS-80 against something I'd have more than 4k to play with.

Many contributions to the Newsletter, in my opinion, are from experts. people like Nigel Dibben, Leon Heller, Angus Ellefsen and Laurie Shields (to name but a few) seem to be able to make a TRS-80 do everything but sit up and beg but every one of them whom I have spoken to has been more than willing to impart a little knowledge to me. after all, I dare say that there are members in the Group who, to them, are 'experts'.

I agree whole-heartedly with your comments about the non-publicising of the TRS-80 and the bias of the "glossies" for the (p)ossible (e)xcuse for a (t)andy. perhaps the Group should appoint a publicity officer? Any other members any ideas?

One small problem I've encountered with my TRS-80 is, wait for it, rusty screws!! The six screws holding the key board together had to be taken out and 'wire-wooled', they were so rusty. Does this invalidate my guarantee tandy?

In my constant search for knowledge, can anyone help me with the two following points:-

What are the POKEs to turn all 'PRINT' statements to 'LPRINT' within a program. the ones I've been given viz: poke 16414,141 and poke 16415,5 just hang-up the system (even killing the reset button).

Secondly, is there a way to save the contents (and their positions) of arrays when I 'CSAVE' a program. Any help will be much appreciated.

One interesting POKE I have found is poke 16423,4. This stops the machine hang-up when 'LPRINT' is encountered and there isn't a printer attached. all the 'PRINT' statements still work O.K.

Finally, before I finish this epistle, I would like to thank everyone for all the hard work that is put in publishing the newsletter and arranging the weekends, making, in my opinion, the best user group in the U.K.

Dusty Miller,
10 Whittlebury Road,
Silverstone,
Northants.
Tel: (0327) 857078

COPYRIGHT AND THE LIBRARY

I have asked Leighton to remove two programs from the Library - TRSMON and STARTREK. These programs were sent to Leighton by members, and Leighton accepted them in good faith. However, I have ascertained that they were versions of commercial programs with the authors' names and copyright notices removed. Perhaps the members who sent them in received them like that, and did not realise that they were possibly laying themselves, and (more importantly) the Group, liable to legal action; admittedly, a somewhat remote possibility.

Please ensure that any programs you submit to the Library are free from copyright. Programs taken from the various magazines are probably ok, but I am not sure. As I understand the law as it applies in this country, anything written is automatically copyright. Perhaps a member with some legal training could advise us as to where we stand.

Leon Heller

STATISTICAL ANALYSIS

Members making use of the Library might have noticed a few programs of mine for statistical analysis of experimental data. This is not really the place to teach experimental design and applied statistics, but anyone wishing to use these programs is advised to read:-

Siegel S., Non-Parametric Statistics for the Behavioral Sciences, McGraw-Hill.

Winer B.J., Statistical Principles in Experimental Design, McGraw-Hill.

The latter tells you everything you need to know about the Analysis of Variance. If anyone is interested I have written a program for the analysis of a two-factor design with repeated measures on both factors. It reads data from a disk file created with Scripsit, but it could easily be adapted to run on a tape system.

Leon Heller

AUTOMATIC LOWER CASE DRIVER FOR NEWDOS.

Having modified my TRS-80 to display Lower Case, using the instructions in the Newsletter, I found it irritating to have to load a command file & then protect memory every time I switched on the computer, or did a reset. It is possible with Newdos 2.1 to modify SYS0/SYS so that on Power up or Reset the system automatically loads the Lower Case Driver at the top of whatever Memory is available, and the Driver will be protected in Basic without having to specify any Memory reservation.

SYS0, when loaded, first enters a routine to ascertain how much memory is resident in the TRS-80 by attempting to write, and then read, a byte into memory location 0FFFF Hex, decrementing the test byte in 4K steps until successful. The result is stored in 4049 & 404A Hex.

By modifying the test word in SYS0, it is possible to fool the Computer into believing that it has less memory than is really available. This top-of-memory is used by Basic so that protection is automatic.

All the following modifications are made by using Superzap Version 3.0 and are applicable only to Newdos Version 2.1.

First make a clean Backup of Newdos. Run Superzap and when the menu appears, press Enter. Answer the Drive as appropriate, and respond to 'Track' with 1, 'Sector' with 5. The Top Left Hand corner of the dump should contain 001500.

Type MOD08, and you should see a + on the line commencing 015D0 immediately before a block of 4 F's. Type 57, (do not press enter), The line should now read:-
0015D0 M4121 0C52 2247 4021*57FF 7E47 2F77 BE70 etc.

CHECK IT! If it is correct, press Enter, answer the question with Y, press Enter and check it again!

The next step involves adding the driver. The computer does not know where it has to go until the top of memory routine is executed, we have to load the driver at 4F80 and then move it to nF58 where n = 7, B or F depending on the memory you have available.

In order to avoid rewriting a large area of the Disk, a jump is inserted into the routine, immediately before the Copyright message is displayed. Press the ; key to move on to the next sector of the file and you should see 001600 as the top left hand series of digits. We have to modify the 3 bytes commencing at 001677. Type MOD77, then type C3804F.

Do not press enter! Check it, the line should look like:-
001670 MAF45 3E07 CD10 44C3 804F+7E00 00CD 3300 etc.

If correct then press Enter, answer Y, and return by pressing Enter again. Check it again, then press ; to move onto the next sector.

The original SYS0 ends at 001769 with the jump vector for execution. Here we have to add our move routine, the driver, the replacement of the 3 bytes modified earlier, and the jump vector. This addition starts at 001766. Type MOD66 and the line should read:-
001760 M02C6 40C3 3B00+0202 004E 3E01 320F 4311 etc..
Type:- 0152 804F ED5B 4940 13D5
2198 4F01 3800 EDB0 E122 1E40 21ED 4EC3
AF4E F53A 8036 CB47 2811 C501 FF01 3A40
38CB 4728 0206 07CD 6000 C1F1 DD6E 03DD
6604 DA9A 04DD 7E05 B728 0177 79FE 20DA
0605 FE80 D2A6 04C3 7D04 0202 004E

Again check the above very carefully, (note that the spaces are for legibility, they should not be typed). When you are certain all is correct, press Enter and write the new code to the disk as in the earlier steps.

Now try it out! Insert the modified disk into Drive 0, press reset, and when DOS READY appears try typing lower case letters. If you have typed the above correctly it should work! If it doesn't then re-enter Superzap and check all the modifications again, be particularly careful not to confuse B's and 8's.

The driver has a VDU delay function built in. This is best demonstrated by entering Basic and listing a lengthy program, SUPERZAP is ideal. During the listing, press SHIFT. The listing should slow down to a speed that allows you to read the line numbers. The display may be further slowed by pressing SHIFT and ENTER simultaneously. Simply press SHIFT @ as normal to stop the listing. This is also particularly useful for debugging with the TRON function.

If you wish, you may modify the Message in SYS0 to remind you that the Lower Case routine is loaded, or any other message. Using the above techniques, type the ASCII codes for your message commencing at Track 1, Sector 6, Byte E6. Use 0D for a line feed, and end your message with 03 which is the terminating byte. If your message is more than 24 characters long you will have to write that sector back to the disk, and continue starting at Byte 00 on sector 7, but do not enter messages beyond Byte 57 on sector 7.

The modification works with Scripsit, Pencil, Edtasm and Edit 80, but be careful of machine language programs which use the area above nF58, (Monitor 3 by H. Howe for example). These will need to be relocated so as not to

corrupt the new driver. Should you wish to return to the normal Upper Case Driver, merely Poke &H401F, 4.

I would stress that you should never modify programs on your original NEWDOS Disk - always keep that as bought! It is however easy for users with 2 drives to modify other disks. From Superzap, use the 'Copy Disk Sectors' function and copy Track 1, Sector 5 from the modified disk, with a sector count of 3.

For TRSDOS users, and those who do not wish to modify their SYSO, I have sent machine language versions to the Library which may be executed by the Auto command, or at any time before entering Basic.

Michael J. Hallam,
9, The Green,
Newton Burgoland,
Leicester LE6 1SS.

SWAPPING PRINT AND LPRINT FUNCTIONS

```
8 REM----tHIS WILL PUT LINE PRINTER TO VDU--
9 '
10 FORI=1TO3:Z7(I)=PEEK(16412+I):Z8(I)=PEEK(16420+I)
11 POKE16420+I,Z7(I)
12 NEXT
30 '------ TO RETURN TO NORMAL----
40 FOR I=1TO3:POKE(16420+I),Z8(I):NEXT
41 '
42 '
43 '
44 '
50 '----THIS WILL PUT VDU TO LINE PRINTER----
60 FOR I = 1 TO 3:Z7(I)=PEEK(16412+I): Z8(I)=PEEK(16420+I)
61 POKE 16412+I,Z8(I)
62 NEXT
70 '
80 '----TO RETURN TO NORMAL----
90 '
100 FOR I=1 TO 3: POKE 16412+I,Z7(I):NEXT
```

Dick Foden

CONVERTING MACHINE LANGUAGE TO BASIC - YET ANOTHER PROGRAM

Thank you for an enjoyable Newsletter. I have just joined the Users Group and plowed my way through all of the back issues of the Newsletter in order to see just what information was there. What a good read! Now I need to go back and mull over those articles of more particular interest to me.

There are a couple of letters to which I would like to reply. The letter from C.T. Dempsey (Volume 1, Issue 12) seemed to indicate a need for the more experienced members to lend a hand explaining certain things, often first principles.

My own experience is over 11 years in various fields of computing which now includes 18 months with a TRS-80. I would like to offer my knowledge to others, particularly the newcomers to the TRS-80 such as C.T. Dempsey. I must warn you, however, that my availability is irregular but give me a try with any of your queries on 01-673-1411.

In addition to this I would be willing to help you with articles for the Newsletter as my time permits. Direction or topic suggestions would be useful so as not to overlap with your fine efforts.

Also in the same issue is a letter from Angus Ellefsen challenging us to write a program to convert a machine language routine to BASIC DATA statements. Well, I have taken up the challenge and the result with an explanation follows.

```
100 GOTO 360
110 DATA                                0
120 POKE 16633,     :REM CALCULATED
130 POKE 16634,     :REM  END ADDR
140 RUN 150
150 READ BA%,NB%,NL%,PA%,E%
160 IF E%<>0 THEN PRINT"ERROR!!!!":END
170 SN%=-5536
180 FOR K%=0 TO NL%-1
190  WA%=PA%+55:GOSUB 730
200  POKE PA%,P1%:POKE PA%+1,P2%
210  WA%=SN%+K%:GOSUB 730
220  POKE PA%+2,P1%:POKE PA%+3,P2%
230  POKE PA%+4,136
240  DA%=PA%+5:PA%=PA%+55
250  FOR J%=1 TO 10
260   A$=STR$(PEEK(BA%)):GOSUB 680
270   DA%=DA%+LEN(A$):BA%=BA%+1
280   NB%=NB%-1:IF NB%=0 THEN J%=10
290   IF J%<10 THEN POKE DA%,44:DA%=DA%+1
300  NEXT J%
```

```
310  FOR JX=0 TO PAX-DAX-2
320   POKE DAX+JX,32
330  NEXT JX
340  POKE PAX-1,0
350 NEXT KX
360 POKE PAX,0:POKE PAX+1,0
370 CLS:LIST 60000-
380 CLS:PRINT"Machine Language Conversion Program"
390 PRINT:PRINT"This program converts a machine language"
400 PRINT"program/routine that resides in memory"
410 PRINT"into the equivalent BASIC program DATA"
420 PRINT"statements into lines 60000 onwards."
430 PRINT"Deletion of all lines before 60000 and"
440 PRINT"the creation of an appropriate POKE"
450 PRINT"routine is required to make this useful.":PRINT
460 INPUT"Beginning Address";IN
470 IF IN>32767 THEN BAX=IN-65536 ELSE BAX=IN
480 INPUT"Number of bytes";NBX
490 NLX=INT((NBX-1)/10)+1
500 W=PEEK(16633)+256*PEEK(16634)
510 GOSUB 630:EAX=WAX
520  A$= STR$(BAX)  +","+  STR$(NBX) +","+  STR$(NLX)  +","+
STR$(EAX-2) +","
530 PA=PEEK(16548)+256*PEEK(16549)
540 GOSUB 620
550 W=PA+5:GOSUB 630:DAX=WAX
560 GOSUB 650:GOSUB 690
570 EAX=EAX+NLX*55
580 WAX=EAX:GOSUB 730
590 GOSUB 620:A$=STR$(P1X):GOSUB 670
600 GOSUB 620:A$=STR$(P2X):GOSUB 670
610 GOTO 120
620 PA=PEEK(PA)+256*PEEK(PA+1): RETURN
630 IF W>32767 THEN WAX=W-65536 ELSE WAX=W
640 RETURN
650 W=VARPTR(A$): W=PEEK(W+1)+256*PEEK( W+2)
660 GOSUB 630:VAX=WAX:RETURN
670 W=PA+12:GOSUB 630:DAX=WAX
680 GOSUB 650
690 FOR IX=0 TO LEN(A$)-1
700  POKE DAX+IX,PEEK(VAX+IX)
710 NEXT IX
720 RETURN
730 IF WAX<0 THEN W=WAX+65536 ELSE W=WAX
740 P2X=INT(W/256): P1X=W-P2X*256: RETURN
```

The program operates in two phases, the first begins at line 380 and the second at 140. The program creates new lines at the end of itself for DATA statements containing the decimal values of the machine language routine. Each DATA line is created as a fixed length line allowing up to 10 values per line of 3 digits each preceded by a space and followed by a comma where required.

It should be noted that this program modifies itself and so is useful for only one execution at a time. To be of any use the appropriate READ and POKE statements must be added to the DATA statements after deleting all of the lines before 60000. Explanation of the lines follows:-

380-450 are just a statement of the programs purpose.
460-480 request entry of the beginning address of the routine to be converted and how many bytes are in the routine (in decimal, this could of course be changed to accept hex values).
490 calculates the number of DATA type program lines to create.
500-510 obtains the current end of program address and converts it to integer format.
520 creates a string for a DATA statement that is to be used in phase two of the program. Note that the ending address is decremented by 2 to allow for the 2 bytes of zeros that are pointed to by the last program line.
530 obtains the program beginning address. This method allows the program to operate on a Level II machine as well as under DOS.
540 bypasses the first program line (100) so that PA points to the DATA statement to be modified. Note that any lines added to the program between statements 100-140 will cause the program to malfunction.
550 calculates the position in the line where modification is to take place.
560 actually causes the DATA line (110) to be modified.
570 calculates what will be the new ending address. (Each DATA line needs 55 bytes to allow for the 4 byte prefix (next line pointer and line number), the 1 byte code for DATA (136, 88H), 49 bytes to allow 10 3-digit numbers preceded by a space with 9 followed by a comma and the 1 byte end of line indicator (0).)
580 converts the new ending address into 2 decimal numbers less than 256 for use in the POKEs (120-130).
590-600 modify lines 120 and 130 with the values to POKE in order to set the new ending address.
610 does not need explanation.
120-130 changes the program end address
140 must be a RUN statement in order to clear the variables because lines 120-130 has adjusted the simple variable pointer area beginning address (another name for and real purpose of the program end address).
150 now gets the Beginning Address of the machine routine, the Number of Bytes to convert, the Number of DATA Lines to create, the Program Address where the new lines should begin and a special End variable just to make sure that the program hasn't been executed more than once (not fail-safe).
160 does the check
170 sets the beginning line number to 60000. If a different starting number for the DATA statements is desired, then this and line 370 should be changed.

180 begins the loop to create the appropriate number of lines.
190-200 creates the next line pointer and puts it into the prefix.
210-220 creates the line number and puts it into the prefix.
230 puts the BASIC code for DATA into the line.
240 adjusts the pointers for the beginning of the POKE area and the beginning of the next line.
250 begins the retrieval of up to 10 bytes of machine code.
260 gets a byte of code and pokes the ASCII decimal value into the DATA statement.
270 adjusts pointers to next data area and next byte address.
280 decrements the number of bytes to retrieve and checks if any more are to be converted. If not it forces the end of the loop.
290 checks to see if this is the last value to be put into this line. If not then a comma is put into the line and the data address pointer adjusted.
300 ends the retrieval loop
310-330 ensures that any unused part of the line is spaces.
340 puts the end of line indicator into the line.
350 ends the line building loop.
360 sets the end of program indicator.
370 clears the screen and lists the lines created. The program ends here.

Additional line notes:-

100 allows a fixed place for the lines to be modified (as opposed to the lines created).
110 has enough space to allow for 4 5-digit numbers preceded by a space and followed by a comma.
620 is the subroutine to point to the next line.
630-640 is the subroutine to create an integer format address, etc.
650-660 is the subroutine to calculate the address of the string to be PEEKed.
670 calculates the address in the POKE statement where modification is to begin
680 (see 650-660)
690-720 is the subroutine to transfer the string to the program.
730-740 is the subroutine to convert an integer address to 2 numbers in LSB/MSB format.

I shall be supplying a copy of this program to the library.

I also have few tips for those members who have a lower case modification installed. The first is the routine for a lower case video driver:-

```
00100 ;
00110 ;       Lowercase Video Driver routines
```

```
00120 ;
00130 ;       This program should be executed on
power-up/reset
00140 ;       to initialize the driver which will then be
00150 ;       active throughout execution of DOS or BASIC.
00160 ;
00170         ORG     10000H-27H
00180 START   EQU     $
00190 ;
00200 INITIT  LD      HL,VDRIVR       ;Put address of
driver
00210         LD      (ADRIVR),HL     ;into VDU DCB
00220         JP      RETURN          ;then return to
system
00230 ;
00240 VDRIVR  LD      L,(IX+3)        ;Get address of
cursor
00250         LD      H,(IX+4)        ;into HL reg pair
00260         JP      C,49AH          ;Go if crsr retrieve
only
00270         LD      A,(IX+5)        ;Get cursor character
00280         OR      A               ;Check if to display
00290         JR      Z,$+3           ;Bypass if zero
00300         LD      (HL),A          ;Display cursor
00310         LD      A,C             ;Get character to
display
00320         CP      32              ;Check for control
character
00330         JP      C,506H          ;If yes, go to normal
rtn
00340         CP      128             ;Check for non-ASCII
char
00350         JP      NC,4A6H         ;If yes, go to normal
rtn
00360         JP      47DH            ;Go to ASCII char
display
00370 ;
00380 RETURN  EQU     402DH           ;DOS return address
00390 ;       EQU     1A19H           ;Level II return
address
00400 ;
00410 ADRIVR  EQU     401EH           ;Driver address in
VDU DCB
00420 ;
00430 LENGTH  EQU     $-START
00440         END     INITIT          ;Transfer address
```

Or if the BASIC DATA statements are better for you:-

```
60000 DATA 33, 226, 255, 34, 30, 64, 195, 45, 64, 221
60001 DATA 110, 3, 221, 102, 4, 218, 154, 4, 221, 126
60002 DATA 5, 183, 40, 1, 119, 121, 254, 32, 218, 6
60003 DATA 5, 254, 128, 210, 166, 4, 195, 125, 4
```

Note, this is ORG'd as above, so that if you are going to relocate it, the values 226 and 255 (representing an address of FFD9) in the first statement must be changed.

The above DATA statements were created with the conversion program listed above.

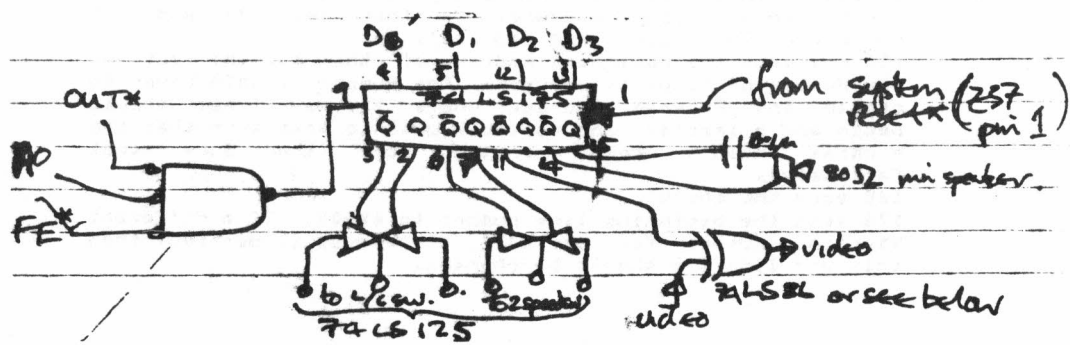
The second is an amendment to SUPERZAP 2.0 (for those with NEWDOS+). Starting at line 13700 is a series of DATA statements commented as 'START OF FORMATTING ROUTINE HEX CODE'. In line 14150 if the 91 (2nd value) is changed to 127, then both the VDU and printer will have lower case ASCII at the right of the hex display where appropriate instead of full stops (periods). I reckon that this or a similar amendment for version 3.0 will also work, I just have been unable to verify this.

Finally, I would like to express an interest in hooking up my TRS-80 to others or perhaps a central computer. The idea being to exchange programs or perhaps to create an electronic mail service. Please let me know more details about activities in this area. My main problem is that I know little about the electronics side of things but want to learn. Also maybe someone could teach me a bit about wielding a soldering iron? I have lots of ideas and a small amount of money to invest in projects but little time and not always the appropriate knowledge. Thanks again.

Jerry Ozaniec,
5 Hightrees House,
Nightingale Lane,
London SW12 8AQ.

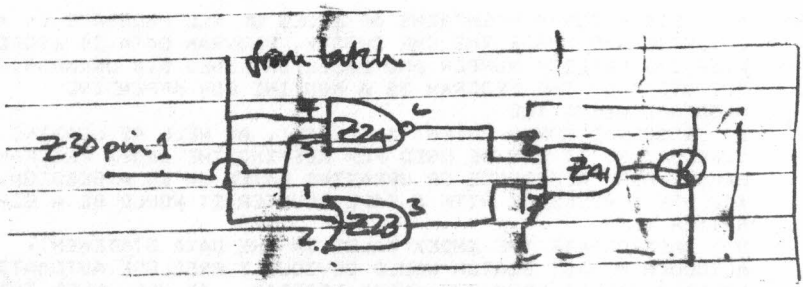
LOWER-CASE AND TWO-SPEED - SOFTWARE SELECTABLE

I have carried out the lower-case and two-speed mods but am opting for a replacement of the switches with port controlled devices, as below.

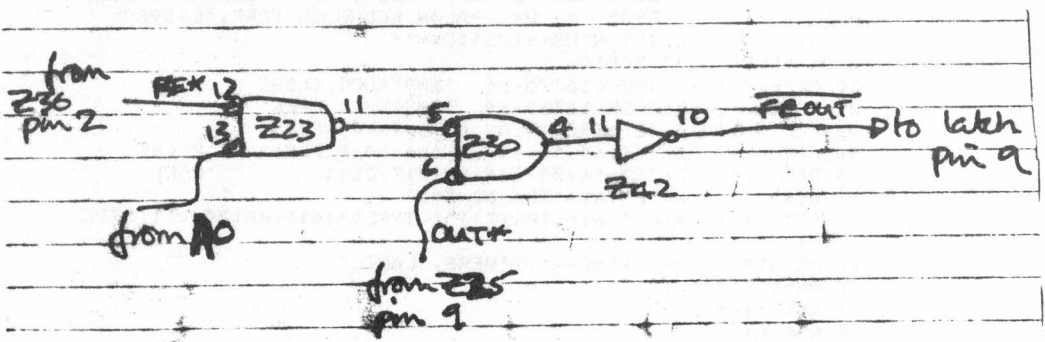


This should enable speed changeovers to ocurr without hangup, thus speeding up 'balls' etc. in bouncy games under program control. The buffers are wired so that all is normal on system reset.

The exclusive-OR gate can be simulated by spare on-board gates as follows:-



The triple input-low NAND gate can be made so:-



The exlusive-OR gate enables total video reversing, and the speaker makes noises, eg. on ball rebounds.

Alan Redhouse,
The Villa,
East Cottingwitt,
York, YO4 4TL.

TANDY RELAY PROBLEMS

Has anyone out there suffered with stuck or welded cassette relays? Here are one or two thoughts about it and a solution.

Every time you use the cassette, there is a small click; this is the internal relay switching the cassette motor on. The normal current passed by the relay is about 100 ma, but the initial switch-on current is about 500 ma. This surge sometimes causes the relay contacts to weld together. If you have a CPU unit only, then non Tandy cassette recorders seem more prone to causing this problem. There are various cures: if you take the lid off your machine (and invalidate your warranty) then you can try flicking the relay with your finger or a screwdriver, or you can add an external slave relay and battery. Finally, you can use an electronic switch, latched by the CPU relay. This means that the relay now only switches 0.5ma and a power transistor handles the heavy stuff. I've built half a dozen relay protectors: it is an encapsulated unit which is plugged in between the CPU and the cassette and should protect the relay indefinitely. They are available for $2.50 from me whilst stocks last.(inc P&P).

Does anyone want to join the 'Galactic Trilogy' bugs club? 'Trader' and 'Revolution' seem to be riddled with them! i.e 'Rev 1.2', lines 30,32: change the '2'to '3' and see what happens. Write to me if you've got any advice or problems

Nick Robinson,
130 The Grove,
Ealing,
London W5 3XP.

(* Another way to deal with a defunct cassette relay is to replace it with something a bit more suitable. My relay failed shortly after I bought the system; I chopped out the faulty one and put in a 6-9V reed relay. The system has to be on for a few minutes before the relay will pull in, but it has lasted for over two years with no problems! LFH *)

SPEED-UP COCK-UP

Unfortunately, I made a couple of mistakes in the clock speed-up instructions in the Volume 1, Issue 10 article:-

Step 4 should read: ...to pin 8 of IC Z56.
Step 5 should read: ...to pin 12 of IC Z56.

My thanks to Alan Redhouse for bringing it to my attention.

Leon Heller

MORE ON THE AUTOMATIC LOWER CASE DRIVER

The interesting article from Dennis & Duncan Long in the August issue of the Newsletter has prompted me to re-write the lower case Driver which I described in my other article, to include the inversion facility requested.

I understand that the Tandy driver uses Shift 0 to toggle between normal & inverse modes, and the new driver which has been posted to Leighton for the library has the same facility.

A word of warning however - TRSDOS & many other programs will get into difficulty if lower case entries are made when the program expects upper case, so use the facility with care.

If Newdos users who wish to alter their SYS0 to include the added facility send me a S.A.E. I will be pleased to forward instructions.

I have been using Microsoft's Macro-80 Editor Assembler over the last few weeks, and while it is more cumbersome than the Newdos version of Edtasm, it does have many advantages, the most important of which is the ability to create a library of often used subroutines which can be incorporated into programs without the chore of typing them in every time. Linking with Fortran is a snip, and it should be possible to link Fortran programs into Basic with the USR function.

This package does not seem to have received much acclaim, but as a novice I like it.

Michael J. Hallam,
9 The Green,
Newton Burgoland,
Leicester LE6 1SS.

COMMUNICATION AIDS FOR THE HANDICAPPED

Any members interested in receiving a newsletter on communication aids for the handicapped might like to get in touch with:-

Mr. J.P. Odor,
Godfrey Thomson Unit for Educational Research,
University of Edinburgh,
24 Buccleuch Place,
Edinburgh EH8 9JT.

I have all the details if anyone is interested.

Leon Heller

INDEX PROGRAM

Here is the listing of an index program (for cassette-based systems) which searches and loads the program selected. It also enables the OPEN and CLOSE statements for merging programs - these can be used inside a program as statements.

```
1 ' THIS PROGRAM MAINTAINS AN INDEX OF ALL PROGRAMS ON A
CASSETTE AND LOADS THE ONE CHOSEN. PROGRAM DATA IS STORED
WITH ITS VERSION NUMBER AND LABEL ON LINES 500 ONWARDS. AT
THE START OF THE PROGRAM IS A ROUTINE FOR APPENDING
PROGRAMS USING THE
2 ' RESERVED WORDS 'OPEN' & 'CLOSE'. AS WELL AS LOADING
SUBROUTINES IT CAN BE USED FOR KEEPING THE INDEX PROGRAM IN
MEMORY FOR  REFERENCE OR UPDATING LATER ON IN A SESSION. IF
YOU USE A RECORDER WITH A TAPE COUNTER IT WOULD BE A SIMPLE
MATTER TO
3 ' INCORPORATE THE INDEX VALUE IN THE DATA STATEMENT,
ALTHOUGH A FAST SEARCH WOULD OBVIOUSLY PRECLUDE AUTOMATIC
LOADING DIRECT FROM THE INDEX PROGRAM.  IN USE, KEEP THIS
PROGRAM AT THE BEGINNING OF THE  CASSETTE WITH PLENTY OF
BLANK;
4 ' TAPE FOLLOWING TO ALLOW FOR EXTRA DATA STATEMENTS AS
MORE PROGRAMS ARE SAVED ON THE TAPE. I SAVE THE INDEX
PROGRAM UNDER THE LABEL '@' WITH ALL OTHER PROGRAMS LABELED
ALPHABETICALLY FROM 'A' ON. -ALAN REDHOUSE,YORK.(C)1980
5 CLEAR 200:CLS:PRINTCHR$(23):C$=""
6 ON ERROR GOTO 30010
10 POKE16774,80:POKE16775,64  'INSTRUCT CLOSE
20 POKE16762,91:POKE16763,64  'INSTRUCT OPEN
30 FOR X=16464 TO 16483:READ A:POKEX,A:NEXT
40 DATA 217,42,249,64,43,43,34,164,64,217,201:  'CLOSE
50 DATA 217,33,233,66,34,164,64,217,201:        'OPEN
64 A1$="1":A2$="B":A$="TDK-AD-C90"
66 PRINT@0,"TAPE ";A1$;TAB(7);": TYPE:";A$;TAB(24);": SIDE
";A2$
68 PRINT"PROGRAM";TAB(21);"VERS. LABEL"
75 PN=130:I=1
77 AN=PN+64*I
78 READB$
80
PRINT@AN,LEFT$(B$,LEN(B$)-4);TAB(22);MID$(B$,LEN(B$)-3,3);TA
B(29);RIGHT$(B$,1)
90 IFI=INT(I/10)*10<>0 GOTO 130
100 PN=PN-640
110 PRINT@898,"PRESS ENTER TO CONTINUE";:INPUTX
130 I=I+1:GOTO77
140 PRINT@898,"WHICH PROG./'@' TO EXIT";:INPUTC$
150 IFC$="@" THENCLS:END
155 RESTORE
160 FOR J%=1%TO20%:READB%:NEXT:        'READS OVER M/C CODE
DATA
170 READ B$
```

```
180 IFRIGHT$(B$,1)=C$ THEN D$=B$:GOTO210
190 GOTO170
200 PRINT@898,"NO SUCH PROGRAM                ";:FORI=0 TO
1000:NEXT:GOTO140
210 CLS:PRINTCHR$(23):PRINT:PRINT"PUT THE CASSETTE IN PLAY
MODE"
220 INPUT"PRESS ENTER WHEN READY";X
230 CLS:PRINTCHR$(23)
240 PRINT"SEARCHING FOR THE FOLLOWING     PROGRAM:-"
250 PRINT" NAME  :";LEFT$(D$,LEN(D$)-4)
260 PRINT" VERS. :";MID$(D$,LEN(D$)-3,3)
270 PRINT" LABEL :";RIGHT$(D$,1)
290 CLOAD C$
500 DATA INDEX PROG.2.0A
505 DATA GRAPH PLOTTER1.2B
510 DATA APPEND X21.1C
515 DATA ??????????---$
520 DATA EDITOR/POKE-ER1.0D
530 DATAED/POKE-SCREEN FILL1.1E
540 DATA RAM TEST1.0F
550 DATA ED/POKEMUSIC-PROG1.1G
560 DATA ED/POKE MUSIC-DATA-11.1H
570 DATA ED/POKE-MUSIC-DATA-21.2I
580 DATA REAL TIME CLOCK1.0J
590 DATA CHESS-INSTRUCTIONS1.0K
595 DATA CHESS M/C CODE PROG1.5-
600 DATA HEX DUMP TO SCREEN1.0L
30000 END
30010 IFERR=6ANDERL=78RESUME140 ELSE IF ERR=6 RESUME200
30020 END
```

Alan Redhouse

INTER-COMPUTER COMMUNICATIONS

Please find enclosed Forum-80 Users' Guide

You may leave messages about your services and Products that may be of intrest to other user's.

Until I set the system started fully, system hours are.

Thursday evenings	7.00 - 10.00Pm
Saturday	12.00noon 10.00Pm
Sunday	12.00noon 10.00Pm

or other times by arrangement.
telephone Hull (0482) 859169

Forum·80 (UK) is a free bulletin board service run for the computer hobbist
It can be used for leaving messages,hints for other users,ask for help with any system or Program Problems

Items for SALE or WANTED and any other idea's you may think of.
I would welcome any comments you may have when you have used the Bulletin Board
The downloading of Programs between user's has been disabled till we work out a set of rules to suit everyone

To use a bulletin board a user will need RS232c interface and a Phone modem, Plus a terminal Progam like SMART TERMINAL or LANCE MICKLUS's ST80III PROGRAM which I have used to download Programs from the states

Frederick Brown,

421 Endike Road,

Hull HU6 8QD

(* Frederick is using a US modem. You might have difficulties with a CCITT compatible device. LFH *)

CHANGING PRINT TO LPRINT

Dusty Miller, in his letter in this issue, has a query about changing the PRINT function to LPRINT. The POKEs he was given place the printer ROM driver address into the video DCB pointer, so that PRINT has the same effect as LPRINT. Because all keyboard input will now be echoed to the printer, assuming one is connected, and not to the display, the system will appear to have locked up. It will, however, still function if a printer is connected. These POKEs should really be used within a program, and things returned to normal under program control when output to the display is required. Dick Foden's note in this issue should help to clarify things.

Here is a table giving details of the POKEs:-

```
PRINT <= LPRINT     POKE 16414,141:POKE 16415,5
To restore          POKE 16414,88:POKE 16415,4

LPRINT <= PRINT     POKE 16422,88: POKE 16423,4
To restore          POKE 16422,141: POKE 16423,5
```

Try the following little program:-

```
10 L=16414
20 POKE L,141: POKE L+1,5
30 PRINT "THIS WILL SURPRISE YOU!"
40 POKE L,88: POKE L+1,4
```

Leon Heller

YET MORE SCRIPSIT

I keep finding more things I can do with Scripsit, the Tandy word processor. Apart from its obvious uses for document creation and editing, it can be very useful for making a lot of changes to BASIC programs, especially moving large 'chunks' of the program around, without having to mess about with the renumbering and merging facilities provided in Newdos. Merely save the BASIC program as an ASCII text file, load Scripsit and read in the program. I have heard that some people are having difficulty with this. You must save the program with a command like:-

SAVE "FRED/TXT",A

To read the file into Scripsit just use the command:-

L FRED/TXT

When you have finished your editing, save the file with the command:-

S,A FRED/TXT

This ensures that it is saved in ASCII form. BASIC can then be loaded and LOAD "FRED/TXT" will load the program ready for running. It can then be saved in compressed form using a normal save command like:-

SAVE "FRED/BAS"

Make sure no line numbers are missing when using Scripsit for this purpose, as BASIC will not load the file, giving a 'DIRECT STATEMENT IN FILE' message.

Other uses for this technique are to make global changes, such as altering all PRINT statements to LPRINT, and to merge BASIC programs with text, as I tend to do when producing this newsletter.

Scripsit can also be used in place of EDIT-80 to prepare source files for input to MACRO-80 and the FORTRAN compiler. You do not need line numbers, M80 and F80 strip these off if they are present, and the TAB facility is very useful for separating the fields when using MACRO-80 - it gives a bit more room for six character labels than EDIT-80, which can produce rather cluttered listings. The ease of scrolling through the file speeds up program development enormously. Just remember to use a command of the form:-

S,A FRED/FOR or S,A FRED/MAC

when saving the file. I have substituted Scripsit for

EDIT-80 on my FORTRAN and MACRO-80 disks.

Yet another use I have found is for the preparation of large data files for input to a BASIC program. The data are merely read in as a sequential file. Some care has to be taken when preparing the file, however, if it consists of numerical data. The file will not be read properly unless each line of data begins with a space, and spaces are used to separate each datum. Careful reading of pages 7-38 to 7-42 of the Disk BASIC manual is advised.

Leon Heller

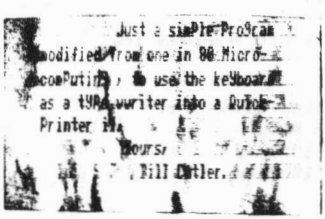
SOME VIDEO MATTERS

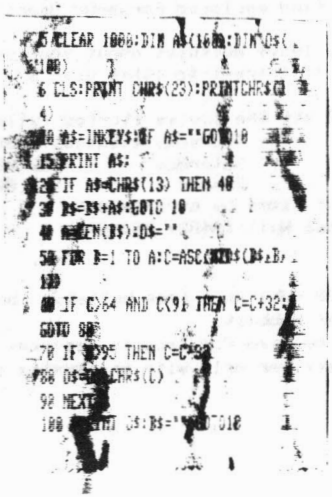
When installing the 'anti-wobble' kit, it is advisable to forget about the capacitors. They do not really appear to do anything, and many of the supplied items were faulty, resulting in intermittent video instability. Just swap the crystals and make the wiring changes.

I have just replaced my character generator chip with one of the new character generators with the improved lower case. The identification number is 6046673, and the old number was 6046670. The additional RAM in the video memory is also needed, of course.

John Kilpatrick

(* According to the Technical Manual the old chip was the MCM6670 - a Motorola device. The new one must be the MCM6673. I will check the specifications with one of the Motorola distibutors and see if I can purchase some for sale to members. If there is sufficient demand I might make up some complete kits. Tandy now charge £29.95 which is quite reasonable, but some members might like to save a few pounds by modifying their own systems. LFH *)





BOOK REVIEW - 'MACHINE LANGUAGE PROGRAMMING FROM THE GROUND UP'

'Machine language programming from the ground up + the secrets of ROM and RAM' is written by Hubert S. Howe of MON3 and MON4 fame, and is distributed by A.J. Harding, who was good enough to send us a copy. I had already bought my own!

The first chapter contains the usual explanations of machine language, binary and hexadecimal numbers, ASCII etc. Things start to get more interesting in the second and third chapters which contain an adequate explanation of the architecture of the Z-80 - the CPU used in the TRS-80 - followed by a description of the Z-80 instruction set, which could have been made much more understandable to a beginner by the inclusion of some diagrams. Howe makes the usual mistake of stating (very emphatically) that ANY 8080 program will run on the Z-80. This is not the case - the two devices differ with respect to the parity flag. Apart from that they are compatible, but that little change caused a lot of problems when people tried to run the original Microsoft BASIC (written for the 8080) on Z-80 systems.

The next chapter - about the stack - is quite comprehensive, except that no mention is made of how the stack pointer is initialised, and no suggestions are made as to where the stack should be located. None of the example programs in the book contain an instruction to initialise the stack pointer; a rather dangerous practice, and not a very good example to beginners. Most of these programs use the stack, incidentally!

An excellent description of the memory map follows, except that Howe gets Direct Memory Access (DMA) confused with memory mapped input/output. Some very useful information on the ROM and RAM is included, except that some information on how to use the floating point routines would have been nice.

The remainder of the book is devoted to using the Editor/Assembler, programming techniques, cassette input/output, USR subroutines and disk input/output. The last three chapters are excellent, and contain much invaluable information.

No index is provided - a serious omission!

Does the book fulfill its aims? If you want to learn assembly language programming a much better book is Spracklen's (she wrote SARGON) 'Z-80 and 8080 Assembly Language Programming'. Howe makes no mention of how to stucture a program properly, there is no mention of data

structures apart from tables and arrays, and there are no problems and answers. The book is worth the money (about £8.00, I think) for the wealth of information it provides about the system. The printing looks a bit odd, it was produced using the Electric Pencil, I'd say, and it is not very well bound - the pages are just glued together and my copy is already starting to fall apart!

Leon Heller

SOFTWARE REVIEW - ZEN EDITOR/ASSEMBLER/DEBUGGER

Some time ago Tim Moore of Newbear sent us ZEN, an Editor/Assembler/Debugger, for evaluation.

Like Microsoft's Editor/Assembler Plus, Zen combines the features of the Tandy Editor/Assembler with a debug package. Whether it should really be termed a debugger will be discussed later.

For the uninitiated, an assembler is a piece of software that converts a source code program written in assembly language mnemonics into machine language instructions (object code) that can be executed by the computer. An editor (more properly a text editor) is a program that enables the programmer to enter his/her source code, correct it using the editing functions, and create a text file for input to the assembler. A debugger is used to debug the object code produced by the assembler.

Zen is for cassette-based systems, and occupies RAM from 4300H to 5527H. Since it occupies space used by DOS, it cannot even be loaded from disk without relocation, and this is difficult without re-assembling the source code as the program has been rather badly written in that data and executable code are inextricably mixed throughout (largely because ZEN was assembled using ZEN (a good test of an assembler)), and being rather a simple package, does not permit forward references. This is a serious omission, and makes the production of clear, understandable code rather difficult.

The cassette is supplied with a thick wodge of documentation held together with staples, consisting mainly of a listing of the assembled source code. 12 pages are devoted to instructions, and they are, in my opinion, inadequate for a beginner. They are not all that clear and there is not a single example illustrating the various commands and facilities available.

When ZEN is loaded and execution is commenced, the screen is cleared and 'Z>' displayed. ZEN is now waiting for a command - a single letter followed in most cases by one or more parameters. The command language is rather inconsistent in that some commands prompt for the parameters. Inconsistency of this type is to be avoided if possible. Moroever, it is not made clear in the manual whether spaces are required between commands and parameters.

I did not find the editor particularly easy or convenient to use. By contrast, the Tandy Editor/Assembler uses an editor based on the Level 2 BASIC line editor, with which most users will be familiar.

The editor does not permit tabbing between the various fields, which are separated by one or more spaces. Some programmers prefer this type of free-format entry, but I would rather be able to choose which I wanted.

The assembler accepts all the standard Zilog mnemonics, and most of the pseudo-ops. Macros are not supported. I have already mentioned the lack of a forward reference capability, and found this very disconcerting. It does make the assembler very much easier to write, of course, and means that it occupies very little memory.

A print driver is not included and the user must write his/her own if printed listings are required. I think that a driver for the tandy printers should have been provided.

Source code can be assembled directly into memory for execution and debugging, but this can be a bit dangerous. If the user makes a mistake and uses the wrong origin, it is possible to overwrite ZEN with disastrous results, especially if you forget to save your source file! I much prefer a system that protects the user from this sort of ocurrence.

The debugger is not really a debugger. It is merely a rather limited machine language monitor. A debugger ought to have a single step facility, multiple breakpoints, and a symbolic line-by-line disassembler associated with the single step to be of much use.

Is it worth getting ZEN? You are getting quite a lot for your money with a text editor, assembler and monitor all for only £14! If you merely wish to write short simple programs, and do not intend to expand your system for some time, it might be suitable for you. If you intend to get a disk-based system you would be better advised to get the Tandy Editor/Assembler as the disk version supplied with Newdos+ is upwards compatible with it. Having all three functions integrated, whilst it adds some convenience - you can enter, edit, assemble, execute and test your programs

quite rapidly without leaving ZEN - in my opinion makes the package somewhat difficult to use. If you want an integrated package of this type Microsoft's Editor/Assembler Plus is a better buy at around £25 as it also has a macro capability, and does give a symbolic dump when using the single step (I think).

Laurie Shields has been using this package for some time and is quite satisfied with it, so don't take my views as gospel - you might like it!

Leon Heller

HARDWARE REVIEW - ACULAB FLOPPY TAPE

The day of the cassette is numbered!!! A relatively low cost alternative to disk is now available in the form of the high speed digital continuous loop tape.

The Aculab Floppy Tape unit costs £192.05 inclusive of vat (P&P extra). Compared to the cost of buying the expansion interface and disks which would set you back in the region of £600.00 this is obviously the way that the less affluent i.e. those of us who can't justify or even explain to the wife or tax man (or anyone else for that matter) the origin of this recent cash flow.

The system is adressed by what is now the standard (originated by it's recent predessor the less sophisticated Exatron Stringy Floppy) of SYSTEM /12345. The Aculab's main advantages (beside the fact that it's British!) being the resident directory and operating system being more flexible and does not require the operator to remembEr the location of files and how much space is left on the tape. The obvious cost in memory as a result of this refinement is 1.25K which leaves the user with 14K of available memory (approx.) for those wlo are worried about putting machine code programs onto floppy tape the directory can be relocated to clear low memory if this is required, so programs like Space Invaders or even Copsys or Pencil can be saved on the F-tape.

The control codes are prefixed by '@' (e.g. @SAVE, @LOAD, @RUN, @MERGE, @KILL and @NEW. Most are self explanatory with the exeption of @SAVE which can be appended to save machine code with auto start address. There are also two other commands (@PUT and @GET) to transfer data to and from tape when using the random access file capability which is the other main advantage over the Exatron system (point to note that Exatron have approached Aculab for the licence to market Aculab software and have also expressed interest in the operating systum so maybe for once an information flow will go the other way across the pond!).

To conclude, after having used the system to the extent that a 14K program will load every time in 14 sec. (an obvious pointer to the 9000 baud rate of transfer) without any problems of bad dumps or loads. Some problems have occured, th[illegible]gh this is probably due to operator error. e.g. on sa[illegible] a program if the closing quotes are omitted

the directory will not load the program if it is called with full quotes, so beware and read the manual. This however can be useful in protecting proprietry programs by using shifted letters etc.

Software is at this moment being amended by Aculab for use with the F-tape system and Hardings have said that they will support the software also Sofdware House have said the same. Hardings expect to be in the market soon after publication.

New tapes are available in various lengths from 10 feet to 50 feet with 5 foot and 75 foot in the pipeline. Typical usage is 30 sectors per 10 foot (one sector being 255 bytes), so a 20 foot tape is equal to 16k!

Library note: there are a few routines now available in the library that are of use to floppy owners e.g. READ (determines the start, end and entry of a system tape), NEWFLOS (for relocating directory). Hopefully we will have a Floppy page in the newsletter if we get away from Space Invaders, X-wins etc. for long enough to write it!

Adrian Hancock
Bob James

THE PERSONAL COMPUTER WORLD SHOW

This year the Personal Computer World show was held at the Cunard Hotel, Hammersmith in West London. I attended the show on the opening day and my impressions might be of interest to members.

The first impression was of the relative ease of movement, and the coolness. The stands were well separated and there appeared to be a functioning air-conditioning system. Attendence seemed lower than usual for this type of show, but most of the stands seemed quite busy and there appeared to be quite a lot of genuine business users about.

For a change, Tandy had an excellent stand! It was by far the biggest and was very well supported by personnel from Wednesbury and the various computer stores.

Pride of place went to the Network system, with a disk-based machine connected to about 10 Level 2 systems, each one on its own desk with a comfortable chair. This set-up seemed very popular with visitors, and most of the systems were in continuous use.

Ted Russell showed me the new plotter. This is a very impressive, low-cost (about £630) plotter with some quite sophisticated supporting software. It uses an ordinary ballpoint pen refill for marking. Plots of virtually unlimited length can be produced, and quality was excellent.

Some very handy Tandy BASIC quick reference cards were lying around; I have seen them on sale in the Kingsway store for 50p. Also lying around were some Superman comics especially produced for Tandy with an adventure in which Superman defeats Major Disaster with the aid of a couple of TRS-80s operated by two school children!

John Harding also had a large stand, and seemed to be very busy. Newdos 80 was prominently displayed, and I was able to have a quick flick through the manual - a vast improvement on the Newdos+ documentation. Not a difficult task, as users of Newdos+ will know!

Kansas City were there also with their range of software and a Video Genie.

Microtrend, a new software distributor with some TRS-80 items had a stand. This company is run by David Hebditch whom I know slightly, and he was bemoaning the fact that the conference he had organised concurrently with the exhibition had to be cancelled at the last moment due to lack of support. He needed a couple of hundred delegates, but only about 50 registered. He said he'd lost quite a lot of money as a result! The Microtrend software is not all that interesting - mainly games - but it is very well packaged and should be of good quality as David has several years experience as a software consultant specialising in "user-friendly" systems. He is also interested in purchasing GOOD software for the TRS-80, so get programming!

Newbear had a prototype Newbrain system on display that was actually working. I pressed the buttons and it performed a simple calculation, but the chap on the stand had no details of the BASIC (which I believe is compiled) with which it will be supplied. Potentially, it is an excellent machine, and appears to be very well made.

Transam had their new Pascal compiler for the Triton, Tuscan and PET on display. I suggested to them that they configure it for the TRS-80, and they seemed quite interested in the idea. It has some advantages over UCSD Pascal in that it conforms exactly to Wirth's original description of the language, and they will be developing a translator to convert the resultant p-codes to Z-80 machine language.

There was lots more, of course, but nothing much of interest to TRS-80 afficionadoes.

Leon Heller

INFINITE BASIC SRTC. I found problems peeling this routine off Racet's tape, and returned the originals to Hardings. They kindly put this onto a separate tape with the necessary starting (75A9) and ending (7EF4) addresses plus the defusr no. (for disk use). Upon receipt of the tape, it loaded first time, using memory size 30121 (given by converting 75A9 on my disk basic-print &H75A9) and when initialised with print USR(1) up came "infinite basic - version 1.0 - copyright 1979 racet computes OK" Thanks are due to those whose help was enlisted.

BRIAN PAIN

```
5 POKE16553,255
10 PRINT USR(1)
20 DEFINT I
30 DATA"          1"
40 DATA"1234567890"
50 DATA"A    Z    9"
60 DATA"Z    A    1"
70 DATA"H    H    5"
80 DIM NM$(10),I1(10),I2(10)
85 REM **** H1$ AND H2$ ARE THE SIZE OF THE STRING IN WHICH
86 REM **** WE PLACE RECORDS
87 REM **** H1$ COULD BE TO SAY 5 AND H2$ TO 50
90 READ H1$,H2$
100 FOR I = 0  TO 2
110 READ NM$(I)
120 NEXT
130 DATA 3 : REM ****** WE HAVE 3 RECORDS IN OUR STRING
140 DATA 1 : REM ****** POSITION IN THE STRING OF THE PRINCIPAL
145 REM ***** RECORD TO BE SORTED
150 DATA 1 : REM ****** THIS IS THE LENGTH OF THE RECORD
160 DATA 5 : REM ****** THIS THE POSITION OF THE SECOND
165 REM ***** PRINCIPAL RECORD TO BE SORTED
170 DATA 1 : REM ******* THIS THE LENGTH OF THE RECORD
180 DATA 9 : REM ******* THIS THE POSITION OF THE FINAL RECORD
190 DATA 1 : REM ******* THIS IS THE LENGTH OF THE RECORD
200 FOR N = 0 TO 6 : READ I1(N) : NEXT N
210 PRINT "SORT BY NAME FIRST,TOWN NEXT,THEN BY POSTAL CODE"
220 IR = &SRTC(NM$,0,2,I1) : GOSUB 500
499 END
500 PRINT TAB(31);"SORT RETURN CODE = " ; IR
505 REM***** ON RUNNING IR WILL COME OUT AT 0
510 PRINT
520 PRINTH1$:PRINT:PRINT H2$
525 REM ****  SET THE LOOP 2 LARGER THAN THE NO OF DATA YOUR
526 REM **** ARE SORTING
530 FOR I = 0 TO 5 : PRINT NM$(I) : NEXT
540 PRINT STRING$(50,"-")
550 RETURN
```

SOME NOTES FROM BRIAN

One of our members who works in a large commercial organisation tells us that their Line Printer III blows the power supply if used continuously - e.g. 13 pages of listing. Ring me for more information.

BASF Mini-floppy drives - type 6106, 40 track - are available to members at £170.00 + VAT. Contact Mr. Price or Mr. Bransbury on (0582) 416028.

I have now fitted a lower-case modification to my Centronics 779 printer in the office. The modification consists of the removal of a ROM from the printer PCB, then fitting a small PCB into the now empty ROM socket and connecting two leads to specific points in the circuit. The kit was supplied by a company in New Hampshire, USA by phoning the order through and quoting the number on my torn in half stuck together again Access card!

If you have an oldish 'fridge, watch out for mains spikes when loading in tapes. A new member recently found that he was experiencing checksum errors which disappeared when the 'fridge was turned off.

When using Infinite BASIC with a disk-based system, it is advisable to use the TRSDOS Tapedisk utility rather than DUMP to transfer a module to disk. I have tried DUMP and found it unreliable, whereas Tapedisk seems to produce a usable module every time. If anybody is playing with/using SRTV please drop me a line, as I shall be experimenting with it for the next few weeks.

Brian Pain

TC-8 FAST CASSETTE SYSTEM

At the MICRO' show at Wembley in July, whilst running the User Group stall I told many people about the 'TC-8' fast cassette save and load system and how good it appeared to be. After the Show was over I thought I should put my money where my mouth was so I rang up the makers J.P.C. Products Co. of Albuquerque USA and ordered one using a credit card to pay for it (safest way). After about two weeks it arrived, on a Saturday. I unpacked it and found they had still included the power supply unit, although I had asked them not to. I took the quite substantial instruction book out and read it through. It was very well written and the assembly instructions were fool-proof.

On the Sunday afternoon I started to assemble it at about 2pm, by 4.30 I was testing it, this included first checking that all the components were there. I made one change in the order of assembly as listed, I put all the I/C sockets in first, this made sure they all laid quite flat on the PCB.

It worked first time, only problem was sorting out a power supply to replace the 115volt one sent: any 9volt 200ma calculator supply will do. There is one anomaly, the power input is through a diode, although the power unit outputs DC itself, the input diode is there I presume to protect the TC-8 against plugging the power unit in the wrong way round. A transformer, bridge rectifier and switch could be mounted on the inside back of the unit instead, quite enough room.

The result is suprising. It is, as stated in the adverts, five times as fast...

I took it along to the Chelmsford User Group meeting the following Wednesday and someone bought it off me about an hour later, I think I could have sold several.

Everyone who had not got a Disc System was very impressed indeed and I gave the maker's address to several people, the only weak point that I can think of is that the control Program has to be loaded in at the beginning of each sesion at the old speed via the cassete port and also transferring programs to high speed means constant swopping around of the cassette plug from it's normal position to the new box, which by the way will support two cassettes just like an interface.

It would be a good idea for anyone using this system to make up a small adapter box with one DIN socket and two cables with DIN plugs at their ends. They need to be about 12" long to give room for the adapter box, one for the cassette port on the TRS-80 and the other for one of the

ports on the TC-8 with a two pole change-over switch to switch from one to the other; it is so easy to forget which mode one is in. The TC-8 plugs into either the keyboard 40 pin connector or the one on the side of the interface.

The address of the manufacturer is:-

J.P.C.Products,
12021 Paisano Ct.,
Albuquerque,
New Mexico. 87122
USA.
Phone (505) 294-4623

Don't phone before about 9pm else you may catch them during their dinner break, they are about seven hours behind us.

John Kilpatrick

(* An even faster (!) interface to the cassette recorder (which needs modification in this case) is the Fastload available from:-

Personal Micro Computers Inc.,
475 Ellis Street,
Mountain View,
CA 94043,
USA.
Tel. (415) 968-1604

The head is in contact with the tape during fast forward, from what I can gather. The control program is in ROM, and the system will load at 8000 Baud (16 times faster than normal). Also included are automatic key debounce, key repeat, and a 'beep' facility via the cassette speaker. It costs $188.00. LFH *)

Due to massive expansion TANDY require Computer Marketing Representatives to sell the worlds leading micro-computer from one of our 200+ stores in the U.K.

You should have knowledge of micro's, be extremely ambitious and prepared to work very hard for a high return. We pay a basic draw salary with commission of 6% on all sales.

If you can prove yourself successful then your career and remuneration path is limitless. Interested? then please write now with CV to:-

H. McGuire,
Marketing Director,
Tandy Corporation (Branch U.K.)
Bilston Road,
Wednesbury,
West Midlands

**** **** **** **** ****

**** Required Teenage Computer ****
**** Freak to Get (And Keep) ****
**** Our Accounts (And Anything ****
**** Else He Can) Onto Our ****
**** TRS-80 Model Two. Must Be ****
**** Keen, Trustworthy & Reliable ****
**** Location:- London W.3. ****
**** Phone 01-993-2111 (anytime) ****
**** Contact:- Mr. Cragg. ****

**** **** **** **** ****

LOCAL TRS-80 GROUPS

CHELMSFORD

Contact Michael Dean,
22 Roughtons Galleywood,
Chelmsford, Essex.

Meetings

ISLE OF WIGHT

Contact M. Collins,
3 Altofts Gardens,
Ventnor 85 2008

Newsletter - Meetings

NORTH LONDON POLYTECHNIC

Contact Robin Bradbeer,
Polytechnic of North London,
Holloway,
N.7. 8DB

Tel: 01-607-2789

Meetings of sub-group at College

NUNEATON

Contact Alan Fortune,
47 Northumberland Avenue,
Stockingford, Nuneaton,
CV10 8ER

Tel: 0682 348972

BLANDFORD FORUM

Contact Os House,
Higher Shaftesbury Road,
Blandford Forum,
Dorset,
DT11 8SS

Tel: 0258-53737

Meetings

HASTINGS

1066 TRS 80 Club

Contact Keith Hodgson,
The Bungalow, Chapel Park Road
St. Leonards on Sea,
East Sussex,
TN37 6HU

HULL

Contact Frederick Brown,
421 Endike Lane,
Hull

Tel: 0482-859169

Meetings - second Tuesday monthly

Newsletter

NORTH WEST GROUP

Contact Melvyn D. Franklin
40 Cowlees,
Westhoughton, Bolton
BL5 3EG

Tel: 0942-812843

Newsletter - Meetings

EAST MIDLANDS

Contact Mike Costello,
17 Langbank Avenue,
Rise Park,
Nottingham, NG5 5BU

Newsletter

OXFORDSHIRE

Contact S. Bird,
139 The Moors,
Kidlington,
Oxford, OX5 2AF

Tel: 08675-6703

Newsletter - Meetings

PLUS MILTON KEYNES - every Sunday morning and Tuesday evening.

These are notes on the workshop held at Blandford Forum on the

24th August, 1980.

The day was sponsored by Os House who arranged the Crown Hotel. As usual we used two rooms, one for lectures, the other for equipment. The equipment was 2 48k, 2 Printers, 1 Video Genie, 1 16K and Aculab Stringy. There were demonstrations of the Stringy Floppy, 48K to 16K via the cassette port, and flashing light. Micro music was run several times with flight of the bumble bee on BCP's 20 watt amp.

The first lecture was on the Scripsit package by Tandy, followed by comparisons with the Electric Pencil. Os House's main point was the excellent documentation that goes with the program. Ron Wellsted stood in for Leon and assisted members with an insight into the Z80. Judging from the questions and pleas for more explicit help, I hope to see more in the Newsletter. Adrian Hancock finished the morning session off with a demonstration of the Aculab Stringy Floppy. Lunch requires a mention for two reasons, there was plenty and it was very good. During lunch members began to see the *fringe* develop and the workshop took on an identity for the day. In this case there were several people who decided they liked the concept of the group and membership via the Newsletter was a good idea! After lunch Paul Gamsa, a local businessman, explained how he used the TRS 80 in his factory. What came over clearly was his concept "the Tandy had to fit into his scheme of things". He uses the equipment to run his order, purchase and sales ledger and payroll admin functions. Spinoffs include cash flow reports. Another component of his concept was that when something happended it should go through the books all in one go. I must say that this was for me quite a refreshing attitude and Paul should be congratulated for seeing this concept through. Judging from the reactions of those who heard Paul's talk everybody gained something from this session. After tea I went through the current work we are doing on Infinite Basic. The only routines that were dealt with were SRTC and SRTV. Judging from the questions later and the drive back to Milton Keynes, this subject requires a lot more work and when talking, proper documentation is needed to back the overhead projection.

Finally a panel was constituted (Os, Ron and myself) to open on matters of interest and hope this might be of interest to the workshop. Obviously the matters brought up cannot be reported in detail but this feature will be repeated at the next workshop.

This note on the trip cannot close until thanks are given to Os who helped in setting up the day, his sons for giving us time on their rigs, the members who spoke, and a certain gentleman for showing outstanding recall when it comes to Scifi.

Once again for me, the day was well worth setting up, and the long journey memorable and enjoyable.

INNOVATIVE
TRS-80 SOFTWARE

FROM THE PROFESSIONALS



DRAUGHTS

Now for the TRS-80 Model I, following on in the same tradition as the chess playing games of Micro-Chess, Z-Chess and the Sargons, is a new program for playing computer Draughts. Standard rules are followed including Huffing and Crowning. Excellent graphics with a solid black and white chequered pattern board. You can choose from 6 levels of play - it seems to be pretty well unbeatable at the highest level. The computer response time for this machine language program is exceptionally good, varying from less than 1 second to 80 seconds. A special feature allows the player to instruct the computer to play a particularly aggressive game. Levels of play may be changed during play. Supplied on cassette for a 16K or greater memory size or on disk for 32K up. A further example of our continuing search for English written software, we are shortly to sell this program in the USA where no comparable program exists.

£14.95 Inclusive of VAT. Add £3.45 for Disk. Both plus 75p P & P.

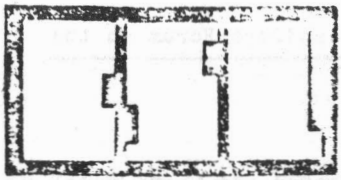
Send large SAE (27p) for our current catalogue of TRS-80 software. Add £1.85 for a binder.

A.J.HARDING (MOLIMERX)

28 COLLINGTON AVENUE, BEXHILL-ON-SEA, E.SUSSEX TEL: (0424) 220391

TELEX 86736 SOTEX G FOR A. J. HARDING

BARCLAYCARD VISA



MICRODATA

LIGHT PEN FOR THE TRS 80

THE ULTIMATE LOW COST PERIPHERAL FOR THE LEVEL TWO TRS 80

THE PHOTOPOINT PACKAGE INCLUDES : A FULLY ASSEMBLED LIGHT PEN

A CASSETTE OF FOUR PROGRAMS (INCLUDING BACKGAMMON,

INSTRUCTION ON WRITING YOUR OWN PROGRAMS

A 9V BATTERY

JUST PLUG IN AND GO!

THE LIGHT PEN CONNECTS EASILY TO YOUR TRS 80 VIA THE CASSETTE RECORDER AND REQUIRES ABSOLUTELY NO MODIFICATIONS TO YOUR SYSTEM.

ONLY £16.99 + 30P P & P

WE CAN ALSO SUPPLY A RANGE OF ADDITIONAL SOFTWARE FOR YOUR LIGHTPEN AT PRICES FROM £2 PER PROGRAM ON CASSETTE.

CSL MICRODATA - 4, GREENBARN WAY, BLACKROD, LANCASHIRE, BL6 5TA.

EIGHT USEFUL UTILITIES FROM THE KANSAS COLLECTION
For the Tandy TRS-80 and the Video Genie

Rescue.
This is the miracle program!
It will retrieve a program that has been either NEWed, hooked up in a CLOAD? situation or lost in any similar way.
It even works after you have pressed the re-set button with an expansion box fitted!
It loads after you have lost your program and rescues it in a few seconds to be run or worked on as you wish.

Typewriter
The most infuriating thing when using a printer is that upper and lower case is actually reversed from that of a normal typewriter – the shift-key giving lower case instead of caps.
This program reverses all that, with the shift-key operating the caps and the normal position producing lower case when outputting to a printer.

Delay
Allows control of the screen's read-out to nine different speeds, which can be varied by actual program statements.
As this also works with graphics and large characters, this is absolutely ideal for any kind of display, limited only by the imagination! Again, very simple to bring into operation, by using just a single command.

Ascertain
Two for the price of one here. This program will ascertain exactly what that tape is – whether Basic, System or Source, and what is more will spell out its name. So no longer will you not be able to load System tapes through not knowing their names.
Also forget visionload programs, for within the first few bytes Ascertain will tell you if you have a bad load. And not just with Basic programs either, but System loads too.
Protect Ascertain in memory and use it at will, especially whilst you juggle with your volume setting for loads...

ONLY FROM KANSAS
AT A SENSIBLE
£6.25 each
Or any three for £17
Return first class post service

Merge
Enables any number of Basic programs or sub-routines to be joined together, either with one residing in memory or from separate tapes.
There is no limit to the number of programs or routines which can be joined into a single program, and is an ideal way to include sub-routines without having to write them out every time.
Very easy to use with only two commands, unlike the complicated Proload.

Byte saver
Cut out all your unwanted spaces, and at the same time speed up program execution with Byte Saver.
This useful utility speeds through your Basic program taking out all the unecessary bytes, but leaving those in the print and data statements. This allows you to write your programs leaving plenty of spaces for ease of reading, then take them all out when completed.
Takes only a few seconds and displays the number of bytes saved.

Double-up.
At long last – you can have two programs up and running in your micro together!
Either load them both and work on each, or load one and then another later, still retaining the first one.
Either can be RUN, worked on in any way and/or saved. And the line numbers do not have to follow on, as there is no interaction whatsoever. Absolutely ideal when you are modifying a program and want to refer to the original from time to time – have them both in!

Copy
Copy System tapes easily and quickly with this utility, with various commands to make copying more versatile.
Even allows verification to make sure it has copied perfectly. Being a Kansas program it is of course better than the normal copy programs, in that details of the program being copied is actually shown on the screen.

Kansas

Kansas City Systems, Unit 3, Sutton Springs Wood, Chesterfield, Derby Tel 0246 850357

NATIONAL TRS--80 USERS GROUP NEWSLETTER

VOLUME 2 ISSUE 4 OCTOBER 1980

CONTENTS

2 Editorial
3 Members' letters
7 UCSD Pascal - an update
8 Panel discussion - Milton Keynes Workshop
10 Adding features to DOS
19 New software
20 Software review - muSIMP and muMATH
22 The Omikron Mappers
23 Software review - NEWDOS/80
26 muSIMP section
27 Floppy tape corner
29 Milton Keynes workshop

EDITORIAL

Thanks again to Jerry Ozaniec for his excellent contributions. Unfortunately, the vast majority of you are conspicuous by your absence. We now have about 270 fully paid-up members,of whom quite a lot should be doing interesting things with their systems, and whose experiences might, if made the subject of a short article, be of considerable interest and assistance to other members.

Tandy have just reduced the price of the Model I by about £100 (16K Level 2), making it even better value for money.

You will notice an article of mine reviewing the muMATH package that Microsoft have just made available. Using the muSIMP language provided, some extremely interesting Artificial Intelligence work could be done (subject to speed and memory restrictions). I find the availability of this type of software extremely exciting, and hope that some interesting programs materialise.

Leon Heller

Edited by:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.

Tel: (0908) 613004

Published by:-

Brian Pain,
40a High Street,
Stony Stratford,
Milton Keynes.

Tel: (0908) 566660/
564271

MEMBERS' LETTERS

From Alan Farr,
Thanks for the improved Newsletter. Keep up the good work!

I have one or two queries, perhaps someone could help?

1) in Issue 10, P3 I saw some reference to INKEY$-ing <ctrl> keys. How does one implement these and what are the effects?

2) I note that at one of the meetings Tandy were to report on modifications, available and incorporated. Any further information would be interesting.

3) Is it possible to save the Tandy EDTASM direct to disk or does it need relocation? If so, how?

4) in the BASIC II manual, p8/5, I have been unable to use POKE -1*(req'd addr - 32767) for 32k memory, however POKE (req'd addr - 65536) does work OK. Is it just me, or is the manual wrong?

Finally, thanks for recommending 80-Microcomputing in a recent issue. It is excellent value and makes first class reading.

For interest I enclose a short program to override the rapid scrolling of program listings. This is based on an article in 80-Micro, but is corrected and perhaps 'improved'! It should work OK on both 16K and 32K systems.

The starting address for 32K is lower than may be expected but as reported in issue 6, p16, there is some odd use of space at the top of memory which makes it unavailable.

```
20 REM *** SCROLL CONTROL PROGRAM
30 REM *** BASED ON ARTICLE IN SEPTEMBER 1980 ISSUE OF
40 REM *** 80-MICROCOMPUTING.
50 REM *** WITH CORRECTIONS AND IMPROVEMENTS
10 REM *** ALAN FARR, OCTOBER 1980
90 REM **** ANSWER 'FILES' PROMPT WITH 0. AFTER 'RUN'
   PROGRAM   REMAINS IN MEMORY UNTIL <RESET>
100 CLS:PRINT@21,"SCROLL CONTROL
    PROGRAM":PRINT@85,"====================":PRTNT
110 INPUT"ENTER 0 FOR 16K, 1 FOR 32K:";A
120 IFA=1THENA=48900:GOTO190
130 IFA=0THENA=32678
140 FORX=0TO88
150 READD
160 POKEA+X,D
170 NEXTX
180 GOTO230
190 FORX=0TO88
```

```
200 READD
210 POKE(A-65536)+X,D
220 NEXTX
230 PRINT:PRINT"TO INITIATE PROGRAM.
    ENTER:":PRINT@351,"SYSTEM":PRTNT@415.
    "/";A:PRINT@479,"CLEAR"
240  PRINT"PRINT  CHR$(1):  CONTROL  LISTING  WITH <T>-
<CLEAR>,
     <BREAK> KEYS
250 PRINT"PRINT CHR$(0): QUITT PROGRAM AND REGAIN NORMAL
    KEYBOARD CONTROL":PRINT
1000 DATA205,11,0,17,10,0,25,34,30,64,195,204,6,245
1010 DATA205,11,0,24,1,0,35,35,121,230,254,32,3,113
1020 DATA24,45,126,183,40,43,58,34,64,183,32,37,121
1030 DATA254,13,32,32,42,32,64,17,64,0,25,124,254,64
1040 DATA32,20,205,73,0,254,1,40,17,254,91,40,9,254
1050 DATA31,32,241,205,201,1,241,201,241,195,88,4,62
1060 DATA14,50,34,64,195,25,26
```

Alan Farr,
42 Gregory Avenue,
Green Lane,
Coventry, CV3 6DL.

From Anthony Haddock,

Now a tip, for any one with the Tandy Lower-case modification, There are six un-used characters in the lower-case generater (soon put that right).
These can of course be poked into the screen area thus;-

```
10 CLS
20 Poke 157ØØ,96
30 X=157Ø1
40 FOR Y=123 TO 127
50 POKE X,Y
60 X=X+1
70 NEXT
```

The Details are, 96 = £. Yes a real Pounds sign 123= { 124 = ¦ 125 = } 126 = ¥. 127 = ▒ . To replace the doller with the pound, poke 96 into a location four bytes below the top of the memory with the ULCDVR resident. Poke -96,96 on a 48k Machine.
The better way of course would be to change the driver programme, but as yet I have not had the time.

Now a question, has any one got the details of the Tandy anti-screen wobble mod, my VDU has just started to wobble or dither and it can get just a bit mind blowing waching the display going up and down. Not recomended when you have had a pint.

(* If the wobble has just started 'out of the blue' I would suspect the video circuitry rather than the crystal. You should let Tandy have a lookat it. LFH *)

Anthony C. Haddock,
14, Portia Close,
NUNEATON.
CV11 6NY.
Tele 386238.

From Bill Cowhig,

I found your Notes on 'Yet More Scripsit' of great interest since I used these techniques a good deal in a program which included 160 or so names and addresses. Sorting these out alphabetically was somewhat time consuming and I changed the DATA line numbers when the program was in Scripsit. I soon found that if I changed too many at any time, the program hung up when being read into Basic, or took an inordinate time and then gave errors (blocks of lines out of order). However, I found that if I segregated the DATA statements, the renumbered lines read into Basic quite happily, albeit taking a bit of time. The rest of the program (which was somewhat lengthy) could then be added using APPEND. In other words, I found that both TRSDOS and NEWDOS did not like reading long ASCI programs written in SCRIPSIT containing line numbers out of order, but coped perfectly with short programs.

Bill Cutler's program on page 23 is quite interesting, but I am not sure why it includes in line 6 CHR$(23), which leads to all the text on the screen being double spaced. However, if this is omitted, all is well: except that it seems impossible to use the arrow to delete and hence mistakes cannot be corrected. Perhaps I have missed something ?

W.T.Cowhig,
21, Priory Road,
SALE, M33 2BS,
Cheshire

From T.R. Martin,

I am writing in connection with my Level II 48K Tandy system. Firstly, I would like to say how enjoyable I find the newsletter, which is improving issue by issue.

I am an accountant involved in using the Tandy for business and pleasure, but at present not for programming on my own account. I find the system excellent for its size and price; however, I do wish that Tandy themselves could offer the back-up to users. For instance, some time ago I received a letter from Tandys after many complaints to them concerning cassette loading. They said I should drop the machine into their local office and they would complete some modifications free of charge and then return the machine the following week. I asked them to fit at the same time the numeric key pad; however, some six weeks later and after arranging for one solicitor's letter, I received the machine back without the key pad and still being unable to load cassettes. As I have the CTR 80 cassette recorder, I cannot have this modded and therefore can only purchase programmes on disc. I understand that this problem is not uncommon and it seems a shame that a good name is ruined by this back-up.

At present there seems to be a lack of good programmes for a complete accounting package for the Tandy system, although other computers do have them. I hope that these business programmes will soon be forthcoming and also will be written by English programmers so that Tandy can stay ahead of the competition.

I am interested in using the system for an architect's office to produce typed specifications from plans and the relevant data, i.e.

1. It would be necessary to maintain a file of the various items normally found on plans as a data base covering the fixed wording for each type of item and a rate per unit of item.

2. It would then be necessary for the architect to input the necessary code for the relevant item and the number of units required.

3. This would produce the full wording and also calculate the value of the item.

The limiting factor for this system would be the storage space available within the computer, and therefore these items would have to be stored on disc and access made for each code as it is input.

Finally, I feel that it may be useful if all users got together and wrote to Tandy explaining about their back-up for servicing so that some changes might occur. However, in the meantime I will continue to use other firms like Freddie Nichols to look after my system.

T.R. Martin FCA

****

PRINTER SWITCHING DEVICE

A number of people are now using two printers on the Centronics port of their TRS-80, eg. a slow, high quality printer and a fast, dot matrix device. Eventually, the edge connector on the computer is liable to get damaged by the constant replugging.

We can supply a two-way switch designed to avert this problem. The retail price is £35.00 + VAT, with discount for quantity orders.

Please send SAE for further details, or telephone 01-907 1767 or 01-907 7411(evenings).

D.T.N. Wembley,
77 Montpelier Rise,
Wembley,
Middlesex HA9 8RQ.

****

From H. Walsh,

I am interested in obtaining a CESIL compiler for my Level II system. Can anyone help?

H. Walsh,
Riddlesdown High School,
Honister Heights,
Purley,
Surrey CR2 1EX.

(* CESIL is a system (I think it was developed originally by ICL to run on the 1900 series) that enables one to simulate the assembly language of a simple computer. I have heard of a CESIL interpreter that was written in BASIC for the Research Machines RMZ-80. This would run on the TRS-80 with a few modifications. LFH *)

UCSD PASCAL - AN UPDATE

Starbase have decided to drop the distribution of UCSD Pascal in the UK. Any member wishing to purchase this excellent package should order it direct from:-

FMG Corporation,
5280 Trail Drive,
Suite 14,
Fort Worth,
Texas 76133,
USA.

Tel: (817) 294-2510

The price will probably have gone up now that distribution to OEMs is being handled by Softech. If anyone gets in touch with FMG I would be obliged if they would let me know the latest price.

I have decided to do all my serious programming in Pascal from now on. BASIC, as I have said on many occasions, is fine for little programs, but Pascal enables one to write large, complex programs much quicker than would be possible with BASIC, and with a good chance of their running first time! File handling is much easier with the UCSD system - none of that messing about with blocking of records necessary in BASIC when using direct access files.

An excellent book on Pascal programming 'style' is:-

Pascal With Style - programming proverbs.
Ledgard H.F., Hueras J.F. and Nagin P.A.
Hayden.

Leon Heller

SUMMARY OF PANEL DISCUSSIONS HELD AT THE MILTON KEYNES WORKSHOP, 21 SEPTEMBER 1980.

A panel discussion was held on Sunday afternoon and proved to be most interesting. The discussion took the form of a question and answer session and there was good participation in both the asking of questions and the answering thereof.

One subject of much interest was that of the use of the cassette recorder for both loading and saving programS. The consensus was - that cleanliness is next to godliness! Emphasis was made on the need to not only clean the recording head and erase head but also the pinch roller and capstan head - in fact all parts which come into contact with the tape. Regular cleaning is most essential amd certainly before any vitally important CLOAD or CSAVE the heads should be cleaned as a minimum requirement.

The method of cleaning was next discussed and whilst the tape cleaner cassette was not completely dismissed - indeed there was support for the type which has an absorbent tape and upon which cleaning fluid is dropped - nevertheless the general opinion favoured the 'swab' type of cleaning as being more thorough.

The physical cleaning of heads is only one part of the cleaning process and both head and tapes also need to be cleaned electronically with a demagnetiser. There are two types of demagnetiser - one for the head and one for the tapes. The former can be recognised by its plastic covered prod which is pointed at the head. The latter, known as a bulk eraser, is bulkier and more rectangular in shape and is used on all areas -top, bottom, sides - of the cassette. It was felt that the erase head in the recorder does not do a good enough job and cannot be relied upon, hence the need for the bulk eraser (the bulk eraser should not be used upon the tape head).

It was pointed out that whenever these demagnetisers are used they should be withdrawn from the 'target' with a rotary motion for about a distance of three feet before switchng them off. this ensures that only a random pattern of magnetisation is left on the head or tape.

The moral is - for a glitch free tape -- keep it clean!!

Attention was also drawn to the possible differing azimuths of tape heads of different tape recorders. That is to say the tape might pass over the heads of one recorder at a slightly lower or slighty higher position than in another recorder. The result could be that a CLOAD on one machine would not be a faithful reproduction of a CSAVE on another. The answer would be to use the same cassette recorder for

both the CSAVE and the CLOAD operations. So use your own recorder to copy that program from your friend or borrow his recorder to CLOAD the program into your TRS-80 and then CSAVE it on your own recorder.

In the event of difficulty in making a back-up copy of a tape the following technique might help. First CLOAD the tape and then immediately follow this with a CSAVE on to another tape - it is most important to follow this routine exactly as stated - CLOAD followed by CSAVE - do not RUN, LIST or otherwise activate the program between the two operations.

On another subject, if you wish to change all 'PRINT' statements in a program to 'LPRINT' then POKE 16414,141 and 1641,5.

Interest was expressed in the manner in which the CPU used memory whilst a program was running. It seems that the program loads from the lowest avalable memory towards the highest available memory. For certain functions however the reverse is true and the CPU uses the top of memory down. Such fuctions are string handling space, scratch pad area, stack etc. Thus if a machine code program is loaded into top of memory it will get fouled up by these special functions unless a barrier is put between it and them. The necessary barrier can be 'erected' by answering the memory size question during power up and the number entered will, in effect, delude the CPU into believing the top of memory is lower than it really is and hence the string handling etc. will take place at a lower place in memory and the machine code program will be safe.

It is possible to load machine code programs in three ways - at power up, using POKE or using DEFUSR (disK only) - but it is not possible to reset the memory size after the power up sequence so make sure you have reserved enough memory before you run a proram with POKE instructions contained within it.

Laurie Shields said that he was working on an Editor/Assembler for the Aculab floppy tape and that this would be available pretty soon.

In summary the discusion was animated and many experiences were swapped at all levels of knowledge and no holds barred in explaining the most elementary aspects of using the TRS-80. The discussions seemed to be popular and splinter groups continued after the formal session had ended.

Tony Goodfellow

ADDING FACILITIES TO DOS

It is quite amazing how the same idea comes to different people at about the same time! The letter from Michael Hallam in the September Newsletter about automatically invoking the lower case driver concerns a project that I have been working on. I have written 3 drivers, one for lower case video display, another for setting a software 'shift-lock' and also one to control the printer so that I always leave 10 blank lines between pages instead of overprinting the perforation.

My requirement was to be able to initialize these routines at power-up/reset so that they would relocate to high memory and protect that area from BASIC or any program relocating to high memory by using the DOS HIMEM value at 4049H. The purpose was to be able to allow relocation below any other routines/buffers desired in the highest memory. This can be accomplished in NEWDOS80 via the AP=memsize parameter of the SYSTEM command or in NEWDOS21 by setting the default value as described by Michael in his letter.

The following is the code for the drivers and the relocation routine.

```
00100 ;
00110 ;         SYS0/SYS Amendment - Version 1.0
00120 ;
00130 ;         This set of routines tags on to the end of
00140 ;         SYS0/SYS so as to automatically start the
00150 ;         Printer Driver, the Lower Case Video Driver
00160 ;         and the Shift-lock Keyboard Driver.
00170 ;
00180           ORG     5200H   ;Execute in overlay area
00190 ;
00200 AMEND1    EQU     $       ;Adjust & move to HIMEM
00210           PUSH    AF      ;Save regs to be used
00220           PUSH    BC
00230           PUSH    DE
00240           PUSH    HL
00250           PUSH    IX
00260           LD      HL,(HIMEM)      ;Get current HIMEM
00270           LD      BC,RTNLTH       ;Set routines' length
00280           PUSH    BC              ;& save for later
00290           XOR     A               ;Clear Carry
00300           SBC     HL,BC           ;Calc new HIMEM
00310           LD      (HIMEM),HL      ;& set it
00320           INC     HL              ;Pnt to beg of where
00330           PUSH    HL              ;rtns will be & save
00340           LD      (WRKAD1),HL     ;Set addr of Work
00350           LD      (WRKAD2),HL     ;Word where required
00360            INC      HL                ;Point to beg of
KDRIVR
00370           INC     HL
```

```
00380           PUSH    HL                      ;Save temporarily
00390            LD       HL,(KDCBDA)       ;Get  addr  of  old
driver
00400           LD      (OLDKAD),HL     ;& put into routine
00410           POP     HL                      ;Restore HL to beg of
00420           LD      (KDCBDA),HL     ;KBD Driver & store
00430           LD      BC,VDRIVR-KDRIVR        ;Calc addr of
00440             ADD       HL,BC                   ;beg   of
VDRIVR
00450           LD      (VDCBDA),HL     ;& store in DCB
00460           LD      BC,PDRIVR-VDRIVR        ;Calc addr of
00470             ADD       HL,BC                   ;beg   of
PDRIVR
00480           LD      (PDCBDA),HL     ;& store in DCB
00490           LD      BC,PENDLN-PDRIVR        ;Calc addr of
00500            ADD       HL,BC                   ;beg   of
PENDLN
00510           LD      (PENDL1),HL     ;& store in
00520           LD      (PENDL2),HL     ;required places
00530           LD      BC,PRNTCR-PENDLN        ;Calc addr of
00540             ADD       HL,BC                   ;beg   of
PRNTCR
00550           LD      (PRTCR1),HL     ;& store in
00560           LD      (PRTCR2),HL     ;required places
00570           LD      BC,PRNTIT-PRNTCR        ;Calc addr of
00580            ADD       HL,BC                   ;beg   of
PRNTIT
00590           LD      (PRTIT1),HL     ;& store in
00600           LD      (PRTIT2),HL     ;required places
00610           LD      (PRTIT3),HL
00620           LD      (PRTIT4),HL
00630           LD      BC,PCKLCT-PRNTIT        ;Calc addr of
00640             ADD       HL,BC                   ;beg   of
PCKLCT
00650           LD      (PCKLC1),HL     ;& store in
00660           LD      (PCKLC2),HL     ;required places
00670           POP      DE                      ;Get beg of  new area
&
00680           POP     BC                      ;count saved earlier
00690           LD      HL,RTNBEG       ;Point to beg of rtns
00700           LDIR                            ;Move them
00710           LD      IX,PRTDCB       ;Set req'd forms info
00720           LD      (IX+3),56       ;in the Printer DCB
00730             LD          (IX+4),0                ;Line/page=56,
Lines=0
00740           LD      (IX+5),66       ;Lines/form=66
00750           POP     IX      ;Restore saved regs
00760           POP     HL
00770           POP     DE
00780           POP     BC
00790           POP     AF
00800            JP       4467H                  ;Go   to  original
routine
00801 ;                 N.B., For NEWDOS21, this address
00802 ;                       should be 4410H (see below)
```

```
00810 ;
00820 RTNBEG  DEFW    0         ;Work word
00830 ;                         Byte 0 is for switches
00840 ;                           Bit 7 --> ON = double width
00850 ;                           Bit 6 --> ON = change case
00860 ;                         Byte 1 is char count (PDRIVR)
00870 ;
00880 KDRIVR  EQU     $         ;Keyboard Driver
00890         CALL    0         ;Set by init to CALL orig
Drvr
00900 OLDKAD  EQU     $-2
00910         OR      A         ;Any key pressed?
00920         RET     Z         ;If no, return
00930         LD      HL,0      ;Set by init to Work Word
00940 WRKAD1  EQU     $-2
00950         CP      1         ;Check for BREAK key
00960         JR      NZ,KTSTLK       ;If not, go
00970         LD      A,(3880H)       ;Get SHIFT & CTL keys
00980         RRCA                    ;If SHIFT, Carry set
00990         JR      C,KDOLOK        ;If SHIFT, do switch
01000         LD      A,1             ;Restore to BREAK key
01010 KTSTLK  BIT     6,(HL)          ;Change case?
01020         RET     Z               ;If no, return
01030            CP         65                  ;Check    for
upper/lower
01040         RET     C               ;case ASCII letters
01050         CP      91              ;If not, leave alone
01060         JR      C,KFLIP         ;else change case
01070         CP      97
01080         RET     C
01090         CP      123
01100         RET     NC
01110 KFLIP   XOR     20H             ;Flip upper/lower bit
01120         RET
01130 ;
01140 KDOLOK  LD      A,(HL)  ;Get switches
01150         XOR     40H     ;Flip change-case switch
01160         LD      (HL),A  ;Restore switches
01170         XOR     A       ;Clear 'A' to no key pressed
01180         RET
01190 ;
01200 VDRIVR  EQU     $       ;Video Driver
01210          LD        L,(IX+3)        ;Get  address   of
cursor
01220         LD      H,(IX+4)        ;into HL reg pair
01230           JP        C,49AH              ;Go  if   cursor
retrieve
01240         LD      A,(IX+5)        ;Get cursor character
01250         OR      A               ;Check if to display
01260         JR      Z,VGETIT        ;Don't if zero
01270         LD      (HL),A          ;Display cursor
01280 VGETIT  LD      A,C             ;Get char to display
01290         CP      32              ;Check for ASCII ctl
01300         JP      C,506H          ;If yes, go
01310         CP       128              ;Chk  for  non-ASCII
```

```
char
01320           JP      NC,4A6H         ;If yes, go
01330            JP       47DH             ;Go  to ASCII  char
dsply
01340 ;
01350 PDRIVR    EQU     $       ;Printer Driver
01360           LD      A,C     ;Get char to print
01370           CP      10      ;See if want busy check only
01380           JP      C,5D1H  ;Yes if < 10 (X'0A')
01390           PUSH    IY      ;Save IY
01400           LD      IY,0    ;Set by init to Work Word
01410 WRKAD2    EQU     $-2
01420           CP      13      ;See if form control code
01430           JR      C,PFORMS        ;Go if LF, VT or FF
01440           JR      Z,PCARET        ;Go if 'CR'
01450           CP      14              ;'SO'?
01460           JR      NZ,PTRYSI       ;If not, go
01470            SET      7,(IY)             ;Set   double-width
swtch
01480           JR      PRTCHR          ;& go print it
01490 PTRYSI    CP      15              ;'SI'?
01500           JR      NZ,PDOCHR       ;If not, go
01510            RES      7,(IY)             ;Reset   dble-width
swtch
01520           JR      PRTCHR          ;& go print it
01530 PDOCHR    INC     (IY+1)  ;Add 1 to char count
01540           BIT     7,(IY)  ;In double-width mode?
01550           JR      Z,PCKCCT        ;If not, go
01560            INC      (IY+1)  ;else  add another  to  char
count
01570 PCKCCT    LD      A,80    ;Check for max chars/line
01580           CP      (IY+1)
01590           JR      NC,PRTCHR       ;If not, print it
01600           CALL    0       ;Set by init to CALL PENDLN
01610 PENDL1    EQU     $-2
01620           LD      (IY+1),1        ;Set char count to 1
01630 PRTCHR    LD      A,C     ;Get character to print
01640           CALL    0       ;Set by init to CALL PRNTIT
01650 PRTIT1    EQU     $-2
01660 PGOBAK    POP     IY      ;Restore IY
01670           RET             ;& return
01680 ;
01690 PCARET    CALL    0       ;Set by init to CALL ENDLIN
01700 PENDL2    EQU     $-2
01710           JR      PGOBAK  ;Exit
01720 ;
01730 PFORMS    CALL    0       ;Set by init to CALL PRNTCR
01740 PRTCR1    EQU     $-2
01750           LD      A,C     ;Get char to print
01760           CALL    0       ;Set by init to CALL PRNTIT
01770 PRTIT2    EQU     $-2
01780           CP      10              ;'LF'?
01790           JR      Z,PDOCLF        ;If yes, go
01800           LD      (IX+4),0        ;else zero line count
01810           JR      PGOBAK          ;& exit
```

```
01820 PDOCLF  CALL    0         ;Set by init to CALL PCKLCT
01830 PCKLC1  EQU     $-2
01840         JR      PGOBAK    ;Exit
01850 ;
01860 PENDLN  CALL    0         ;Set by init to CALL PRNTCR
01870 PRTCR2  EQU     $-2
01880         CALL    0         ;Set by init to CALL PCKLCT
01890 PCKLC2  EQU     $-2
01900         RET
01910 ;
01920 PRNTCR  LD      A,13      ;Output a 'CR'
01930         CALL    0         ;Set by init to CALL PRNTIT
01940 PRTIT3  EQU     $-2
01950         LD      (IY+1),0          ;Zero char count
01960         RET
01970 ;
01980 PRNTIT  PUSH    AF        ;Save char to print
01990 PBSYLP  CALL    5D1H      ;See if printer busy
02000         JR      NZ,PBSYLP         ;Wait until it is not
02010           POP     AF                ;Restore  char  to
print
02020         LD      (37E8H),A         ;Send to printer
02030         RET
02040 ;
02050 PCKLCT  INC     (IX+4)            ;Add 1 to line count
02060          LD       A,(IX+4)              ;See   if   limit
exceeded
02070         CP      (IX+3)
02080         RET     NZ                ;If not, leave
02090         LD      (IX+4),0          ;else zero line count
02100         LD      A,(IX+5)          ;Calc no of lines
02110         SUB     (IX+3)            ;to top of form
02120         RET     Z                 ;If none, leave
02130         LD      B,A       ;Set loop count
02140         LD      A,13      ;Set 'CR'
02150 PTOFLP  CALL    0         ;Set by init to CALL PRNTIT
02160 PRTIT4  EQU     $-2
02170         DJNZ    PTOFLP
02180         RET
02190 ;
02200 RTNEND  EQU     $         ;End of routines
02210 RTNLTH  EQU     $-RTNBEG
02220 ;
02230 HIMEM   EQU     4049H     ;DOS HIMEM address
02240 KDCBDA   EQU     4016H     ;Driver address  in  Keyboard
DCB
02250 VDCBDA  EQU     401EH     ;Driver address in VDU DCB
02260  PDCBDA  EQU      4026H     ;Driver address  in  Printer
DCB
02270 PRTDCB  EQU     4025H     ;Address of Printer DCB
02280 ;
02290         END     AMEND1    ;Initialization address
```

I suppose that a few words concerning what these drivers do is in order. The Keyboard Driver (lines 880 to 1180) allows

for a software 'shift-lock' function and adjusts the key pressed value accordingly. This 'shift-lock' is set/reset by pressing SHIFT and BREAK together. If you want to use some key other than BREAK for this purpose, simply change lines 950 and 1000.

The Video Driver (lines 1200 to 1330) simply eliminates the automatic upper case that the ROM driver forces.

The Printer Driver (lines 1350 to 2180) is more complicated and is intended for an ANADEX DP8000 series printer. Essentially this ensures that 10 lines are left blank between pages. The reason for 10 lines is due to the type of program listing binders I use. If a different number is desired then the parameters of the initialization may be changed (lines 720 to 740) or the values in the DCB may be changed dynamically (via DEBUG or POKEs). I use standard 11" paper that has a maximum of 66 lines/page and my printer is set accordingly along with the single-code print-action & paper-movement switch.

The other thing that this driver allows (which the ROM driver doesn't always handle correctly) is the use of a Form Feed control code. Thus an LPRINT CHR$(12); (the ';' is required so that a carriage return is not generated) or the equivalent in machine code will now cause proper top of form handling no matter what combination of hardware and software spacing has been done. Note also that proper line counting is done for lines over 80 characters long (as in an LLIST with long multiple statement program lines) or when double width characters are being printed (even if mixed in a single line).

Having assembled all this I needed to append it to SYS0/SYS and hook it up in order to execute automatically. Currently I am using NEWDOS80 but the hooks to NEWDOS21 are similar, so I will describe the method first followed by the details for both systems. The decision to execute the appendage code at 5200H (line 180) was taken because SYS0/SYS will never execute there and so eases any future need to reappend the code after applying any fixes from Apparat that extend SYS0/SYS.

There are 4 changes as follows. (1) SYS0/SYS has its End Of File (EOF) set exactly so that needs amending. (This is not essential but seems reasonable; it then allows the use of the DFS function of SUPERZAP/80 or SUPERZAP Version 3.0 to be able to read to the EOF.) (2) The code must be appended to the file. (3) The 'hook' to the appended code must be made. (4) SYS0/SYS's transfer address must be the same as before.

It should be noted that SYS0/SYS operates in similar phases in both NEWDOS80 and NEWDOS21 so that the display of the initialization message is almost the last task performed.

Thus if we intercept SYS0/SYS at this point we can be sure that the normal driver addresses have been set up. This intercept is performed by changing a CALL statement in SYS0/SYS before this message display to CALL the new routine which must then branch to the original address when it is finished. (See line 800 of the program above.) The addresses for NEWDOS80 and for NEWDOS21 are different!

It should be emphasized that the author knows of at least 2 versions on NEWDOS21 which slightly affect the changes given below. I discovered this from noting the areas of change indicated by Michael which did not agree with those I calculated. Checking with a friend who has a 40 track NEWDOS21 system, I discovered that his system agreed with Michael's. So I have indicated the differences in the changes below by specifying 35 & 40 track systems where appropriate.

To change the EOF of SYS0/SYS we must modify the FPDE in the directory for it. This is always the first FPDE of relative sector 4 of the directory track. The changes are:-

for NEWDOS80:-

Relative Byte	02H	from	00 6D 00
		to	00 E6 00
Relative Byte	13H	from	34 0D 00
		to	34 0E 00

for NEWDOS21 (35 track):-

Relative Byte	02H	from	00 5D 00
		to	00 D6 00
Relative Byte	13H	from	0E 0D 00
		to	0E 0E 00

for NEWDOS21 (40 track):-

Relative Byte	02H	from	00 5D 00
		to	00 E3 00
Relative Byte	13H	from	0E 0D 00
		to	0E 0E 00

To append the code to SYS0/SYS use the CDD function of SUPERZAP/80 or COPY DISK DATA function of SUPERZAP Versions 2.0 or 3.0. First you must determine the drive, track & sector where the assembled code from the above is located to be able to answer the source questions (note, the relative byte is zero). The destination is for whatever drive the SYS0/SYS module you are modifying resides, track 1, sector 7, relative byte 69H for NEWDOS80, 59H for NEWDOS21 (35 track) or 66H for NEWDOS21 (40 track). The number of bytes to copy is 17DH.

To establish the 'hook' use the DFS function of SUPERZAP/80, SUPERZAP Version 3.0 or use the DD function of SUPERZAP 2.0. If using the DFS function, the sector you need to modify is relative 0BH (11); if using the DD

function, the track and sector are 1 and 6 respectively. The changes are as follows:-

```
for NEWDOS80:-
   Relative Byte  8BH  from  CD 67 44 C1
                        to   CD 00 52 C1

for NEWDOS21 (both):-
   Relative Byte  74H  from  CD 10 44 21
                        to   CD 00 52 21
```

To ensure that the transfer address remains the same use the DFS function of SUPERZAP/80, SUPERZAP Version 3.0 or use the DD function of SUPERZAP 2.0. If using the DFS function, the sector you need to modify is relative 0DH (13); if using the DD function, the track and sector are 1 and 8 respectively. The changes are as follows:-

```
for NEWDOS80:-
   Relative Byte  E4H  from  00 52
                        to   00 4D

for NEWDOS21 (35 track):-
   Relative Byte  D4H  from  00 52
                        to   00 4E

for NEWDOS21 (40 track):-
   Relative Byte  E1H  from  00 52
                        to   00 4E
```

If the modification is being done to a NEWDOS21 system then line 800 of the program above must have a different address than the one in the instruction. If you want to double check, then use the DFS function of SUPERZAP/80, SUPERZAP Version 3.0 or use the DD function of SUPERZAP 2.0. If using the DFS function, the sector you need to check is relative 0CH (12); if using the DD function, the track and sector are 1 and 7 respectively. The checks are as follows:-

```
for NEWDOS80:-
   Relative Byte  F2H  should be  C3 67 44

for NEWDOS21 (35 track):-
   Relative Byte  E2H  should be  C3 10 44

for NEWDOS21 (40 track):-
   Relative Byte  EFH  should be  C3 10 44
```

Obviously all this should be tried on a copy of the system rather than the original. Many of you may not need one or more of these drivers but want something else to execute automatically in this manner. A study of the initialization routines (lines 200 to 800) should illustrate the techniques needed to relocate a routine at the current

HIMEM value and reset the HIMEM value.

In this example only the Video Driver doesn't require any address adjustment. All references to memory within the routine to be relocated by CALL, JP, or LD type of instructions need adjustment. It is a cumbersome but simple job to calculate each required address if they are done in sequence. If anyone has a question you may ring me on 01-673-1411.

By the way I did not type that Assembler program for this letter, rather did I use another program to convert the source to normal ASCII file format with a null (00H) at the end for use by The Electric Pencil. That was done by the BASIC program listed below. (I don't know for sure but I understand that Scripsit & Pencil files are compatible, so this program is probably useful for those of you using that as well!)

```
100 CLEAR 1000:DEFINT C-Z:DEFSTR A,F,S:S="/PCL"
110 CLS:PRINT"ASSEMBLER to PENCIL conversion program"
120  PRINT:LINEINPUT"What is the filename of the source
program? ";F
130 OPEN"I",1,F:X=INSTR(F,"/"):IF X=0 THEN 160
140    F1=LEFT$(F,X-1)+S:    Y=INSTR(F,":"):IF   Y<>0   THEN
F1=F1+RIGHT$(F,2)
150 GOTO 180
160 Y=INSTR(F,":"):IF Y=0 THEN F1=F+S:GOTO 180
170 F1= LEFT$(F, LEN(F)-2)+S+RIGHT$(F, 2)
180 LINEINPUT#1,A:Y=ASC(A)
190 IF  Y<>211 THEN  PRINT:PRINT  F;"  is  not an  ASSEMBLER
program":END
220 PRINT @ 192,STRING$(64,143):PRINT @ 576,STRING$(64,188)
230 OPEN"O",2,F1
240 F2=MID$(A,2,6): A=RIGHT$(A,LEN(A)-7)
245 AO="      " :' 6 Spaces
250 FOR I=1 TO 5
260  AA=MID$(A,I,1): MID$(AO,I,1)= CHR$(ASC(AA)-128)
270 NEXT I
320 FOR I=7 TO LEN(A)
330  IF MID$(A,I,1)=CHR$(9) THEN GOSUB 1000:GOTO 350
340  AO=AO+MID$(A,I,1)
350 NEXT I
560 PRINT @ 256,STRING$(4,255);
570 PRINT @ 256,AO:PRINT @ 512,"Length =";LEN(AO);
580 PRINT#2,AO
590 LINEINPUT#1,A:IF LEN(A)>6 THEN 245
600 PRINT @ 256,STRING$(4,255);CHR$(210);
610 AO=CHR$(0)+STRING$(5,32)
620 PRINT#2,AO:CLOSE
630  PRINT @  640,"The PENCIL file  is now saved  under  the
name ";F1
640 END
1000 L=LEN(AO)-6
```

```
1010 IF L>7 THEN L=L-8:GOTO 1010
1030 FOR J=7 TO L STEP -1
1040  AO=AO+" "
1050 NEXT J
1060 RETURN
```

The program asks for the name of the Assembler source file to be converted (including drive number if desired) and substitutes ↓/PCL' as the extension for the output file. Line 190 ensures that the input is Assembler source. Line 240 discards the name of the source as stored by EDTASM. Lines 250 to 270 convert the statement numbers to normal ASCII digits. Lines 320 to 350 check for a tab character (09H) substituting the appropriate number of spaces (subroutine lines 1000 to 1060) in the output or transfering the input character to the output. The program displays each line as it is output. I make no claims for good programming here. It works but does run rather slowly.

Jerry Ozaniec,
5 Hightrees House,
Nightingale Lane,
London SW12 8AQ.

NEW SOFTWARE

Tandy are now selling the Microsoft BASIC compiler at a very attractive price, when compared with what some dealers are asking.

The US catalogue includes the Tiny Pascal I mentioned some time ago. It should cost less than £20 over here.

The Model II software situation has improved considerably, with FORTRAN, COBOL and MACRO-80 now available. Prices are much higher than for the equivalent Model I software for some reason. Less machines around, I suppose.

SCRIPSIT for the Model II is on the way. I have heard a rumour that it will include a spelling corrector, like the new IBM Displaywriter, but I'll believe it when I see it! If it is true I suppose it will only like american spellings like "color", "gray", "donut", etc.

Leon Heller

SOFTWARE REVIEW - muSIMP and muMATH

Just about the most fascinating and powerful programming language around is LISP, which stands for LISt Processing programming language. LISP was originally intended to be a language for non-numeric computation, but there are versions available for some of the large mainframe computers that can handle floating point arithmetic, and, when the compiler is used, are as fast as an efficient FORTRAN compiler. muSIMP, a language based on LISP but with an ALGOL-like syntax, has just become available for the TRS-80.

The package was developed by a couple of individuals at the University of Hawaii, and the TRS-80 implementation is marketed by Microsoft Consumer Products. I have had it on order for a long time and after practically giving up all hope of getting it, a small box arrived from the States a couple of days ago. Although I have not had much time to play with it, my experiences might be of interest to members.

A disk-based 32K or 48K system is needed, and 48K is required for maximum capability. muMATH is a symbolic mathematical package written in muSIMP. By symbolic mathematics is meant the capability of expanding algebraic expressions of arbitrary (up to a point) complexity, performing indefinite integration and differentiation, and arithmetic of virtually unlimited precision (611 digits maximum, that should be enough for anyone!).

For instance, entering INT(2*X-1/X,X);
results in the response: @ X↑2-LN(X)
that is, the first expression is integrated with respect to X.

It is claimed that muMATH is suitable for students, engineers and mathematicians, but it is not all that good. It could prove very useful to teachers of O-level and first year A-level Mathematics, however, as some very sophisticated CAL packages could be written in muSIMP, using the muMATH functions.

LISPers should like muSIMP, and users unfamiliar with LISP syntax (Lots of Irritating Single Parentheses!) but with some experience of a decent structured language like Pascal or ALGOL should be quite at home with it, also. Whilst the muMATH documentation is quite good, the section of the manual dealing with muSIMP is woefully inadequate. Although muSIMP includes most of the LISP primitives, no mention is made of the more useful ones, and a full manual will need to be purchased at a cost of $20 in order to use the language effectively. I have ordered the full manual, but Microsoft tell me it will not be available for three

weeks. In the meantime I am trying to learn the more esoteric features of the language with the aid of a LISP textbook (Let's Talk LISP, by Siklossy) and a great deal of trial and error. This is quite a lot of fun, but rather time consuming!

If any other members have this package, the LISP function EXPLODE works, and is rather useful. Needless to say, Microsoft do not mention it at all! Here is a little program illustrating its use:-

```
FUNCTION TEST(),
L:LIST(HAROLD FRED),
PRINT(L),
NEWLINE(),
PRINT(EXPLODE(FIRST(L))),
NEWLINE(),
PRINT(FIRST(EXPLODE(FIRST(L)))),
ENDFUN$
```

Running the program by entering TEST()$ produces:-

```
(HAROLD FRED)
(H A R O L D)
H
```

Line 2 defines a list, A, consisting of the atoms HAROLD and FRED. Line 3 prints the list. Line 5 explodes the first atom producing a list of atoms corresponding to the individual characters forming the atom, which is then printed. Line 7 prints the first atom in the list consisting of the exploded atom.

The system lacks an editor but functions can be written using SCRIPSIT or EDIT-80 and read into muSIMP (this is not mentioned in the manual, although it does say that input and output files are ASCII). Alternatively, it should be possible to write a simple text editor in muSIMP which can be loaded when needed. Like LISP, muSIMP is an extensible language, so there are some rather interesting possibilities there.

Apart from the documentation, this is a superb package, and could be invaluable to anyone teaching mathematics at O or A level. muSIMP could be used for artificial intelligence work, and would be an ideal language in which to program the ultimate in Adventure games!

The package is available from Microsoft Consumer Products for about $78, and from A.J.Harding for £59.

If anyone else has this package could they get in touch with me. A section of the Newsletter could be devoted to it on a regular basis.

Leon Heller

THE OMIKRON MAPPER

Members interested in using standard CP/M and/or putting 8" drives onto their Model I systems should consider purchasing the Mapper 1 and Mapper 2 from Omikron. An extremely favourable review was recently published in Byte magazine, resulting in Omikron being flooded with orders. There seems to be something like a three month wait for the things!

Mapper 1 is a small board that replaces the Z-80 chip in the keyboard unit. The Z-80 is then plugged into the top of the Mapper board. Thus no wiring changes are needed. The Mapper 2 goes into the disk controller socket in the same way, with the disk controller chip plugged into the top of it.

Mapper 1 reconfigures the memory map of the TRS-80, so that RAM starts at 0000H, as is required by standard CP/M. A small ROM is on the board (I think) and on powering up the user is asked whether CP/M mode or standard TRS-DOS mode is required. Under TRS-DOS the system behaves exactly as intended by Tandy, and all the other DOSs are supported. Mapper 2 enables a mix of standard 5 1/4" and 8" drives to be used, so would be very useful in conjunction with NEWDOS-80 or VTOS.

Looking at the latest Lifeboat advertisements, it would appear that the Model I with CP/M and 8" drives will be completely compatible with quite a variety of systems running CP/M (including the Model II) - even to the point of being able to swap disks!

One member has already ordered these devices, but has yet to receive them. Have any other members any experience of them?

Obtainable from:-

Omikron,
1127 Hearst St.,
Berkely,
CA 94702,
USA.

Tel: (415) 845-8013

Prices are $199 and $99 for Mapper 1 and Mapper 2 respectively, plus $25 for shipping.

Leon Heller

NEWDOS/80 - A Software Review

NEWDOS/80 is the latest disk operating system for the TRS-80 Model I from Apparat, Inc. of Denver, Colorado, USA. They are the people who fixed and enhanced Tandy's TRSDOS and called it NEWDOS. This was so successful in making the system reliable and easy to use, that it has become the de facto standard DOS for the Model I. So why another DOS?

The reason is simply that Apparat was stuck with the original TRSDOS design limitations which did not allow them to improve the system much beyond what they had already done. NEWDOS/80 is a complete re-write of both the disk operating system and the disk BASIC. In order to distinguish the new package from the original NEWDOS, Apparat now calls that NEWDOS/21 which seems to refer to the original version of TRSDOS that they enhanced (2.1) and the re-written software as NEWDOS/80 which seems to refer to the decade for which it is intended. In this review I will consider the reader to have a familiarity with NEWDOS/21 since its improvements over TRSDOS are well documented elsewhere. NEWDOS/80 enjoys all of these same virtues.

Because of the re-write Apparat were able to include not only improvements to existing functions but also totally new commands and facilities. And the system is mainly compatible for programs written to execute under TRSDOS and NEWDOS/21, the exception being machine language programs using certain DOS internal routines. So all that effort needed to get those BASIC programs up and running is not in vain with this system.

The main improvements/additions fall into roughly 3 categories: operational, program development and documentation.

The operational enhancements concern 2 areas. The first of these affects handling of variations in system environments. With NEWDOS/80 one can mix disk drives with different characteristics (e.g., a 77-track drive with 2 35-track drives). Also one can specify certain system options that required the use of SUPERZAP in NEWDOS/21 to enable or disable (e.g., password checking and clock accuracy) or are entirely new such as the ability to protect a predetermined amount of high memory at power-up/reset time.

The second set of operational enhancements include significant improvements to existing DOS commands in both facilities available (e.g., DIR now has a P parameter to direct the output to the printer) and in parameter checking (e.g., brackets/parentheses are now optional and Y or N may be used instead of ON or OFF respectively). Also provided are several new commands, the facility to enable input to come from a disk file instead of the keyboard and the ability to interrupt the execution of the main program.

Examples of useful additions are the PURGE command which eases the KILLing of several files on a diskette and the BREAK command which allows a program to enable or disable the (BREAK) key at will.

The facility to direct input from a disk file instead of the keyboard is invoked by the CHAIN command. This is most likely to be used at power-up/reset time in order to extend the power of the AUTO command so as to execute several unrelated user written initialization routines or device drivers before invoking BASIC with a RUN"program" statement. The only problems with this facility are that it seems to be much slower than expected and that no utility program is provided to create and maintain the input files in the required format.

The ability to interrupt a main program at any time without disruption is called MINI-DOS and is invoked by simultaneously pressing the (D), (F) and (G) keys. It allows one to execute one or more DOS commands before returning to it. This might be used to determine how much diskette space is left or if the correct diskettes are mounted, etc. (Users of SCRIPSIT, note well!) Also return to the main program is optional. This can be used to end a machine language program gracefully that otherwise requires a reset to exit (e.g., LMOFFSET, EDTASM, DISASSEM, etc.).

There are many other enhancements including the ability to have the system in a RUN-ONLY mode which means that an inexperienced user is less likely to inadvertently stop a program in the middle of a crucial update. This is aimed at business users and will probably help prevent many headaches. Another significant change is that SUPERZAP is now a machine language program which means it can be invoked while a BASIC program is executing (via the CMD"SUPERZAP" statement or by entering the MINI-DOS state) or without having to initialize BASIC at all. The functions remain essentially the same but the display format has changed to provide more information about the source of the data being displayed, to use a flashing cursor over the next nibble (half-byte) eligible for change when in MODification mode and to allow for filling data areas with other than 00 via an RT sub-command which is similar to the ZT sub-command of SUPERZAP Version 3.0. There is also a new function, Display Memory Dump Block, which is used in conjunction with a new format of the DOS DUMP command, as well as the ability to EXIT the program.

The program development changes also concern 2 areas. The first of these is DEBUG which can be invoked by simultaneously pressing the (1), (2) and (3) keys without having to issue the DEBUG (ON) command before pressing the (BREAK) key. Also the display format has drastically changed to allow the simultaneous display of 3 independant areas of

memory with the ASCII equivalents on the right side of the screen as SUPERZAP does. All commands must be terminated with (ENTER). Modifitation mode also resembles SUPERZAP in that it uses a flashing cursor and automatically displays a 256 byte page (S mode). The other significant change is the addition of 3 new commands to Load or Write a disk sector to or from the DOS buffer at 4200H and to Find the address of an area containing a certain hexadecimal value (1 to 4 bytes worth). The greatest disappointments are that there is no Move command to shift areas of memory around and that the Instruction-step and Call commands are still restricted to non-ROM, non-DOS areas.

The second area of program development improvements concern BASIC. The non-I/O enhancements of note are the introduction of the duplicate (DU) and delete & insert line (DI) commands to shift individual program lines about, the further extension of the CMD"xx" statement so as to allow return to DOS followed by the execution of a machine language program or DOS command after return and the introduction of the RUN-ONLY mode mentioned previously. Additionally one cannot delete a program line simply by typing in the line number but rather must now type DELETE or D followed by the line number. Further when an error occurs EDIT mode is not automatically entered so as to prevent inadvertent clearing of variables that might be of interest to the programmer in debugging.

The I/O enhancements are extensive and full treatment of them is beyond the scope of this article. However it should be noted that 5 new file types have been defined to ease the programmer in building index files, handling fixed length records of any length up to 4095 bytes (!!), handling variable length data, extending or truncating files, etc. It is a massive change and improvement over simple INPUT, PRINT and so-called random files which are still supported. Apparat introduces several new concepts here that require some careful thought before using them. There might be some difficulty in grasping these at first, but the facilities provided are actually quite easy to use and well worth the trouble. I say that from experience.

The improvements in the documentation are almost infinite considering what Apparat provided with NEWDOS/21. However there are still some problems with the documentation. There are over 200 pages of documentation provided in a very attractive loose-leaf binder but most of it is written as a reference manual and in technical language. Although I understand the need to have a manual for reference (and for that it is good), it seems to me that additional introductory literature should have been included to illustrate the facilities available. This would be of particular use to the business or other non-technical users of the system.

There are some other niggly little things wrong with the documentation. The table of contents refers to a chapter section rather than a page number which means looking up a particular command, facility or piece of information is not as straight-forward as possible. An example of this is the SYSTEM command which appears as topic 2.30 in the table of contents but actually appears on page 2-21! Another annoyance is that the FORMAT command refers back to the COPY command to explain some of its parameters rather than repeat them which makes finding all of the information desired unnecessarily cumbersome.

On the positive side I have yet to find any error in the documentation more serious than spelling mistakes (misprints?) and the wealth of information provided about the internal routines available to the machine language programmer is impressive. Indeed one finds out that writing and attaching interrupt routines or extending the library commands to include special requirements is a piece of cake.

The more I use this system the more I realize that it is one helluva good product. I should point out that I have not mentioned all of the new facilities or enhancements, just those of particular import. I only think that its price will seem rather high to some which is unfortunate since I believe that it turns the "TRASH-80" into a truly reliable, easy-to-use, professional system that has yet even greater potential and longer life than I thought possible. I certainly do not understand the success of the PET and APPLE when one compares them with a TRS-80 Model I running NEWDOS/80. They just do not have the equivalent flexibility or facilities.

Jerry Ozaniec

muSIMP SECTION

I thought I might as well try to start the ball rolling with some muSIMP information.

READ is a standard LISP primitive function, and works with muSIMP, although it is not mentioned in the documentation. The following programs (developed by trial and error) should illustrate its use:-

```
FUNCTION TEST(),
X:READ(),
X:X!,
PRINT(X),
ENDFUN$
```

Generally, READ accepts any S-expression (or SEX as Siklossy calls it!).

```
FUNCTION TEST(),
X:READ(),
PRINT(X),
ENDFUN$
```

S-expression (atom or list)

The second program expects an S-expression to be input. The input 87 (HAVE A (NICE DAY)) results in the printing 87: (HAVE A (NICE DAY))

FLOPPY TAPE CORNER

ACULAB HAVE KINDLY PLACED A BASIC PROGRAM (DIRTOP/BAS) IN THE GROUP LIBRARY THAT WILL BE OF USE TO ALL ACULAB OWNERS AND THOSE THAT ARE CONSIDERING PURCHASING ONE OF THEIR UNITS. THIS BASIC PROGRAM IN EFFECT REMOVES THE PROTECTIVE BLOCK ON THE DIRECTORY AFTER IT HAS BEEN LOCATED IN THE AREA OF MEMORY OF YOUR CHOICE. THIS IS HIGHLY CONVENIENT IN THE CASE OF LONG PROGRAMS THAT UTILIZE UP TO 14K OF TEXT AND THE REST OF MEMORY AS VARIABLE OR STRING STORAGE. THIS HAS BEEN A BUG-BEAR UP UNTIL NOW, ESPECIALLY WITH GAME PROGRAMS THAT INVOLVE TRADING OR WAGING WAR IN INTERGALACTIC SPACE. SOME SERIOUS PROGRAMS MAY ALSO BE AFFECTED.

THE PROGRAM IS SUPPLIED ON CONDITION THAT IT REMAINS THE SOLE PROPERTY OF ACULAB AND THAT IT WILL NOT BE SOLD TO OTHER PARTIES. THE RESULT OF SUCH ACTION WOULD REFLECT BADLY ON THE GROUP AND WOULD ALSO JEOPARDISE FUTURE CO-OPERATION.

AS SOME OF YOU MAY HAVE NOTICED, HARDINGS AND KANSAS ARE SUPORTING THE SYSTEM. HARDING'S LATEST CAALOGUE LISTS THE PROGRAMS NOW AVAILABLE. HOWEVER THEY DID NOT HAVE A COPY OF 'DIRTOP/BAS' IN THEIR POSESSION AT THE TIME.

A GOO GUIDE IS THAT IF THE BASIC TEXT USES UP TO 14265 BYTES IT WILL FIT. IF IT UTILIZES THE REMAINDER OF THE MEMORY (IN A 16K SYSTEM) THE DIRECTORY WILL BE OVERWRITTEN IF 'ZAP HAD BEEN RUN. A JUMP TO 3000 HEX WILL REBOOT THE SYSTEM (SOFT) OR THE SYSTEM COMMAJD CAN BE USED TO REGAIN CONTROL OF THE OPERATING SYSTEM.

FOR THOSE WHO HAVE ALREADY PURCHASED THE ACULAB YOU WILL SOON BE ABLE TO PURCHASE A COMPATIBLE ZEN EDITOR/ASSEMBLER MODIFIED BY LAURIE SHIELDS. EXTENDED BASIC IS ALREADY AVAILABE ON FLOPPY AS IS MON3.

ACULAB ARE WORKING ON A FLOPPY BASIC WITH MOST OF THE DISK BASIC FEATURES, PLUS A FEW EXTRA LIKE A REVERSE ACTING &H FUNCTIONENABLING DEC TO HEX TO DEC CONVERSIONS. INSTRING, RSET ,LSET AND CMD FUNCTIONS ARE OTHER GOODIES THAT WILL BE INCLUDED. AS YU CAN SEE, THE FLOPPY TAPE HAS COME OF AGE, AND NOW THAT A CHEAP 32K EXPANSION CAN BE BOUGHT FROM:-

MICROTEK INC,
9514 CHESAPEAKE DRIVE,
SAN DIEGO, CA 92123.
TEL 714-278-0633

FOR $159.50 (CODE MT 32B), A CHEAP ALTERNATIVE TO THE DISK IS NOW A FACT.

INCLUED BELOW IS THIS MONTH'S FREE GIFT!! ALAN POUND OF ACULAB (THE FATHER OF THE FLOPPY) HAS WRITTEN THIS PROGRAM - DIRTOP/BAS. IT IS A BASIC PROGRAM THAT WILL CREATE A MACHINE LANGUAGE PROGRAM. WHEN RUN THIS PROGRAM WILL ENABLE YOU TO MOVE THE DIRECTORY TO THE TOP OF MEMORY OF ANY SYSTEM FROM 16K TO 48K, WITH OR WITHOUT MEMORY PROTECT. HAVING ANSWERED THE MEMORY SIZE AND PROTECT OPTIONS THE PROGRAM WILL ASK WHETHER YOU WANT TO RUN THE PROGRAM IMMMEDIATELY OR NOT. IF YOU ANSWER 'YES' THE DIRECTORY WILL BE RELOCATED AS SPECIFIED AND DIRTOP/BAS WILL BE LOST. IF YOU ANSWER 'NO' THE PROGRAM WILL INSTRUCT YOU TO INSERT A TAPE WITH AT LEASTONE SECTOR FREE, IT WILL THEN TELL YOU THE NAME OF THE PROGRAM, E.G. 'DIRTOP16/ZAP' AND WILL THEN @SAVE IT AS A MACHINE LANGUAG ROUTINE WHICH CAN BE USED AS NEEDED. THE EXTENSION '/ZAP' INDICATES THAT THE DIRECTORY WILL BE OVER-WRITTEN BY AN INCOMING BAIC PROGRAM LONGER THEN 14K (ON A 16K MACHINE) AS EXPLAINED ABOVE. DIRTOP/BAS HAS BEEN GIVEN TO THE GROUP AND CAN BE COPIEDAS MANY TIMES AS NEEDED AS LONG AS NO-ONE CLAIMS THE COPYRIGHT.

```
100 '    *** DIRTOP/BAS ***
110 '    BASIC PROGRAM TO CREATE M/LANG UTILITIES TO MOVE
120 '    FLOPPY TAPE DIRECTORY WITH OR WITHOUT RESERVING
130 '    MEMORY, AND TO RESTORE NORMAL BEGINNING OF BASIC.
140 '
150 CLS:INPUT"HOW MUCH RAM IN MACHINE ( 16 / 32 / 48 )";M
160 INPUT"RESERVE MEMORY FOR DIRECTORY ( Y / N )";A$
170 FOR Z=0 TO 38 :READ Y :POKE 30720 + Z ,Y :NEXT Z
180 D=124
190 IF M=32 THEN D=188
200 IF M=48 THEN D=252
210 POKE 30720 + 11 ,D
230 IF LEFT$(A$,1) = "Y" THEN D = D-2 ELSE D = D+3
240 POKE 30720 + 21 ,D
250 INPUT"EXECUTE  IMMEDIATELY (  Y /  N )   * THIS  TROGRAM
WILL BE LOST *";B$
260 IF LEFT$ (B$,1)  = "Y" THEN POKE  16526 ,0  :POKE  16527
,120 :Z = USR (0)
270 PRINT"PREPARE TO  SAV PROGRAM - INSERT A TAPE INTO DRIVE
'0' WITH AT LEAST ONE FREE SECTOR."
275  E$="" :IF  LEFT$(A$,1)  >  <  "Y"  THEN  E$="/ZAP" ELSE
E="/SYS"
280 N$ = "DIRTOP" + RIGHT$(STR$(M),2) + E$
290 PRINT"PROFRAM WILL BE CALLED ";  N$ ;"PRESS SPACE BAR TO
SAVE PROGRAM."300 C$ = INKEY$ :IF C$ = "" THEN 300
310 @LIST :@SAVE N$ ,1 ,30720 ,30720
320 '
330 DATA 33,232,66,175,119,35,34,164,
64,33,0,12,34,173,65,37
340 DATA 46,225,119,33,255,122,34,214,
64,34,177,64,46,205,34
350 DATA 160,64,205,77,27,195,25,26
```

Bob James

Adrian Hancock

MILTON KEYNES WORKSHOP

This weekend workshop commenced at 5.30 p.m on Friday with a buffet in my office at 40a High Street, Stony Stratford, where several weary travellers called in for refreshments. Once again our common interests dissolved any fears that new members could not immediately join in the proceedings. At 7.30 p.m those at the office moved on to the college where others had already booked in.

The buffet was laid out with coffee on a 'help yourself' basis, and the rooms were slowly filled with systems, one containing 16K systems with three Floppy Tape drives, and the other containing disk drive systems. Our lecture room contained a Model II, kindly lent to us for the weekend by Tandy (UK), complete with a Lineprinter III. Leighton installed himself in the coffee room with the library. All members present appreciated his continued efforts in dealing with program requests, whether for disk or for tape. In the same room as Leighton were three other disk-based systems. One of these systems, complete with Siemens disk drives, belonged to Tim Bullock, a lecturer from Middlesex Polytechnic. Tim's problem was that he had a 6000 word Pencil file which needed rescuing. After about 30 minutes in the expert company of Leo Knaggs they sounded like good drinking mates and by the end of Saturday they had rescued Tim's text. Please, new and prospective members, regard this as a practical example of the assistance the group can render.

Friday evening.

Friday evening was given over mainly to games, but in the 'DOS' room DOS modifications were already being shown and explained. My own preference is for uses of equipment to be tried, tested and made available, whereas obviously games provide pleasure to many users. From games, techniques are tested and business users will continue to benefit from the programmer graduating from games to business applications. For those who do not know this tale - the above is well illustrated by the following. This spring a member asked if he could write some programs for my office. So far he had just written games etc., but nothing useful for a business user. He took away a BASIC program, and rewrote this in Assembler, giving the office a speed of data entry similar to the Electric Pencil. After many phone calls and three modifications, the office received the program which transformed the procedures on incomplete accounts and drafting accounts. In the last month the disk version has been received and is doing a wonderful job in assisting to provide a better, and previously unavailable, service to clients. The end of this tale is very befitting in that just prior to the workshop I was informed that this member

NATIONAL TRS-80 USERS GROUP NEWSLETTER

VOLUME 2 ISSUE 5 NOVEMBER 1980

CONTENTS

2 Editorial
3 Members' letters
10 USUS(UK) - UCSD Pascal Users' Group
11 Model II - Error 49
11 Amendments to "Database Management"
11 Percom data separator
12 Go West
12 Simutek speed-up kit
13 Software review - ST80 III
14 The Freedom Board
15 Computerised bulletin board
16 Discount software
17 Disk drive problems
18 BASIC programming
21 Check time taken
22 COMM-80 interface
22 muSIMP section
24 SCRIPSIT modification - error correction
28 Teaching with Tandy
32 Oxford workshop report
33 Timetabling
34 Infinite Basic/SRTV applications
35 Local groups

EDITORIAL

There is quite a lot of emphasis upon inter-computer communications in this month's issue. I feel that this is a very exciting development, and will, if things go here like they have in the States, spread like wildfire.

Apart from hobbyists communicating with one another or with computerised bulletin board systems, low-cost time-sharing services will become available, with companies like Comshare providing off-peak access at low rates. This has already happened in the States with The Source available to anyone with a suitable terminal and modem.

I envisage some problems with British Telecom getting bothered by unauthorised equipment being connected to their lines, but it might force them to provide a protection device enabling almost anything to be connected to the line, as is the case in most of the US. They already appear to have lost control of the situation, judging by the number of answering machines you see advertised!

Stop press!!! I've just managed to access Frederick Brown's FORUM-80 bulletin board in Hull. His modem was faulty but he got it going again. It is a very sophisticated system and very easy to use.

Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.

Tel: (0908) 613004

Publisher:-

Brian Pain,
40a High Street
Stony Stratford,
Milton Keynes.

Tel: (0908) 566660/
564271

MEMBERS' LETTERS

From Peter McCormack

I noticed for the first time today that, amongst the gibberish that fills the screen when you power up without the system disk, a pound sign character appears.

I have scanned the whole ASCII character set and also peered into main memory using SUPERZAP but have not been able to find any representation of this character.

When I phoned the local Tandy Computer Centre in Manchester, they looked at one of their showroom systems but the pound character doesn't show on theirs.

As far as I know, the printer I have, an OKI Microline 80, wouldn't be able to print the pound-sign anyway but I would like to be able to call it up for future use when I get that much coveted daisy-wheel.

If you, or any other group member, can offer any suggestions, I should think that anyone else whose system offers the same character set will be just as grateful as me.

For the record, my keyboard unit is numbered, B-012033.

Incidentally, has anyone with the Microline printer succeeded in getting it to do a line-feed only? The best I can do is < LPRINT" " > which is not very satisfactory. If you're printing, say, labels or statements which entail a lot of line-feeds, the printer makes a bit of a meal of it by having to print an ASCII 32 in order to effect the line-feed.

The explanation for this is that the printer, as supplied, ignores all LF instructions from the computer and line-feeds automatically following a full line of data or at the end of an LPRINT statement.

I've had a few attempts at circumventing this but, thus far, without success.

Considering the Users Group exists for the exchange of information, this letter has so far been exclusively a debit on my part! To try and balance things a bit I've enclosed a list of amendments which anybody running the Hubert Howe Database Management program from Harding's might find useful.

I've had one or two bad experiences when over-writing files and so now avoid doing this where possible. Filenames are suffixed e.g. "/A", "/A1" and "/A2", being up-dates on the

same file using Base 3 progression so that an update on file MAILIST/A2 will become MAILIST/A, etc.

The amendments help in the overall management of the files, obviating doubt as to which is the current version of any file. It's a bit heavy on disk space and you have to remember to kill redundant files. I suppose redundant files could be KILLed from within the program but, for a programmer of my limited skills, that needs some thought.

The glaring omission in the Database program is that there is no means to print selective records under program control. We use Kompass Directory codes to identify prospective customers, industry by industry, but there is no provision in the program to print out just those names in one category. If anyone knows of a database program with this facility, I would like to know.

Peter McCormack,
57 Garners Lane,
Stockport SK3 8SD.

(* The OKI Microline can print pound signs, apparently. I have seen some notes somewhere on how to do it, but cannot remember where, unfortunately!

The ultimate in Database Management Systems are the programs sold by Micro Database Systems Inc. Their software is a bit expensive (around $1000 for the whole suite), but would do everything you need. Microsoft are about to release MicroSeed at $900. This is also a very attractive product. Members should be very careful when purchasing so-called Database Management systems; most of them are merely file handlers with some simple search and sort facilities. LFH *)

From D.J. Swann

This is the first time that I have taken the trouble to comment on any of your readers letters but as I have owned a Computer since December 1978 , I feel that I should comment on Mr. I. R. Martins letter.

Mr. Martin queries the service that Tandy offer. It was the same for me during the whole of 1979 and my system was made 'reliable' as recently as March 1980 but not by Tandy. It took, therefore, some 15 months before most, if not all, of the bugs were removed. Tandy obviously still do not understand their need to provide a reliable and efficient service also there is a desperate need for reliable software.

However, by way of contradicton, there is no lack of reliable programmes to suit English Standards. Since May 1979, when I completed my own series of programmes which unfortunately are written in Basic, I have successfully operated my businesses on these systems. The Company Accountants, when they received the books and records etc., for Annual Audit, were sufficiently impressed to acquire their own Computer system .

Those who write long complicated business programmes are not going to be easily persuaded to release these due to the lack of protection by the Copyright Act.

In my particular case, Sales Invoices are few as most of our work are site installations to specification and contact. These are the subject of detailed quotations etc., thus making detailed Invoices not necessary. The Purchase Orders are quite complicated, so the Accounts system commences at the Sales & Purchase Day Books.

First, as normal, the Sales Invoices and Purchase Invoices are checked separately and put into date sequence, then sorted into alphabetical order. The essential data required for entry is marked, ie Debtors or Creditors Account No's , Date and Number of Invoice or Credit, Contract No:, Nett Amount and Zero Rated Amount (if any). If the VAT rate is standard, ie 15%, then these 6 entries are all that is required to generate the required Day Book. Any other VAT amount can be pre-selected at entry point. From here, using other programmes the following can now be created and produced.

Monthly SALES and PURCHASE Day Books

LEDGER CARD for each DEBTOR / CREDITOR.

Separate programme generates the CASH BOOK into which all Receipts and Payments are entered.

STATEMENT & REMITTANCE ADVICE combined in one format for each DEBTOR/CREDITOR thus saving time and printing costs.

By using the information initially entered, a complete CREDIT CONTROL and CASH FLOW can be compiled with up to date details of the PROFIT/LOSS of each contract to date and therefore give prior warning if any corrective action is indicated.

Listing of SALES/PURCHASES relating to certain Contracts can be generated by simply calling up the Contract No: and the STOCK updated or allocated as necessary, thus a self operating STOCK CONTROL is achieved.

PETTY CASH is also dealt with by a separate programme. Again the information is prepared for rapid and accurate entry. The programme offers numerous categories and varying forms of change of VAT (a hang over from previous years when the change in VAT took a long time to filter through the system). However, assuming the receipt, as in petrol, shows only the total sum, but it contains VAT à 15%, then this programme will calculate the VAT and nett amounts, and cope with any other type of receipt where part of the receipt is zero rated such as in car servicing etc.,

The GENERAL EXPENSE Ledger is a shortened version of the Purchase Day Book and operates in the same way, but creating different data files.

VAT CONTROL uses all the DATA FILES generated by the SALES, PURCHASES, PETTY CASH and GENERAL EXPENSE Day Books. After one entry to select which period (in our case this is quarterly) to print, there is the added facility to adjust for previous errors and/or amendments etc., The whole system is then fully automatic, producing the enclosed printout.

The beauty of these automatic systems is that once the programme has been selected, the correct data discs are installed, the whole printout operates without attention. Writing up books that used to take ages, with the usual entry errors and wrong figures etc., that used to take hours to trace and locate can now be achieved in a quarter of the time.
The Accounts just finalised produced an error, of just 00.01p out over the full year on the PETTY CASH on an expenditure of some £6,000.00 odd. This was the only error on all of the Company's records on a total turnover in the region of 7 figures. That is satisfactory by anyones standards.

Each programme is complete within itself. Requires a total of 48K and two disc drives, is fully automatic, has complete error protection, update and correction error facilities and the scope for development is boundless. It is of course only accurate to the information entered, but saves time and provides far better printed information than the conventional hand written systems I used to employ.

In addition I have a produced separate programmes for Data Base, Full Membership Programme with 9 separate inter-related searches and listings etc., Update and correction etc., are also included to enable minor errors to be corrected and to allow for upgrading or downgrading according to members ability etc.,

Programmes from America have been modernised, updated and improved to English Standards but kept for reference purposes.

Half the time I simply write a short routine and this then is developed and soon becomes a major programme. Sometimes I just write and experiment, learning the hard way by trial and error as I do not really understand machine language, I have to write everything in Basic. I use NEWDOS+ with NEWZAP and enjoy the challenge of writing programmes to suit a specific need that I may have.

My equipment comprise Tandy Model 1 Level2 48K two disc drives, Model 11 64K with two 8" drives, Diablo Printer for detailed specifications and correspondence, Teletype 43 for accounts etc.,

So, Mr. Martin, there are English Programmes and there are amateur and professional writers about. It may take sometime before you get the programmes you want, but eventually they will be produced and offered for publication.

Yours sincerely,

D. J. Swann.

From Mick Mason

You asked in your last editorial for more contributions from members other than the TRS-80 "Gang of Four" - Jerry Ozaniec, Brian Pain, Laurie Shields and yourself. I'm afraid I'm a relative beginner - I've had my 16K Level II for about six months - so I can't offer anything of "considerable interest" as requested in that editorial, but some of what follows may be of use to other beginners.

The Omikron Mappers are available from Computer Centre, Swansea. They do an 8" CP/M kit for TRS-80s, which consists of the mapper boards, an 8" drive, CP/M and appropriate manuals for £699 + VAT. The address is :-

Computer Center
9 De-La-Beche St
Swansea SA1 3EX 'phone (0792) 460023

Computer Center also have a 42-volume CP/M library on 8" media which is available free to purchasers of hardware.

Tandy's lower-case modification : ULCDVR is the disk version, and the details given by Anthony Haddock don't work with the 16K-cassette ULCBAS. The following program should demonstrate how to obtain the six un-used characters. In this case the £ sign (96) instead of a chosen ASCII character. ULCBAS must be loaded before the program is run.

```
100 CLS
110 PRINTTAB(18);"POUND SIGN IN ";CHR$(34);"ULCBAS";CHR$(34)
120 PRINTTAB(18);STRING$(22,61)
130 PRINT:PRINT"Which ASCII character do you wish to
change to     ?"
140 POKE 15599,96
150 A$=INKEY$:IF A$=""THEN 150
160 PRINT@ 243,A$
170 P=ASC(A$)
180 POKE 32636+A,96
```

```
190 PRINT : INPUT " O.K. Try it now " ; B$
200 PRINT : INPUT "Enter 1 to change your mind, 0 to exit
program " ; Z
210  ON Z+1 GOTO  270, 230
220 PRINT "Use only  1 or 0 !" : GOTO 200
230 POKE  32636 + A, A
240 PRINT@ 192, CHR$ (31) ; "Your choice is now "; A$;" again"
250 PRINT : INPUT " Ready to proceed" ; B$
260 PRINT@ 128, CHR$ (31) ; : GOTO 130
270  PRINT : PRINT " Deleting program...."
280  FOR X = 1 TO 100 : NEXT
290  CLS : DELETE 100 - 300
300 END
```

The important line is 180, which actually does the change, and a version of this is all that would be required in a program. Only the display is effected : changing "@" to "£" doesn't affect PRINT@, although it looks funny on the screen. I find it useful to change shifted-@ as this won't work with PRINT@ — the syntax error is easy to spot if you do this and you don't have to 'trade-in' a character to get the £ sign : unshifted-@ still produces @.

CHR$(31) - lines 240 and 260 - is something I've only just come across, possibly because I'm dull-witted and only just noticed it on page C/3 of the manual. Anyway, for the benefit of other dullards, it erases the screen from the current cursor position to the end of the frame without moving the cursor. This is a vast improvement on ?@ X," " : ? : ? : ? : ? ; : ?@ X," " which is what I'd been doing to preserve headings and so on. CHR$(30) works in a similar way, but erases only to the end of the current line.

Something else I've discovered (by listing a games program) is how to find out if a key is being held down by PEEK-ing for example location 14400. Another short program :-

```
10  X = PEEK(14400)
20 IF X AND 1  PRINT "1";
30 IF X AND 2  PRINT "2";
40 IF X AND 4  PRINT "3";
50 IF X AND 8  PRINT "4";
60 IF X AND 16 PRINT "5";
70 IF X AND 32 PRINT "6";
80 IF X AND 64 PRINT "7";
90 IF X AND 128 PRINT "8";
100 GOTO 10
```

Run the program and try holding down the arrow keys, Enter key, space bar and clear key or combinations of any of them. Can anyone tell me why the effect is so different from INKEY$? Surely INKEY$ does something similar when it scans the keyboard ?

I've just begun disassembling the ROM with T-BUG to try to get a better understanding of both machine code and the machine. What does the subroutine at 0060H actually do? It looks like a complicated way of loading A, B and C with zero : have I missed the point? (* 0060H is simply a delay routine. A register pair is loaded with the delay value and then decremented. L.F.H *).

Adventureland : I've found all the treasures, but I can't get past the bear without losing my honey. Somebody give me a clue ! Yes, Nick, I have reflected on this problem...

I'm currently considering disks and wondering whether I'd be better off investing in a Model II before I commit all my money on the Model I — 80×24 screen and no ROM is highly attractive, especially as I'd like to move on to Pascal which would make ROM BASIC redundant. Could a Model II owner possibly do a write-up? On the subject of Pascal : what - if any - are display controls like ? Does it POKE and PEEK or is this irrelevant ? What books should I read ?

Mick Mason
2 Stud Cottages
Worksop Manor
Worksop
Notts.

(* UCSD Pascal has its own keyboard and video drivers, I think, and display controls depend upon the particular implementation. PEEK and POKE can easily be implemented by using machine language procedures/functions. A Practical Introduction to Pascal, by Wilson and Addeyman, published by Macmillan, is recommended at about £4. LFH *)

From P.V. Bamfield

Many thanks for the Newsletters which I have found very interesting.

I was perhaps a little disappointed to find that most articles concerned Level 2 machines and I believe that a beginners section would be welcome. If the ads. for the Group mentioned this the section would would surely become well supported by new members.

Now, my local Tandy store will not sell the numeric keypad or memory expansion (4K to 16K) kits unless the CPU is returned to them and then sent on to Wednesbury (when the van calls!) for fitting of these items. As far as I can see from the circuit thes mods. are not very difficult (even for someone partially sighted and disabled like me!) Can any member advise?

Finally, surely a little time spent with a ruler or template would produce more legible circuit diagrams?

I look forward to the next issues.

P.V. Bamfield

(* The beginners section has been suggested before. No-one has sent in any contributions, I am afraid.
Numeric keypad and memory upgrades were covered in earlier issues. Back numbers are available. LFH *)

USUS(UK) - UCSD PASCAL USERS' GROUP

Members using UCSD Pascal on their systems might be interested in joining USUS(UK). Membership costs £25 but it looks as though you get quite a lot for your money, including access to the software library containing text formatters, comms software, database software, games, utilities etc.

For further details contact:-

Malcolm Harper,
Secretary, USUS(UK),
Oxford University Computing Laboratory,
Programming Research Group,
45 Banbury Road,
Oxford OX2 6PE.

MODEL II - ERROR 49

If any Model II users have experienced Error 49, could they please get in touch with me.

Leon Heller

AMENDMENTS TO "DATABASE MANAGEMENT"

These alterations to "Database Management" display the filename above the menu, after loading and before saving data

```
120 RUN121'AMENDED LINE
121 CLEAR12000'NEW LINE
410 CLS:PRINT"FILESPEC '";FI;"' HAS";NF+1;"FIELDS, AS
    FOLLOWS:"'AMENDED LINE
435 NEXTI'NEW LINE
440 PRINT:PRINT"ENTER NEW OR UPDATE FILESPEC
    (Y/N)";:GOSUB930'AMENDED LINE
445 IFA="N"GOTO1000'NEW LINE
446 INPUT"NEW FILESPEC";FI'NEW LINE
448 GOTO1000'NEW LINE
1005 PRINT"      FILESPEC IS '";FI;"'"'NEW LINE
1006 PRINT'NEW LINE
2500 CLS:PRINT"CURRENT FILESPEC IS '";FI"'"'AMENDED LINE
2505 PRINT"DO YOU WANT TO RENAME FILE (Y/N)";:GOSUB930'NEW
     LINE
2506 IFA="N"GOTO2510'NEW LINE
2507 INPUT"NEW FILESPEC";FI'NEW LINE
```

Peter McCormack

PERCOM DATA SEPARATOR

I recently fitted the Percom data separator to two TRS-80s; in each case the effect on I/O errors was almost magical! I use my system for a great number of hours per week and the error rate dropped from a (subjective) figure of one per few hours to one per few hundred hours. Now if there are errors indicated, I feel confident that it is the data which are wrong, not just the hardware feeling a bit "drowsy".

Norman Baust

GO WEST

TANDY HAVE JUST PRODUCED AN ADVENTURE OF THEIR OWN CALLED "PYRAMID 2000".THIS BEARS NO RELATIONSHIP TO SCOTT ADAMS'S "PYRAMID OF DOOM", AND IS IN MY OPINION AN INFERIOR PRODUCT.

UNLIKE ADAMS'S ADVENTURES THERE IS A CONFUSING SCROLLING DISPLAY(NO SPLIT SCREEN);IT HAS A VERY LIMITED VOCABULARY (15 WORDS) BUT MAKES UP FOR THIS WITH MUCH LARGER DESCRIPTIONS . ALSO TO RESTART THE GAME IT IS NECESSARY TO DUMP THE INITIAL DATA AND RELOAD IT!

MY FINAL COMPLAINT IS THAT THE DESCRIPTIONS SEEM TO BE COPIED ALMOST WORD FOR WORD FROM THE ORIGINAL CROWTHER/WOODS "COLOSSAL CAVE".ONLY 5/10 FOR THIS ONE TANDY!

AND NOW BACK TO "GO WEST": THE JOURNAL OF THE LUNATIC FRINGE. FIRSTLY SOME QUERIES: HAS ANYONE ANY SUGGESTIONS ABOUT SAVING ADVENTURES ONTO A 16K L2 WITH FLOPPY TAPE? MY EXPERIMENTS SO FAR HAVE BEEN UNSUCCESSFUL (EVEN USING A RELOCATED DIRECTORY). GHOST TOWN HAS BEEN EXERCISING MY NEURONE RECENTLY- IT IS SCOTT ADAMS'S BEST YET.. "HOW" DOES ONE COPE WITH GERONIMO? WHY IS THERE SO MUCH CURRENT INTEREST IN HORSESHOES, AND WHY IS THE KEY TO THE WHOLE THING A BANG!

NICK ROBINSON

SIMUTEK SPEED UP KIT

LEON RECENTLY GAVE DETAILS OF A SIMPLE CLOCK MOD TO MAKE YOUR CPU RUN FASTER. IT HAS THE DISADVANTAGE OF HAVING TO BE SWITCHED WHENEVER THE TAPE OR DISC ARE USED, AND BECAUSE IT IS NOT SYNCHRONISED WITH THE REFRESH SIGNALS FROM THE CPU CAN EASILY CAUSE A RE-BOOT (I THINK THIS IS RIGHT, LEON).

THE SIMUTEK UNIT OVERCOMES MOST OF THESE PROBLEMS. IT CONSISTS OF A SMALL PCB AND TEN WIRES WHICH ARE PATCHED ONTO THE MAIN BOARD. A SMALL SWITCH IS FITTED TO THE CASE TO SWITCH IT INTO ACTION. ANYONE WITH A SMALL SOLDERING IRON COULD FIT IT IN ONE HOUR. WELL THATS THE THEORY - I FITTED MINE AND IT WORKED PERFECTLY OUT OF THE CASE. HOWEVER WITH THE CASE ON, I SWITCHED ON AND GOT STAR TREK WITH SOUND AND SMOKE! THE BOARD HAD SHORTED ONTO THE POWER RAILS - A LITTLE SURGERY AND THE CPU WAS WORKING BUT NOT THE BOARD. I SENT IT BACK TO THE USA AND A FEW WEEKS LATER A NEW BOARD ARRIVED (FREE) WITH INSTRUCTIONS V1.2 AND THICK DOUBLE SIDED TAPE TO FASTEN IT AND PREVENT SHORTS. THIS

TIME IT WORKED PERFECTLY.

SO WITH THE AMENDED INSTRUCTIONS AND FITTING KIT AND A PRICE OF $11.50, I THINK IT IS A GOOD BUY. I BOUGHT IT BY SENDING MY CREDIT CARD NO. TO:-

SIMUTEK,
P.O.BOX 13687-Z,
TUSCON AZ 85732,USA.

THE SPEED-UP KIT MAKES THE FLOPPY TAPE WORK 50% FASTER, AND INCREASES THE SECTOR DENSITY/TAPE BY 50%.

INCIDENTALLY, VISITING CARD HOLDERS FROM W.H. SMITH MAKE A GOOD STORAGE SYSTEM FOR FLOPPY TAPE WAFERS!

NICK ROBINSON.

SOFTWARE REVIEW - ST80-III

Having recently acquired an acoustic coupler, and wishing to do more than just use my system as a terminal on-line to a remote computer via the telephone network, I purchased Lance Micklus' ST80-III program.

This is a superb package! Apart from being able to use the TRS-80 as a terminal, I can: transfer files from disk to a memory buffer for subsequent transmission to a remote system, store incoming information and then transfer it to disk, automatically log-on to a remote system, etc.

Lower-case is supported, and it runs under TRSDOS, NEWDOS and NEWDOS80, and VTOS. With VTOS you can do some very clever things.

characters can be redefined by setting up a special table on disk, and there are several other facilities that I have not tried yet. Contact Frederick Brown at 3-Line Computing, Hull, for further details.

I am a member of the INFONET Community, a countrywide network of human scientists and computer scientists communicating with one another via some special software running on a DEC 20 at Birmingham. Facilities on this system include computer conferencing, an electronic journal, a newsletter, social chit-chat etc., and using ST80-III will minimise my telephone connection charges. I have already used it to extract a large text file from a DEC 10 in the London area, and store it on disk, ready for editing with SCRIPSIT and subsequent return via the telephone network for incorporation in some conference proceedings I am editing.

Leon Heller

THE FREEDOM BOARD

An alternative to the OMIKRON MAPPER mentioned in the October Newsletter is the F.E.C. Freedom Board.

This unit is marketed by,:-

Field Engineering Consultants Ltd.
Box 2368
Woburn MA 01888
USA

Tel: (617) 944-5329

The unit plugs in the Z-80 socket and sits inside the bottom of the keyboard case. It comes with a disc which is formatted part TRSDOS and part with an operating system called T8-OS which is CP/M based.

On listing the directory, normal TRSDOS progams will be seen together with a program called SHAZAM. Running SHAZAM remaps the memory into CP/M format. All memory mapped I/O functions are relocated to high memory. The ROM disappears and the bottom of memory is free for CP/M programs. This leaves 39.8K of user space.

The system is configured to run, without further change, all CP/M programs using the Call 5, I/O convention. This is as most programs designed for the CROMENCO Model 2.
Listing the directory whilst in this mode reveals a small set of CP/M utility programs. (With no trace of TRSDOS).
The instruction BYE returns to TRSDOS with no trace of CP/M.
To implement this modification requires 48K RAM and an expansion interface with one or more disks. It is also necessary that all memories are 4116's. Apparently some older systems used alternatives.
The system supports 35,40 and 77 track mini disks. The cost when I bought mine (in the summer) was $245.00.

The system in operation does all that is claimed and is in fact very impressive. A drawback is the relatively high cost of CP/M software although of course there is a great deal of it available, this being the main advantage of CP/M. (If anyone is trying to find a home for some, let me know).

It is also disconcerting to find that it is not possible to make backups of the system disk. The peculiarity of formatting both Tandy and CP/M tracks on the same disk precludes ordinary COPY or BACKUP procedures. Extra disks have to be purchased from FEC at a cost I believe, of $5 each. Although if anyone has the mod. and requires backups, write to me. I can offer useful advice .

An additional modification which the same company offer for $295.00 is an extended memory. This requires that the Freedom Board is fitted and it then gives a full 64K RAM (excluding mapped areas only) in CP/M mode. It also fills in the 'holes' which exist in RAM in the TRS mode. (Addresses 3000-36FF and 3900-3BFF, an extra 2560 bytes). This makes an ideal machine code program buffer as it is untouched by TRS systems and does not therefore need protection.

Other Matters

Having only recently joined the group I received all Newsletters in one solid block. Reading them removed a day from my life but was very enjoyable nevertheless.
If anyone is able to compile a list of magazines or Journals other than those obtainable from WHS, which contain TRS-80 articles, I for one would be grateful.

Has anyone succeeded in converting a 40 track 5" disk to 70 tracks by double density or other methods? I am trying with little success so far.

For lower case buffs there is a hardware patch which can be wired to the ROM chip to permanently enable lower case. No driver software is necessary and lower case is available from power up. I will prepare details for the next Newsletter.

Andrew Donald,
6 St. Georges Road,
Ilford,
Essex 1G1 3PQ.

COMPUTERISED BULLETIN BOARD SYSTEM

We have decided to investigate the possibility of the Group setting up a computerised bulletin board system. These are becoming quite widespread in the States, and Frederick Brown in Hull has been running one for some time now. What is a computerised bulletin board system? Basically it is a program running on a computer equipped with a modem so that people can log-on to the system (you have to have a modem yourself, of course) and leave messages for other users (either general or for specific individuals) or read messages already on the system. Facilities are often

provided for up-loading and down-loading software, so the Library might end up on the central system.

To make use of the facility you will need an expansion interface fitted with a serial interface board (Tandy RS-232- C) and a terminal emulation program like TERM which comes with the RS-232-C board. An acoustic modem will also be needed (cost around £160, or you can build your own for about £30-£40).

In order to pay for the modem for the central system (which must be one with auto-answer capability) and the special software needed, we will have to charge £10 to use the system. About 25 members will be needed to start the ball rolling. As we get more subscribers the charge will be reduced and existing subscribers will get a pro-rata refund. John Christie suggested this scheme and it seems the fairest way to do things.

The 80-NET (as we propose to call the system) funds will be administered completely separately from the main group funds, and details of the accounts will be available at all times on the system.

Separate administration has the advantage that we can make the scheme available to users of other systems such as Apples PETs etc. They will not be able to download machine code software, however, but could make use of the BASIC programs in the Library.

Frederick Brown in Hull has been running a bulletin board of this type for some time now. I have tried to log-on to it but without any success. If you have the right equipment try dialling (0482) 859169 in the evening. You might have more luck!

Further details are available from Brian (send a SAE), or give me a ring. I have issued a press release to all the personal computer publications, Computing and Computer Weekly.

Leon Heller.

DISCOUNT SOFTWARE

Micro Gems of:-

49 Dunvegan Drive,
Rise Park,
Nottingham,
NG5 5DX

distribute an interesting range of software, and are offering a 15% discount to members of the Group.

Leon Heller

DISK DRIVE PROBLEMS

Since we purchased our first disk drive we have experienced problems reading programs residing on the centre tracks of certain makes of disk, even though we have 35 track Shugart drives. Attempts at remedying this by phoning Tandy proved futile as the standard answer was that our disk drive was at fault, as it was not purchased from them.

At the suggestion of another firm, a data separator was used to enable the inner tracks to be read . After the addition of a second drive to our system great difficulty was experienced when reading drive 1 after a boot. This problem became exagerated upon the purchase of NEWDOS/80 due to it's increased speed of the reading.

We were convinced by this time, after checking the data lines to the drives, that the scource of the problem was the expansion interface. In a desperate attempt to solve it once and for all, we took the keyboard and expansion interface to the Seacoal Lane branch of Tandy in London, after having the drives checked and proved fully working by Cumana in Guildford. Unfortunately the system worked perfectly with TRSDOS at that time, and only demonstrated the problem when used with NEWDOS+ and NEWDOS/80, which according to Tandy, mean't that either our drives were at fault or the non Tandy software. It was suggested that NEWDOS/80 was demanding too much from the system, and quote "You can't expect a mini to do the job of a Limousine and must therefore experience problems when trying to do so". Displeased with this attitude we took the system to Brian's Sunday session where all our problems were solved by his spare disk controller chip.

Our conclusion is that we were supplied with an expansion interface which had a faulty disk controller chip, which we were unable to find until we purchased disk drives, by which time the unit was outside it's guarantee. Also, there appears to be a barrier created by Tandy whenever non Tandy hardware or software is used, possibly due to the lack of understanding of the capabilities of their excellent TRS-80 system by some of their employees

The assistance provided by the members of the User Group was greatly appreciated, and has proved to us the benefits of being a member.

Nick,Stephen and Mike Clay

From DENNIS V. LONG - Rochester.
Telephone: Day Medway (0634) 272044 Ext. 656 - Eve. 0634 250857.

BASIC PROGRAMMING

I have been playing around with STRING functions just lately. One of my recent programmes uses them quite extensively to lineprint a BASIC programme stored on disk in ASCII format. The programme is called LPLIST and is used to produce clear, well spaced programme listings for debugging etc. For example, the following lines are used to find a suitable place to end each line without chopping statements or words in half:-

```
540 L=WP-IN:V=L-5:TC$=" "
550 X=INSTR(V,LI$,TC$):
    IF X>0 AND X<L THEN V=X: GOTO560
    ELSE IFTC$=" " THENTC$=":":GOTO550
    ELSE V=V-5:TC$=" ":GOTO550
560 LPRINT PI;LEFT$(LI$,V)
570 LI$=RIGHT$(LI$,LEN(LI$)-V)
```

The maximum line length 'L' is first calculated from the width of the printed page 'WP' minus the indentation from the left edge 'IN'. The BASIC programme line is then searched for a space 'TC$'(starting 5 characters in from the right hand margin, V=L-5) using an INSTR routine. If a space is not found we look again, this time for a colon TC$=":". If neither is found then we start again furthar in from the right hand margin 'V-5'. When a match is found then the variable 'X' gives its location, 'V' is made equal to 'X' so that the line is shortened to end with that space or colon.

After that part of the line has been printed the BASIC statement line is shortened by 'V' the length printed. If the line is still longer than the desired line length 'L' the search starts again, the whole routine being repeated until the line is shorter than the page width. The procedure adopted means that the computer sorts faster than the printer prints it out, therefore this much neater listing is produced at the same speed as a normal LLIST.

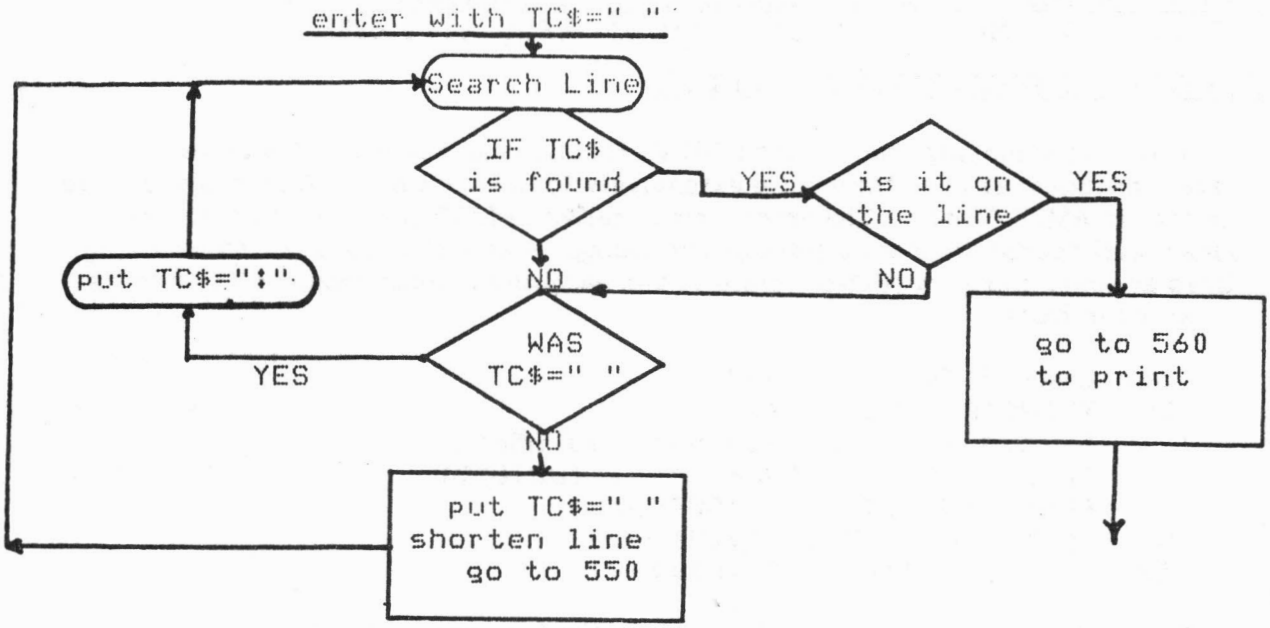
There are numerous similar examples of the use of string searches in my LPLIST programme. There is also what may be a fairly novel way of sending instructions to the printer embedded in strings. I have enclosed the full printout of this programme, but it may be too long for the newsletter. I will send copies to anyone who sends me an SAE.

DISCUSSION.

Why do so many people criticise those of us who make great use of multiple statement lines? Nearly every listing I see in the magazines consists of very short lines, consuming vast quantities of blank paper. My line 550 above is typical of some of my more complex, multi-line statements, which in my view are efficient in the use of memory, time and normally paper. I have printed it in this format to show that it is no different from a FORTRAN programme, which doesn't need line numbers for every statement. So I say "keep multi-line statements, don't worry about the Pundits who cannot understand a multiple IF THEN ELSE."

What about the beginner....? Well, sorry beginner but the only way to understand such statements is to draw them out on paper thus:-

LINE 550 FLOW CHART



Well all of that lot is on one line, I hope that the flow chart helps, it is the only way to understand a complex statement. In fact it is the only way to write one as well.


```
 1 REM *** LINEPRINTER CONTROL PROGRAM ***
 2 REM *** BY  DENNIS V. LONG (C) 1980 ***
 3 REM *** ROCHESTER   KENT   ENGLAND  ***
 4 REM ***  FOR TRS 80 I - DISK BASIC  ***
 5 'This program CONTROLS the lineprinting of a program stored on disk in ASCII format, so that room is left
   on the paper for binding, note-making and debugging.
 6 'SPECIAL FEATURES consist of the ability to set top, bottom and side margins.  To double space each line,
   to underline selected statements and to avoid chopping statements in half at the end of each line.
 7 'Line numbers are separated from the text by placing them, right justified in the left margin.
 8 'REMstatements may be underlined if the letters REM are followed by at least one space.  Notice that
   the underline stops at the end of the printed line.
 9 'BASIC PRINT statements can also be underlined if they contain a (Quote-space-asterisk) sequence, for
   example :- PRINT"* * THIS IS A HEADING * * ".  Note that the space between the (") and the (*) has gone.
10 'The first space after a (REM) and the space between the (") and the (*) is used to contain the underline
   control code for the printer.  The CENTRONICS P1 and the 737 both use the code CHR$(15) (see lines 640
   and 650) to start underline.
11 'Before using this programme, save the programme you want printed in ASCII format (ie.
    SAVE"FILENAME/TXT",A ).  The programme is read from disk line by line.
12 'Finally, note that all variables beginning with P are strings.  They are used to send printing codes
   to the lineprinter, for example  PU means Print Underline, PI is Print Indented from margin etc.
100 REM* * SET UP PROGRAM * * * * * * * * *
110 CLS:CLEAR10000:DEFINTA-Z:DEFSNG F,S,L:DEFSTR P
120 PU=CHR$(15):PN=CHR$(14)
130 REM* * VIDEO HEADING * * * * * * * * *
140 PRINT"PROGRAM TO LINEPRINT AN ASCII ENCODED BASIC PROGRAM FROM DISK":PRINT STRING$(62,61)
150 REM* * SET UP PRINTING FORMAT * * * *
160 LP=PEEK(&H4028):PRINT"PAGE LENGTH IS";LP;:INPUT" - CHANGE IT ";C$: IFC$="YES" THEN C$="":GOSUB610
    ELSEC$=""
170 INPUT"ENTER TOP MARGIN SPACING FOR LISTING ";TM: IFTM THEN180 ELSE TM=3
180 INPUT"ENTER LINE NUMBER FOR BOTTOM OF LISTING";BM: IFBM THEN190 ELSE BM=58
190 INPUT"ENTER THE CODE FOR THE TYPE OF PRINTOUT REQUIRED^FOR EXAMPLE -  27,20    ";A,B: PT=CHR$(A)+CHR$(B)
200 INPUT"HOW MANY CHARACTERS PER LINE DOES IT GIVE ";CL:IFCL THEN210 ELSE CL=80
210 INPUT"ENTER LEFT MARGIN WIDTH (ALLOW FOR LINE NO. IN MARGIN) ";LM:IFLM THEN 220 ELSELM=10
220 INPUT"ENTER RIGHT MARGIN WIDTH";RM: IFRM THEN 240 ELSE RM=10
```

```
230 REMx x WRITE A PAGE HEADING x x x x x
240 PRINT@128,CHR$(31);:INPUT"DO YOU WANT A HEADING FOR EACH PAGE";C$:IFC$="YES" THEN C$="":GOSUB620
    ELSEC$="":PH=""
250 REMx x DEFINE ASCII FILE NAME x x x x
260 LINEINPUT"ENTER THE FILE NAME  - ";N$
270 REMx x SELECT LINE NUMBERS x x x x x
280 NP=0: INPUT"ENTER START LINE NO. OF LISTING ";SL:IF SL THEN 290 ELSE SL=0
290 LN=SL: INPUT"ENTER FINISH LINE NUMBER ";FL:IF FL THEN 300 ELSE FL=65529
300 INPUT"DO YOU WANT A SPACE AFTER EACH LINE ";C$:IF C$="YES" THEN Z2=1 ELSEC$="":Z2=0
310 INPUT"DO YOU WANT REM'S UNDERLINED ";C$:IFC$="YES" THEN Z1=1: C$="" ELSE Z1=0:C$=""
320 REMx x DISPLAY SELECTED FORMAT x x x
330 PRINT@128,CHR$(31);PH"^FILE NAME :-" TAB(14)N$ TAB(35)"PAGE LENGTH" TAB(46)PEEK(&H4028) "^MARGINS
    :- LEFT"LM"   RIGHT"RM"   TOP"TM"   BOTTOM"BM"^LINE NUMBERS :-  START" TAB(22)SL TAB(30)"FINISH"
    TAB(36)FL TAB(45)"CURRENT" TAB(53)LN
340 ONERROR GOTO600:POKE&H4029,LP-1:OPEN"I",1,N$:REMx 4029 is line counter location
350 WP=CL-RM
360 GOSUB660:LPRINTPT;
370 REMx x GET DATA FROM DISK x x x x x
380 IFEOF(1) THEN PRINT@384,CHR$(30) "END OF FILE x x ";: CLOSE: GOSUB690: INPUT"ANOTHER FILE USING THE SAME
    FORMAT ";C$: IFC$="YES" THENC$="": GOTO240 ELSE 110
390 LINEINPUT#1,LI$
400 LN=VAL(LI$): IFLN<1 THEN CLOSE:PRINT@832,"x x x x THIS IS NOT AN ASCII PROGRAM  x x PRESS ENTER x x x";
    INPUTC$:GOTO240 ELSE PRINT@374,LN;
410 PRINT@448,CHR$(31);LI$
420 REMx x CHECK LINE NUMBER x x x x x x
430 IF LN<SL THEN 380
440 IF LN>FL THEN PRINT@512,CHR$(31);"LAST LINE REQUESTED HAS BEEN PRINTED ": GOSUB690:CLOSE: INPUT "DO YOU
    WANT MORE LINES LISTED USING THIS FORMAT ";C$:IFC$="YES" THENC$="":GOTO280 ELSE110
450 REMx x START WORK ON DATA x x x x x
460 I=1:GOSUB630: IFZ1 GOSUB640
470 LL=INSTR(LI$,CHR$(32)):IN=LM-LL:GOSUB670
480 REMx x CHECK PAPER - PRINT HEADING x x
490 LC=PEEK(&H4029): IFLC>=BM THEN NP=NP+1: IFNP=1 THEN GOSUB660:LPRINTCHR$(12) ELSE GOSUB690 ELSE530
500 GOSUB700: LPRINT"     "PU;PH;PN;" Page"NP;
510 FORN=2TOTM:LPRINTCHR$(138):NEXT
520 REMx x SORT AND LINE PRINT DATA x x x
530 IFLEN(LI$)<(WP-IN) THEN LPRINTPI;LI$: IFZ2 THEN LPRINT CHR$(138): GOTO380 ELSE GOTO380
540 L=WP-IN:V=L-5:TC$=" "
550 X=INSTR(V,LI$,TC$): IF X>0 AND X<L THEN V=X: GOTO560 ELSE IFTC$=" "THENTC$=":":GOTO550 ELSEV=V-5:TC$="
    ":GOTO550
560 LPRINT PI;LEFT$(LI$,V): IFZ2 THEN LPRINTCHR$(138)
570 LI$=RIGHT$(LI$,LEN(LI$)-V)
580 IN=LM:GOSUB670:GOTO490
590 REMx x SUBROUTINES x x x x x x x x x
600 CMD"E":PRINT"ERROR CODE";ERR/2+1;" ON LINE";ERL;" RE-";:CLOSE:RESUME260 : REMx x Error trap assumes a
    file name error x x
610 INPUT"ENTER THE PAGE LENGTH REQUIRED ";LP:POKE&H4028,LP:RETURN
620 PRINT"ENTER NOT MORE THAN ONE LINE FOR THE HEADING" :LINEINPUTPH:RETURN
630 I=INSTR(I,LI$,CHR$(10)): IFI THEN MID$(LI$,I,1)= CHR$(126): GOTO630 ELSE RETURN : REMx x Replace line
    feeds with squiggle
640 R=INSTR(LI$,"REM"+CHR$(32)): IFR THEN MID$(LI$,R+3,1)= CHR$(15): RETURN :REM R=INSTR(LI$,"REM ") could
    be used, but the space would be replaced with 0F Hex if the underline is used for lineprinting
650 R=INSTR(LI$,CHR$(34)+" x"): IFR THEN MID$(LI$,R+1,1)= CHR$(15): RETURN ELSE RETURN :REMx x Put underline
    code after a REM or a (" x) sequence.
660 IFPEEK(14312)<>63THENPRINT@896,"x x SWITCH PRINTER ON x x ";: FORM=0TO50: NEXT: PRINT@896,CHR$(30);:
    FORM=0TO50: NEXT:GOTO660 ELSE RETURN
670 PI=CHR$(14)+STRING$(IN,32)
680 RETURN: REMx x Define line feed and page indent x x
690 LPRINTPI "NOTE:- The character - "CHR$(126)" - denotes an imbedded line feed" CHR$(12): RETURN
700 PRINT@832,"x x CHECK PAPER x x ";:INPUT"PRESS ENTER TO CONTINUE ";C$:GOSUB660:RETURN
NOTE:- THE CHARACTER - ^ - DENOTES AN IMBEDDED LINE FEED
```

CHECK TIME TAKEN

Here is a simple way to use your computer "CLOCK" to check the time taken to run all or any part of your program. If you do not expect the'time taken' will be more than 60 minutes then the following two short sub routines will give you the answer. Just in case 60 mins. isn't long enough the second illustration will cover up to 24 hours.

Let us assume you are going to use the first illustration. Enter lines 10-70 at the beginning of your program. As these lines are two subroutines don't forget to put a GOTO first. Next add GOSUB 20 at the beginning of the section you wish to time and GOSUB 40 at the end.

Line 100 can be used as a third subroutine if you wish to time more than one section in your program or it can be used as a program line in which case delete the command 'RETURN' .

```
8 GOTO ..."?"
10 '-----NOTE STARTING TIME-----
20 M$=MID$(TIME$,13,2):S$=RIGHT$(TIME$,2):RETURN
30 '-----NOTE FINISHING TIME-------
40 M1$=MID$(TIME$,13,2):S1$=RIGHT$(TIME$,2)
42 '----TO FIND DIFFERENCE------
46 M=VAL(M1$)-VAL(M$):S=VAL(S1$)-VAL(S$)
60 IFS<0THENS=S+60:M=M-1
70 RETURN
90 '-------ANSWER-----------
100 PRINT"TIME TAKEN :- MINS. "M ": SECS. "S:
      LINEINPUT"PRESS (ENTER)";X$:RETURN
```

Fig 1

.....

```
8 GOTO..."?"
10 '-----NOTE STARTING TIME-----
20 H$=MID$(TIME$,10,2):M$=MID$(TIME$,13,2):S$=RIGHT$(TIME$,2
):RETURN
30 '-----NOTE FINISHING TIME-------
40 H1$=MID$(TIME$,10,2):M1$=MID$(TIME$,13,2):S1$=RIGHT$(TIME$,2)
:H=VAL(H1$)-VAL(H$):M=VAL(M1$)-VAL(M$):S=VAL(S1$)-VAL(S$)
44 '-------TO FIND THE DIFFERENCE----------
50 H=VAL(H1$)-VAL(H$):M=VAL(M1$)-VAL(M$):S=VAL(S1$)-VAL(S$)
60 IFS<0THENS=S+60:M=M-1:IFM<0THENM=M+60:H=H-1
70 RETURN
90 '-------PRINT THE ANSWER----------

100 PRINT"TIME TAKEN :- HOURS "H ": MINS. "M ": SECS. "S:
          LINEINPUT"PRESS (ENTER)";X$:RETURN
```

Fig.2

.....

Dick Foden.

COMM-80 INTERFACE

Nick Robinson sent me some information on the COMM-80 interface unit that might interest some members. This is a commercial version of a design published in BYTE magazine some time ago which enables you to have many of the benefits of an expansion interface (printer interface, I/O ports, serial interface) at a fraction of the cost of the full unit. There is no disk controller, extra memory or real-time clock, so if you envisage getting disks at some future date, I cannot recommend it. However, if you want to stick to a cassette system or Floppy Tape, it could be very useful.

The cost is $179.95, and it is available from:-

The Micromint Inc.,
917 Midway,
Woodmere, NY 11598
USA

Tel: (516) 374-6793

A compatible acoustic modem is also available, but it is not to CCITT specification and would not work with many of the systems in this country. Our 80-NET system will be to CCITT specifications, of course (the European standard).

Leon Heller

muSIMP SECTION

I have now received the full muSIMP and muMATH programming manual from Microsoft, and it makes fascinating reading. The language is far more powerful than I thought.

The manual is heavy going and is really only for experienced programmers, although the tutorial sections (supplied on disk for CP/M systems) start very simply and work up to quite advanced ideas.

All the functions missing from the silly little manual supplied with the package are described. One of the most mind-blowing is GETD, which returns the address of a machine language primitive, or the list representation of a high level function definition. Using GETD from within a function definition would enable one to write programs that modify themselves whilst they are running! It could also enable the writing of the function editor I mentioned in the last issue.

To illustrate GETD in use, first let us define a function to return the last SEX in a list:-

```
FUNCTION LAST (L),
         FIRST (REVERSE (L)),
ENDFUN$
```

GETD (LAST)& returns:-

```
@ (FUNCTION (L) (FIRST (REVERSE L)))
```

which is the internal list representation of the function definition.

Machine code routines can be accessed, although I have not tried this yet, and a new muSIMP system created and stored on disk. Whilst I would prefer a proper LISP interpreter, this is the next best thing. It would be very easy to write one's own LISP interpreter in muSIMP anyway, but it would be rather slow.

If anyone is interested in AI and LISP an excellent book containing both is:-

Artificial Intelligence,
by Patrick H. Winston.
Published by: Addison-Wesley.

It is rather expensive (nearly £14) but worth every penny. LISP, also by Winston, is another excellent book, I am told (from the same publishers).

Leon Heller

* *

Please could any members interested
in high-speed networks for micros
(TRS-80s, Apples, PETs, S-100 etc.)
get in touch with me.

Leon Heller

* *

From DENNIS V. LONG - Rochester.
Telephone: Day Medway (0634) 272044 Ext. 656 - Eve. 0634 250857.

SCRIPSIT MOD - ERROR CORRECTION

In vol.2 issue 2 I provided a patch for SCRIPSIT to give PRINT SIZE and UNDERLINE features to operate the Centronics P1 microprinter. If anyone tried it they probably found that the modified program wouldn't load into memeory. My fault, I am sorry ! I forgot to tell you to change a byte on the previous sector which told the computer to load the appended routine.

Here it is now :-

At relative sector 28 Hex in SCRIPSIT you will find at byte A0 the following 01A7 007A 6DE5 ETC., what this means is 01 (load) A7 (the next 167 bytes into memory 007A (at 7A00). Now we added 53 more bytes, that is 35 Hex so we must add this to the A7 above, giving DC Hex. Just insert DC in place of A7 at byte F028A1 and away you go, all should work quite well.

In case any readers wonder what F028A1 means, let me explain:- the latest issue of APPARAT's Superzap now known as Newzap, gives us access to disk in two ways. One is by reading each disk sector in turn, and the other is by reading each sector in a file. Thus the F tells us that we are looking at the disk in file mode, the next 0 informs us that I have the disk in drive No. 0, the 28 tells us that it is the 28 th. sector (actually it's 28 Hex, ie., 40th. decimal sector) finally the A1 tells us its the A1 th. byte in that sector (ie., 161st.). I hate to tell you this..... but in actual fact we should add 1 to everything I've said because these thick Micros always start counting at zero. Not to worry though because as you can see Newzap labels everything for us.

Well to add to the confusion I have now rewritten my modification to cope with the new commands of the Centronics 737, so read on....

NEW SCRIPSIT MOD

My new SCRIPSIT mod. should be somewhat easier to implement, because everything is added to the last sector of the programme. It provides us with Three new commands as follows:-

1. PT=1, 2, 3 or 4 etc.,----- means PRINT TYPE in the case of the 737 PT=1 is proportional mode. that is the type face I am using now. PT=2 is not valid for the 737, ie., it has NO effect. PT=3 is 10 char per inch (monospaced), and PT=4 means 16.7 char per inch. Any other number can be used if you wish; what actually happens is that when the programme detects the symbols PT= an ESC (1B Hex, or CHR$(27)) is sent to the lineprinter followed by the number to which I add 16 decimal. So if we put PT=3 then we actually send 1B 13 Hex (same as CHR$(27);CHR$(19)) to the lineprinter.

2. PS=D or N ----- means PRINT SIZE is Double or Normal. This is more specific to the printer in that PS=D sends 1B 0E ((CHR$(27);CHR$(14)) to the printer. PS=N sends 1B 0F ((CHR$(27);CHR$(15)). In the case of the 737 you have to send PS=D after every new line if double size is to be retained, otherwise it reverts to normal. so I don't really need the PS=N option.

3. PU=Y or N ----- means Yes or No to Underline,this is only a one byte command and is the same as the command for the Centronics P1. namely 0F (CHR$(15)) for Underline

and 0E (CHR$(14)) for NO Underline.

To make the modification just change relative sector F02900 from byte 49 as shown below:-

```
F02900  CD24 6ED1 CDFA 52C3 706E 0000 0000 0000 .$..n.R.pn......
F02910  0000 3AB9 7CB7 2801 05C9 EB09 79B7 C825 ..:.|.(.....y..%
F02920  C9FE 8CCA 8371 FE8D C2B9 71C3 8371 2812 .....q...q...q(.
F02930  FE0D 280E FE0A 280A 083E 2032 E837 08C3 ..(...(..>.2.7..
F02940  745F 32E8 37C3 745F 3B01 0571 77C2 A57A t_2.7.t_;..qw..z
F02950  0156 A57A FE54 C2BA 7ACD EA7A 3E1B CDF3 .V.z.T..z..z>...
F02960  7A1A 13D6 20CD F37A C9FE 53C2 D57A CDEA z... ..z..S..z..
F02970  7A3E 1BCD F37A 1A13 FE44 3E0F C2D1 7A3D z>...z...D>...z=
F02980  CDF3 7AC9 FE55 C2BD 75CD EA7A 1A13 FE59 ..z..U..u..z...Y
F02990  3E0E 2001 3CCD F37A C913 1A13 FE3D C2BD >. .<..z.....=..
F029A0  75C9 D5CD 3B00 D1C9 0202 0052 0000 0000 u...;......R....
F029B0  414C 5445 5252 4544 2054 4F20 4749 5645 ALTERRED TO GIVE
F029C0  5052 494E 5420 5459 5045 0053 495A 4500 PRINT TYPE SIZE.
F029D0  2600 554E 4445 524C 494E 4500 434F 4445 &.UNDERLINE.CODE
F029E0  544F 0043 454E 5452 4F4E 4943 5337 3337 TO.CENTRONICS737
F029F0  4400 5600 4C4F 4E47 0000 352F 392F 3830 D.V.LONG..5/9/80
```

Don't worry about writing over what appears to be data on this sector. A close look will reveal that the programme ends at byte 49 with the Hex characters 02 0200 52 This means 02 (enter the program) 02 (at the address given in the next two bytes) 00 50 (namely 5200). You will see that I have ended the programme in a similar manner at byte A8. The rest of the space on the sector is unused. The method I have used to add this feature to the SCRIPSIT programme is simply to write an object file to disk from EDTASM containing two routines, one to change the error checking jump at 7771 and the other to provide the new facility at 7AA5. I then used the NEWZAP 'Copy Disk Data' feature to relocate the CMD file to the back-end of the SCRIPSIT CMD file. On the next page I have listed the source file for this addition.

As far as I can tell this format will work with several printers, I know it works with the Centronics P1 and its almost certain to work with the TANDY II and the Centronics 730 which are probably the same thing anyway. On the 737 I can even use PT=12 or 14 to get half line feed foreward and reverse.

Finally on this subject, I have found that the new instructions to the printer need to follow a line feed. So don't put the instructions in the page format line, give an extra line feed then insert the new instructions. Also note the need to change margin sizes when changing print size, and the underline operates right through the left margin; sorry about that but I haven't found a way of putting instructions in the middle of a line yet.

FOR SALE - CENTRONICS P1 Microprinter

Having got the 737 printer now I no longer have a need for the CENTRONICS P1 Microprinter. The printer uses aluminium coated paper about 4.5 inches wide, the printer actually burns off the aluminium to produce the print. It has the following attributes:-

(a) Prints in three different character sizes 5,10 & 20 characters per inch
(b) It supports the full lower case character set with ' descenders'
(c) It prints very fast; and is much quieter than most other printers.
(d) It operates from the TRS80 expansion interface printer port.

So what am I offerred for this very useful item, which includes the printer cable and six rolls of paper. Note I only used seven rolls in over a year they are I believe about 130 feet long. That's a lot of printout for a reasonable price. Did I hear a bid near the two hundred pound mark?.....

```
                00010 ;xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
                00020 ;xx SCRIP737 - BY DENNIS V. LONG (C) 1980 - ROCHESTER  xx
                00030 ;xx=================================================xx
                00040 ;xx SUBROUTINE TO MERGE WITH SCRIPSIT TO ALLOW CONTROL xx
                00050 ;xx OF PRINT TYPE, PRINT SIZE AND UNDERLINE FEATURES   xx
                00060 ;xx OF THE CENTRONICS 737 DOT MATRIX PRINTER.          xx
                00070 ;xx=================================================xx
                00080 ;xx THE SUBROUTINE RESIDES AT THE END OF THE TANDY -   xx
                00090 ;xx RADIO SHACK - TRS80 - SCRIPSIT WORD PROCESSOR      xx
                00100 ;xx PROGRAM (IN A SPARE AREA), AND IT IS INVOKED FROM  xx
                00110 ;xx AN ERROR ROUTINE @ 7771H.                          xx
                00120 ;xx=================================================xx
                00130 ;xx  THESE NEW FORMATS ARE NOW AVAILABLE :-            xx
                00140 ;xx  >PT=1   MEANS PRINT TYPE = PROPORTIONAL           xx
                00150 ;xx  >PT=2  # # # NOT USED BY THE 737  # # #           xx
                00160 ;xx  >PT=3   MEANS PRINT TYPE = MONOSPACED - 10 CPI    xx
                00170 ;xx  >PT=4   MEANS PRINT TYPE = MONOSPACED - 16.7 CPI  xx
                00180 ;xx  >PS=N OR D MEANS PRINT SIZE (N)ORMAL OR (D)OUBLE  xx
                00190 ;xx  >PU=Y OR N MEANS PRINT UNDERLINE (Y)ES OR (N)O    xx
                00200 ;xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
                00210 ;
                00220 ;xx FIRST PART CHANGES ERROR ROUTINE xxxxxxxxxxxxxxxxxxxxx
7771            00230         ORG     7771H           ;LOCATION OF ERROR JUMP
7771 C2A57A     00240         JP      NZ,EXTRA        ;REROUTE ERROR TO 'EXTRA'
                00250 ;xx SECOND IS THE MAIN 'EXTRA' FACILITY ROUTINE xxxxxxxxx
7AA5            00260         ORG     7AA5H           ;END OF 'SCRIPSIT'
7AA5 FE54       00270 EXTRA   CP      'T'             ;TEST FOR 'T'YPE COMMAND
7AA7 C2BA7A     00280         JP      NZ,SIZE         ;IF NOT, GO TO SIZE
7AAA CDEA7A     00290         CALL    EQUAL           ;IS NEXT BYTE AN '=' SIGN
7AAD 3E1B       00300         LD      A,1BH           ;1BH = ESC
7AAF CDF37A     00310         CALL    PRINT           ;SEND IT TO PRINTER
7AB2 1A         00320         LD      A,(DE)          ;GET ASCII FOR 1,2,3 OR 4
7AB3 13         00330         INC     DE              ;POINT TO NEXT BYTE
7AB4 D620       00340         SUB     20H             ;REDUCE ASCII CODE BY 20H
7AB6 CDF37A     00350         CALL    PRINT           ;SEND IT TO PRINTER
7AB9 C9         00360         RET                     ;RETURN TO SCRIPSIT
7ABA FE53       00370 SIZE    CP      'S'             ;CHECK FOR 'S'IZE
7ABC C2D57A     00380         JP      NZ,UNDER        ;IF NOT TRY 'UNDER'LINE
7ABF CDEA7A     00390         CALL    EQUAL           ;CHECK FOR '=' SIGN
7AC2 3E1B       00400         LD      A,1BH           ;1BH = ESC
7AC4 CDF37A     00410         CALL    PRINT           ;PRINT IT
7AC7 1A         00420         LD      A,(DE)          ;GET NEXT BYTE
7AC8 13         00430         INC     DE              ;POINT TO NEXT BYTE
7AC9 FE44       00440         CP      'D'             ;IS IT 'D'OUBLE SIZE
7ACB 3E0F       00450         LD      A,0FH           ;0FH - CODE FOR NORMAL
7ACD C2D17A     00460         JP      NZ,NORMAL       ;IF NOT 'D' GO TO NORMAL
7AD0 3D         00470         DEC     A               ;A = 0EH - DOUBLE CODE
7AD1 CDF37A     00480 NORMAL  CALL    PRINT           ;PRINT IT
7AD4 C9         00490         RET                     ;RETURN TO SCRIPSIT
7AD5 FE55       00500 UNDER   CP      'U'             ;UNDERLINE COMMAND
7AD7 C2BD75     00510         JP      NZ,ERROR        ;NOT UNDERLINE
7ADA CDEA7A     00520         CALL    EQUAL           ;CHECK FOR '=' SIGN
7ADD 1A         00530         LD      A,(DE)          ;GET Y OR N
7ADE 13         00540         INC     DE              ;POINT TO NEXT BYTE
7ADF FE59       00550         CP      'Y'             ;DEFAULT IS 'N'
7AE1 3E0E       00560         LD      A,0EH           ;0EH - NO UNDERLINE
7AE3 2001       00570         JR      NZ,ULINE        ;NO UNDERLINE
7AE5 3C         00580         INC     A               ;0FH=UNDERLINE
```

```
7AE6 CDF37A   00590 ULINE   CALL    PRINT           ;PRINT IT
7AE9 C9       00600         RET                     ;RETURN TO BASIC
              00610 ;** SUBROUTINES START HERE ******************************
7AEA 13       00620 EQUAL   INC     DE              ;POINT TO NEXT BYTE
7AEB 1A       00630         LD      A,(DE)          ;GET NEXT BYTE
7AEC 13       00640         INC     DE              ;POINT TO NEXT BYTE
7AED FE3D     00650         CP      '='             ;IS IT '=' SIGN
7AEF C2BD75   00660         JP      NZ,ERROR        ;IF NO - GO TO ERROR
7AF2 C9       00670         RET
7AF3 D5       00680 PRINT   PUSH    DE              ;SAVE BYTE POINTER
7AF4 CD3B00   00690         CALL    003BH           ;OUTPUT TO PRINTER
7AF7 D1       00700         POP     DE              ;RECOVER BYTE POINTER
7AF8 C9       00710         RET
75BD          00720 ERROR   EQU     75BDH           ;SCRIPSIT ROUTINE
5200          00730         END     5200H           ;SCRIPSIT START=5200H
00000 TOTAL ERRORS
```

Here is a little Bonus routine to protect lines at the top of the screen.

```
              00010 ;**** ROUTINE TO PROTECT LINES AT THE TOP OF THE  ****
              00020 ;**** SCREEN.  BY USING A USRX(N) CALL, ALL LINES ****
              00030 ;**** BELOW LINE N WILL BE SCROLLED UP ONE LINE.  ****
              00040 ;**** LINE N+1 SCROLLS UNDER LINE N.............  ****
FFC0          00050         ORG     0FFC0H          ;START LOCATION
FFC0 CD7F0A   00060 START   CALL    0A7FH           ;GET LINE NUMBER IN L
FFC3 7D       00070         LD      A,L
FFC4 E60F     00080         AND     0FH             ;FROM 0 TO 15 ONLY
FFC6 21003C   00090         LD      HL,3C00H        ;SCREEN START
FFC9 114000   00100         LD      DE,0040H        ;1 LINE WIDTH
FFCC 47       00110         LD      B,A             ;SET UP COUNTER
FFCD 19       00120 LOOP    ADD     HL,DE           ;GET START OF LINE
FFCE 10FD     00130         DJNZ    LOOP            ;LOOP TILL DONE
FFD0 E5       00140         PUSH    HL              ;SAVE START
FFD1 19       00150         ADD     HL,DE           ;GET NEXT LINE
FFD2 D1       00160         POP     DE              ;GET FIRST LINE IN 'DE'
FFD3 E5       00170         PUSH    HL              ;SAVE   HL
FFD4 210040   00180         LD      HL,4000H        ;END OF SCREEN AREA
FFD7 ED52     00190         SBC     HL,DE           ;GET NO OF BYTES TO MOVE
FFD9 E5       00200         PUSH    HL              ;SAVE HL
FFDA C1       00210         POP     BC              ;PUT IT IN 'BC'
FFDB E1       00220         POP     HL              ;RESTORE 'HL'
FFDC EDB0     00230         LDIR                    ; S C R O L L
FFDE 063F     00240         LD      B,3FH           ;COUNTER
FFE0 3E20     00250         LD      A,20H
FFE2 12       00260 LOOP1   LD      (DE),A          ;BLANK OUT BOTTOM LINE
FFE3 13       00270         INC     DE
FFE4 10FC     00280         DJNZ    LOOP1
FFE6 C9       00290         RET
0000          00300         END
00000 TOTAL ERRORS
```

TEACHING WITH TANDY

Having recently joined the TRS-80 Users Group I have been reading through this year's issues with great interest.

I notice in your September issue there is mention of the Tandy Network system which we have just had on loan from Tandy for a week during which our children were filmed using the system by the B.B.C. Approximately 400 children were able to use the system while it was here and it performed perfectly at all times.

However, in spite of John Lynch's views to the contrary, we would have liked to be able to follow the work of each individual on the master screen at will, and to feed information at will to the screens of each individual student; without damaging the resident program.

The disk system worked very well, but made the slow loading of the students' machines very frustrating indeed. If Tandy are to market this system effectively to schools in this country then they will need to make improvements along the lines suggested above.

However, we are now back to one machine, with another on its way, and are anxiously awaiting the arrival of our first 'Aculab'.

We would, of course, be delighted to hear from other schools who are using the TRS-80.

M. L. Childs, J.P., B.A.,
Derwentwater Middle School,
Shakespeare Road,
Acton W3 6SA.

(* Mr. Childs sent me the following report which makes fascinating reading. I take issue however with the decision to restrict Computer Studies to the higher ability Mathematics groups. As far as I know, there is no connection between mathematical ability and the ability to use a computer effectively. It might be that mathematically 'illiterate' students would benefit more from exposure to computing than the highly numerate. What do other members involved in education think? Of course, the lack of hardware is probably the main reason for restricting the use of the system. They are, of course, using the system for remedial teaching. LFH *)

REPORT TO THE MANAGERS ON THE TEACHING OF COMPUTER STUDIES

Computer Studies were introduced as part of the curriculum in September 1980 and has made an immediate and positive impact on the children involved as well as on the teaching staff.

AIMS

1. To encourage computer awareness.
   Microprocessors in particular are growing in popularity in all walks of life. If we are involved in education we cannot ignore these trends.

2. To encourage computer literacy.
   To familiarize pupils with language and terminology as a basis for studies in later school life.

3. To provide a new and interesting form of learning for all children in all areas of the curriculum

4. To develop logical thought and creative thought which is not bounded by subject classification and which can be applied to all areas of learning.

5. To analyze, in a systematic manner, problem situations with a view to solving them

6. To stimulate group participation and encourage discussion and language enrichment.

These aims are not in order or priority.

The computer is a tool with which to complete a task. It is only as effective as the person controlling it. The teacher has control in the classroom over the learning situation; the computer is an aid to the implementation of learning efficiency and effectiveness. It provides an added dimension of scope and stimulus. To ignore the impetus and impact of the microcomputer is to deny ourselves and the children we teach a fascinating and highly motivating world.

THE COURSE

The microcomputer used is the TRS-80 by Tandy and the Instruction Course is Tandy's own BASIC (Beginners All-purpose Symbolic Instruction Course) Course.

The children undertaking the Studies are Fourth Years, aged 11 and 12 years, from the two higher ability Mathematics groups. Group 1 comprises of 15 children working with Mr. Childs, Headmaster, and group2, 37 children with Mrs. Wright, Head of Computer Studies. The course identifies the components of the computer system, introduces computer terminology and teaches the BASIC language.

The system is available every morning during the Mathematics sessions and during lunchtimes when the children work in small groups independently. The children have already reached the stage where they can write their own programs in computation which they are able to test on the microcomputer.

S.WRIGHT.

The system is available for use by any member of staff in a varity of teaching situations. It is being extensively used in the Remedial Department where commercially produced programs are worked on ; lower case letters are used to encourage recognition of words by shape. However, the demand is so great that it is impossible to satisfy all of our needs with the one machine available.

We are building up a library of commercially prepared programs which we must use to assess their effectiveness in different group situations. Naturally, we will be writing our own programs which concentrate on specific areas of learning difficulty.

COURSE FOR STAFF

It is intended that the teaching staff participate in a short course in the use of the microcomputer in the second half of the Autumn Term. The staff are familiar with some of the programs but there is a need for practical instruction.

During the Spring Term it is hoped that we will be running a further course for teachers using Tandy's BASIC Instruction Course.

THE IMPACT

The initial impact of the microcomputer in school has far exceeded our expectations. We are fortunate in having so many members of staff with a genuine interest and willingness to have the system in the classroom. The effect on children in Mathematics has also been very encouraging. The novelty aspect has obviously some influence but there is a more positive attitude to Mathematics in lessons when the computer is not present.

The writing of simple programs has helped to organize thought processes and extend the imagination of the children and is a successful addition to traditional teaching methods.

The use of logic games such as The Pyramid has proved extremely popular whilst at the same time being very demanding. Working in small groups, the children take the opportunity to discuss possible moves, motives and outcome. They are more aware of their orientation and are able to remember their routes for weeks on end.

S.WRIGHT

THE FUTURE

Our very real problem is that we do not have enough systems to satisfy the needs of the children. They have shown great enthusiasm and it is sad that they have to work on a rota basis at the machine. We simply do not have enough equipment for them to use.

We have been promised the use of a line printer which will encourage the children to keep a lasting record of their own and others activities. At present, without the line printer, the children see their work disappearing at the end of the session which is not a satisfying experience for them. A permanent record will encourage them to analyse their work with a positive attitude towards improvement and competition.

It is intended that the children also make and use Light Pens, which will cause the machine to respond by simply touching the Video Display Unit. This has obvious advantages in the teaching situation. For children who experience difficulty with writing language, where is a very speedy response without an arduous writing session, and for more gifted children who have sufficient skills in recording, they can by-pass traditional input methods.

The B.B.C. has visited the school with a view to filming some of our children working at a microcomputer. The actual date has not yet been ascertained but is likely to be during the next two weeks. For this session Tandy will be setting up their computer classroom, consisting of sixteen display units with keyboards, allowing us to load sixteen separate programs simultaneously.

S.WRIGHT
OCT.1980.
Derwentwater Middle School,
Shakespeare Road,
Acton W3 6SA

REPORT ON THE WORKSHOP HELD AT THE RANDOLPH HOTEL,OXFORD 25TH OCTOBER 1980

Over 30 Members met at this very comfortable hotel for a one day meeting,with proceedings starting at 9.15 am.

Once again we had the use of two rooms,one for the lectures and the other for the equipment , the library and coffee .It has always been a feature of every workshop that once the equipment is set up then members start to enjoy the facilities and begin to mix . The main features at Oxford were OS House being there when he should have been on holiday,high resolution graphics from John Christie(designer Dale Jeffries),and colour mod shown by Mark Brooker on a rather poor hotel colour TV.and of course mention must be made of the contribution from Leighton Davies in manning the library
10.00 Leon Heller Structured Programming
As a result of seeing a variety of programs that could be improved by better structuring, Leon suggested a session be devoted to styles which reflect an attempt to structure the program.From the discussions that developed it became clear that members were aware that the approach was the way to go but in practice expediency seem to be the all important factor.
11.15 Mike Chamberlain-Hughes Basic Level 111 & Shorthand
Mike came to the office on several Sunday mornings and introduced a utility which is called shorthand.Having used this several times and as a result saved the office considerable time I asked Mike to do a session on what he had done to produce this particular program.
The whole session was about machine code and several members found Mike's approach very helpful in outlining techniques to use when trying to go from A to B.
12.15 Assembler and Popular Rom routines Leon Heller
In the absence of Laurie Shields Leon once again took members through some of the opening moves when starting assembler.This is a subject that always seems to start somebody off on to this area and again I have noticed at the Milton Keynes meetings that several programs have been put in from 80-US.
1.00-2.00 Lunch and from the comments received the food must be within feet of the keyboards to allow the most to be enjoyed from both!
2.00 Steve Bird Programming for small business users
Steve outlined areas of personal interest and the members took up various points which concerned them.I suppose this is my own interest and as a result lively discussions developed!
3.30 Newdos80 with David Alletson-Austin
David had prepared for this session and included a demonstration of the chaining which always is a good sell of Newdos80.In fact this session was on the utilities and not on the file handling as David has yet to prepare for this(hint)

4.30 Brian Pain on College Timetabling

This was just a short demonstration of using an Infiniite Basic sorting routine to assist my college prepare their everchanging timetable.
5.15 A panel with Leon Heller,Bob James and Brian Pain
Once again various members put ideas and questions forward for considerations with the result that the session went to 6.45!
It looks as these sessions really are quite useful and will be repeated at future workshops.
Brian Pain

Sept. - Oct. 1980 Timetabling - Infinite Basic - SRTV

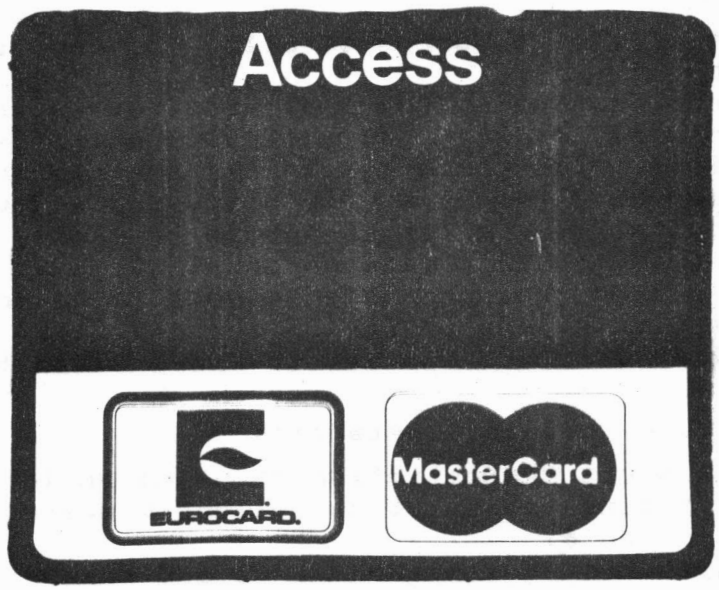
From a chance remark at the Milton Keynes Workshop a member suggested using SRTV to sort pupils into 'O' and 'A' level blocks of sorted data. Since that meeting I now have a time-tabling program for our Finance and Accounting Department - which has around 17 full time staff and 10 outside part-time staff and several lecturers from other departments.

The current menu is:-

1. Provide timetables by lecturer
2. Provide timetables by room
3. Provide timetables by day
4. Provide timetables by course

The above was not available without my program and the College is currently borrowing time on my system to evaluate the idea. No intelligence or executive decision making has been built in and the TRS80 is just used as a very fast sorter and provider of hard copy whenever the timetable changes e.g. new staff, new room, cancelled class, and swops between lecturer. At the moment there are 320 lines of data, consisting of name, course, subject, day, time, room, and the sort takes around 10 seconds, with excellent reliability.

BRIAN PAIN



We can now offer members the facility of paying for their membership, workshop fees; off-the-shelf hardware/software, by either telephoning or sending their Access Card number into Brian Pain's office.

Tel no.(0908) 566660.

INFINITE BASIC SRTV - CURRENT USES

1. Timetabling for my College Department - see separate article

   Future students records eg.

   By name (NM$), by country (CN$), subject (SU$), exam record (EX$)

2. Clients invoices/cheques received

   As cheques are received and invoices are made out then once entered an immediate record is available:-

   Net Position
   Total Invoices
   Total Cheques
   By Client
   An Invoice number missed out or duplicated!

   Future:- Nominal Ledger Accounting

By Name of Account	Sales
By Account Number	5000 or 500000
By Type of Entry	Brought Forward - Cash
By Month of Entry	1280 or 0680

3. TRS Group Workshop - Register of Attenders

   By Name, By Type of Stay - W/E - Day

   Future:- By Name, Interest, Paid & Unpaid, County, Skills

4. Expense Reports for VAT Purposes

   Here a client purchased products for promotional not retail/profit purposes and this consisted of over 300 items. The report was by month and category and gave a total of the items. This appears to have saved a long and laborious analysis, with the advantage of excellent presentation to the Customs & Excise Officer

   Future Analysis of Invoices for:-

   VAT Purposes
   Paying Suppliers
   Costing Analysis

5. Other members have rung to say what they are using Infinite Basic for, so why not contact the office with details of your current uses.

Consultation
Sales
Installation
Tutoring
Programming

Magnus Microcomputers
139 The Moors,
Kidlington,
Oxford,
OX5 2AF.

08675 6703
Mon-Fri 8AM to 7PM
Visitors By
Appointment only.

Description	OxMiC Members ONLY RRP Ex VAT	Price Excl. VAT	Price Incl. VAT
Video Genie 16K RAM 12K ROM	£330.00	£282.60	£325.00
TX-80B Printer & Video Genie Interface	£430.00	£350.00	£402.50
Sound Unit (Internally fitted by dealer)	£ 15.00	£ 9.00	£ 10.35
9" or 12" Video Monitor B/W (12" Nov/Dec)	£ 69.00	£ 60.00	£ 69.00
RS232 interface Bi-Directional (Due Soon)	£ 52.00	£ 50.00	£ 57.50
Disk Drive 35 Track incl, PSU & Case	£250.00	£230.00	£264.50
Floppy Tape (Due Soon)	£173.00	£170.00	£195.50
TX-80B Printer & Pet Interface Board & Cable	£459.00	£375.00	£431.25
Accessories			
Video Genie OR Printer Cover TX80B	£ 5.00	£ 4.50	£ 5.18
Printer ribbon	£ 3.80	£ 3.50	£ 4.03
Paper 2000 Sheets Fanfold 9½" * 11"	£ 17.00	£ 15.00	£ 17.25
Paper Roll of 8½"	£ 2.00	£ 1.70	£ 1.96
C12 Cassettes Each	£ .43	£ .33	£ .38
10 off	£ 4.30	£ 3.00	£ 3.45
50 off	£ 21.50	£ 14.00	£ 16.10
100 off	£ 43.00	£ 27.00	£ 31.05

Business Regn. Number 2611081 Proprietor S.C.Bird V.A.T. Registration Number 348 3299 26

I am willing to extend these offers to FULLY PAID UP members of the National TRS-80 Users Group.

Post & Packing will be charged to cover the cost of sending to you.
Please include 50p or 2% whichever is greater, for P&P.
Please allow 28 Days delivery.
All prices subject to change by my trade supplier.

Please tell other micro users about the NATIONAL MICROCOMPUTER CLUB. The club has been formed to draw all the micro clubs together into a strong body of micro users.

National Microcomputer Club
139 The Moors,
Kidlington,
Oxford, OX5 2AF.

A WEEK LONG WORKSHOP AT MILTON KEYNES - JULY, 1981

Subjects to be covered:-

Basic	-	Beginners
Basic	-	Advanced
Basic	-	with Assembler routines
Assembler	-	Beginners & using ROM routines
Assembler	-	Advanced
Pascal/Fortran	-	Group sessions
Newdos 80	-	Introduction & uses of utilities
Newdos 80	-	File handling
Add on Projects	-	Amplifiers, Disk Drive power supply,
	-	Data Separator, High Resolution
	-	Graphics, Colour etc.

Business Applications:-

Accounting - Nominal Ledger, Consolidation

Data Base - Utilising Main Frame

Scientific Uses - Model 2

Lloyds Agency - An Application

Word Processing - Scripsit/Electric Pencil
- Hands on for newcomers

CPM - An overview and practical demonstration

Library - This will be available

Trips - These will be to local computer installations
eg. Open University, Scicon, Borough, M.K.D.C.
and local factories

Accomodation:-

On the Campus	-	Single rooms
On the Campus	-	In Your Caravan
On the Campus	-	In Somebody Else's Caravan
On the Campus	-	Flat (2 available)
Off the Campus	-	Local Hostelries
Off the Campus	-	Local Motel on M1 - Trust House, Forte

Payments - By cash, by cheque, by standing order, by access

WORKSHOP PROGRAMME FOR 1981

January	Week-end	Milton Keynes
February	Day	Birmingham
March	Day	Stoke-on-Trent
April	Week-end	Milton Keynes
	Day	Manchester
May	Day	Bristol
June	Day	Sheffield
	Day	Glasgow
July	Week	Milton Keynes
August	Day	Blandford - Dorset
September	Day	London
October	Day	Oxford
November	Day	Cambridge
December	Week-end	Milton Keynes

Notes:

1. This is the last year we can use Milton Keynes
2. During the summer we could arrange further workshops in August and September
3. Offers of good accomodation are welcome
4. Some subjects will be added/deleted on the day, which is what happened in 1980
5. Please ring the Milton Keynes office for details
6. The week at Milton Keynes will be quite a venture

LOCAL TRS-80 GROUPS

CHELMSFORD

Contact Michael Dean,
22 Roughtons Galleywood,
Chelmsford, Essex.

Meetings

ISLE OF WIGHT

Contact M. Collins,
3 Altofts Gardens,
Ventnor 85 2008

Newsletter - Meetings

Classified Advertisements

PER INSERTION

£20 per A4 side
£10 per ½ A4 side
£5 per ¼ A4 side
Please ring for copy date

NUNEATON

Contact Alan Fortune,
47 Northumberland Avenue,
Stockingford, Nuneaton,
CV10 8ER

Tel: 0682 348972

HULL

Contact Frederick Brown,
421 Endike Lane,
Hull

Tel: 0482-859169

Meetings - second Tuesday monthly

Newsletter

NORTH WEST GROUP

Contact Melvyn D. Franklin
40 Cowlees,
Westhoughton, Bolton
BL5 3EG

Tel: 0942-812843

Newsletter - Meetings

BLANDFORD FORUM

Contact Os House,
Higher Shaftesbury Road,
Blandford Forum,
Dorset,
DT11 8SS

Tel: 0258-53737

Meetings

HASTINGS

1066 TRS 80 Club

Contact Keith Hodgson,
The Bungalow, Chapel Park Road
St. Leonards on Sea,
East Sussex,
TN37 6HU

North London
John Wellsman,
292 Caledonian Road,
London N1.
Meetings:- 2nd Friday
6.00/6.30 Monthly.
Tel:- 01-607-0157

WEST LONDON
John Carne,
14 Lyncroft Gardens,
Ealing,
London W13 9PO
Tel:01- 567-7873 (Home)
01-993- 1462 (Work)

EAST MIDLANDS

Contact Mike Costello,
17 Langbank Avenue,
Rise Park,
Nottingham, NG5 5BU

Newsletter

OXFORDSHIRE

Contact S. Bird,
139 The Moors,
Kidlington,
Oxford, OX5 2AF

Tel: 08675-6703

Newsletter - Meetings

PLUS MILTON KEYNES - every Sunday morning and Tuesday evening.

Local Groups (continued)

Colchester Area
Contact:Roy Smith
8 Mallard Close,
Layer-De-La-Haye,
Colchester,
Essex.

Tel:Layer 442

Meetings:- Weekly
(Anticipated)
Details:- From Above

Glasgow Area
Contact: Tim McPherson,
Tel: Uddingstone (813717
or 812797)
No Meetings as yet as no
premises available but
meetings anticipated.

Medical Sub-Group
Contact:Nick Robinson,
The Residences,
Northwick Park Hospital,
Watford Road,
Harrow,
Middx HAI 3UJ.

Educational Sub-Group
Contact: Dave Futcher,
Beaconsfield First & Middle
School,
Beaconsfield Road,
Southall,
MIDDX.

Tel: 01-574-3506 (School)
01-743-5310 (Home)

****

MERSEYSIDE MICROCOMPUTER GROUP

TRS-80/VIDEO-GENIE SPECIAL INTEREST GROUP

The Merseyside Microcomputer Group has now formed a special interest group for those interested in the TRS-80 and Video-Genie machines.

Anyone who wants further information should contact Peter Tootill on:-

(051)922 7260 ext. 250 or 211 (work)

or (051)220 9733 (home)

****

IPSWICH AREA

Contact: Geoff Jackson.
40 Westgate Street,
Ipswich.

Tel:
(0473) 218855

Meetings Anticipated.

BARROW-IN-FURNESS. Sub-Group.

Contact: J . T. Lowther,
131 South Row,
Roose,
Barrow-in-Furness.
Cumbria.

Tel: (0229) 34953 (Home)
26214 (Business)

Meetings Anticipated.

NATIONAL TRS--80 USERS GROUP

NEWSLETTER

VOLUME 2 ISSUE 6 DECEMBER 1980

CONTENTS

2 Editorial
3 Members' letters
9 Software selectable lower-case/two-speed/reverse video
12 Amending the EDTASM/CMD module supplied with NEWDOS
15 Duplicating machine language tapes
16 Programmed I/O with the Intel 8255
17 Setting memory size from within a program
18 Some experiences with Model II
20 Interfacing the Programmable Sound Generator
21 Various notes on using the Tandy Editor/Assembler
26 Interfacing a slave Z-80 to the TRS-80
27 Computer Bulletin Board
29 In defence of ZEN
33 Efficient cassette file handling
34 Floppy tape section
39 Cambridge workshop report

EDITORIAL

Another bumper issue this time. I've decided to cut the printing costs by pasting up two pages side by side on an A3 sheet, and then having the double page reduced to A4 for printing. This makes for a less convenient layout, perhaps, but is the best I can do in the time available.

Several members have expressed an interest in 80-NET, and it should be operational by the time you get this issue. I've got the FORUM-80 software, and we are just waiting for the modem to arrive.

We actually got a mention in the latest issue of Byte, in the clubs and newsletters section. One or two TRS-80 users in the States are interested in our activities, and I think I shall see if we can exchange newsletters with some of the American groups.

Merry Christmas and a happy New Year to you all from Brian and myself.

Leon Heller

Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.

Tel: (0908) 613004

Publisher:-

Brian Pain,
40a High Street,
Stony Stratford,
Milton Keynes.

Tel: (0908) 566660/
564271

MEMBERS' LETTERS

From Peter McCormack

The newsletter arrived this week and I notice that my question about the pound-sign is answered by Anthony Haddock. I wasn't able to try his suggestion for substituting the pound for the dollar because, even though I had the free Tandy cassette mod a couple of weeks ago, I still can't load tapes when in Disk Basic under any circumstances and would consider myself pretty lucky if I succeeded in Basic2! This means I haven't been able to get the ULCDVR onto disk so my lower-case output has, hitherto been limited to Scripsit.

This problem is now resolved because I've just bought the 'TANDYMAIL' program and ULCDVR is on the disk.

You asked about Kompass codes - these are product group codes used to identify the activities of companies listed in the UK Kompass Directory, part of which is a directory of companies compiled on the basis of (a) membership of the C.B.I. and (b) a minimum scale of operation (not sure whether this is assessed on turnover or size of labour force).

Kompass Directory is a monster two-volume publication which goes into immense detail about economic activity and deployment of resources. Last time I noted the cost it was around £75 (pounds) per annual edition but, fortunately, people like me can buy a regional section for something like £10.00.

The codes are a simple selection I/D to use when building a mailing list and there is the advantage of operating within an established convention.

Anyone interested in Kompass should write to :-

Kompass Publishers Limited,
Windsor Court,
East Grinstead House,
East Grinstead,
West Sussex RH19 1XD.

Your comments on the limitations of the Howe Database program are well founded. I sent for the advertised 'Primer' from Micro Data Base Systems ($10.00 by airmail) and, while this is an overview of their own implementation, it contains enough hard information to be worth the money.

Never-the-less, $900.00 is more than my own business could justify when the main requirement is for a versatile

mailing list with selective output. I've therefore settled on the TANDYMAIL package which is also marketed direct by the authors, Understanding Ltd., as CORDEX.

First impressions of this are favourable - it's fairly complex on first acquaintance and needs a certain amount of forthought if its facilities are to be fully exploited. So far I've spent an evening reading the manual plus an evening running the demonstration material on the system.

In addition to name & address fields (which can be output to labels), a total of 100 characters of additional information can be stored against each record. This additional information can be organised in such a way to allow selection, sorting and printing of records by various criteria and there are several output options.

It's a very elegant program which keeps you informed about what's going on. Whenever input is demanded, the maximum number of characters is represented by 'blobs' which are overwritten as you type.

On the debit side, the name & address fields are rigidly defined and oriented towards consumer market applications. The 'name' field doesn't have enough space to accomodate company names, some of which can be quite long and difficult to abbreviate. Also, there is no provision for printing labels addressed to an individual within a company. The only way round this appears to be to use the 'name' field for the executive's name and to place the company name on the first address line but this screws up other program features like summary file listing.

Snags like this emphasise the pig-in-a-poke nature of packaged applications software although it's not really fair to use this program to illustrate the point. It's a versatile, well-documented product and well worth the money ($89.95).

Peter McCormack,
57, Garners Lane,
Stockport,
Cheshire SK3 3SD

From John Wellsman

I was interested in Anthony Haddock's note about the use of the '$' sign with the Tandy lower case mod. I had been exploring the problem myself but found that I was so used to seeing 'A$' on the screen that 'A$' looked a bit odd. So looking for an alternative, I realised that the upper case '@' never appears to be used (except to confuse with 'PRINT @'), so by modifying the Tandy ULCDVR, I have put the pound sign there. The modification is very simple and is achieved by changing relative byte 4FH on sector 2 from 40H to 60H (Japanese members substitute 7FH for 60H). With this mod. the '$' sign can be used in a limited but quite useful way with the PRINT USING function. However, neither this mod. nor POKEing 96 into the dollar address will affect hard copy printing; it will still be necessary to use the American pound sign as this is interpreted by most printers as the pound sterling sign. (I hope Leon's printer does).

In answer to Alan Farr's letter, the first query deals with an effect that I cannot repeat on my system (48K with Tandy 1/c mod.) But it is possible to show how keys can be used for control purposes. Alan will know that PRINT CHR$(23) will produce large characters on the screen. If the following little program is run:-

```
10 CLS
20 I$=INKEY$: IF I$="" THEN 20 ELSE B=ASC(I$)
30 IF B<>65 THEN 50
40 PRINT CHR$(B-42)
50 PRINT "TEST"
```

entering any character except 'A' will print 'TEST' normally but by pressing 'A' will print 'TEST' in large characters. I presume that this is the sort of control that Nigel Dibben had in mind.

With regard to loading Tandy's tape version of Edtasm onto disk, this is, I beleive, impossibe without a considerable amount of re-writing but a disk version is now available from Tandy and also is on NEWDOS+.

Alan's fourth query about the POKE function is due to a misunderstanding about the way of working out addresses above 32767. The POKE address must be an integer and the largest integer possible on the TRS-80 is 32767; so 32768 cannot be used. The smallest integer that is available is -32768. So the POKE address next above 32767 is -32768 followed by -32767,-32766,-32765 and so. The way of calculating the POKE address from the desired address is with the formula "-1 * (65536- desired address) but the number 65536 has no reference to the size of memory of the system being used. A slightly simpler method is to subtract 65536 from the desired address, which of course

produces the same result.

A Model I TRS-80 with maximum memory on board is described as having 48K, which makes it appear to have a smaller memory capacity than a 64K Model II. But this is deceiving as they have the same 64K of memory. The difference in description is that about 16K of the Model I's memory is in ROM holding the BASIC interpreter, etc which leaves 48K of RAM which is available in Level 2 but when disks are added about 10K of this available memory is needed for the disk operating system together with an extension of BASIC comands which leaves about 38K in the Model I. But in the Model II, although it is, quite rightly, stated to have 64K, this is all RAM, but about 28K of this is needed for the BASIC interpreter and disc operating system, leaving only about 36K available for usable memory, less than the Model I! Needless to say, the apparently lower memory is not the disadvantage which it appears. One advantage is that it is possible to load other languages into the Model II RAM to replace the BASIC interpreter and still have more or less the same amount of memory available whereas with the Model I, to implement another language, it is necessary to use available memory for this, leaving perhaps only 16K over.

Actually 64K signifies rather more than it says; it really means 65536 addresses of memory, i.e. 2 to the power of 16 and this is from where that magic number in the POKE routine comes.

John Wellsman,
Prospect Cottage, The Common,
Flackwell Heath, High Wycombe,
Bucks, HP10 9PQ

From Peter Tootill

Having only just bought my TRS-80 I'm very much a newcomer to the micro fold, but I'm trying to start a TRS-80/Video-Genie group within the Merseyside microcomputer group, with very little success so far. Perhaps you could give us a mention in the next newsletter, and ask anyone who lives in this area and who's interested to give me a ring on (051)220 9733(home) or (051)922 7260 extension 250 or 211(work).

Whether we get anything going or not obvously depends on the response, so come on all you '80 fans in Merseyside, give me a call.

Peter Tootill,
101 Swanside Road,
Liverpool L14 7NL

From Bertil Hagnell

Thank you for your excellent work with the TRS-80 Newsletter.

I would very much appreciate it if you are able to send me information about the 50Hz modification of the CPU for a better video display.

TRS-80 has just been introduced to the Swedish market. It is very expensive here, about $1000 for the 16K Level II, so I ordered mine from the USA (C&S Electronics Mart, Michigan). I have not received it yet, but it will arrive any day now (it's in the customs office).

Are there any more Swedish members in the Users Group? If so, they might care to get in touch with me.

Bertil Hagnell,
Tonsbergsgaten 3,
S-16334 Spanga,
Sweden
(* Tandy promised us some more of the video mod. kits, but they seem to be a long time in arriving. Try:

Comp Shop,
14 Station Road,
New Barnet,
Hertfordshire. Tel: 01-441 6596

I believe they sell the kits for around $8. LFH *)

From Brian Shepherd

We are trying to set up a local TRS-80 User Group down here and short of advertising in the local press we simply find it a little difficult finding local users.

Being something of an Adventure freak and having recently obtained twin disk drives, I want to load my Adventure tapes the "quick way". Unfortunately, they overwrite DOS and I cannot seem to get around the problem. Your advice would be appreciated.

Brian B. Shepherd,
The Security Centre,
203 West Street,
Fareham,
Hants. PO16 0EN Tel: Fareham 289114

(* If you have NEWDOS+, you can use LMOFFSET to produce a version of Adventure that loads above DOS (7000H, say). Then LOAD ADVENTURE, go into Level II BASIC and execute the System program residing at 7000H. The appendage attached by

LMOFFSET will move the file back to its normal position in memory where it will execute in a Level II environment. Once you have the 'appended' version on disk the process is quite rapid. One or two members have actually modified Adventure; perhaps they could write an article on the technique. How about it, Derek Bxxxx? LFH x)

THANK YOU FOR THE NEWSLETTERS, I FIND THEM FULL OF INTEREST, BUT AS A NEWCOMER TO THE TRS, QUITE A LOT OF THE CONTENT IS WAY ABOVE ME.

TO INTRODUCE MYSELF, I AM A HEAVY VEHICLE MECHANIC, NEARLY SIXTY YEARS OLD, INTERESTED IN PHOTOGRAPHY AND ELECTRONICS. THE LATTER INTEREST LED ME TO MICROS. I BOUGHT MY FIRST, A NASCOM 1, AT BREADBOARD'78. (HOW I WISH SOMEONE HAD TOLD ME ABOUT MACHINE CODE). IT WORKED RIGHT FROM THE FIRST POWER UP, BUT I COULD NOT USE IT BECAUSE MY KNOWLEDGE AT THAT TIME WAS A SLIGHT SMATTERING OF BASIC. I ADDED 8K RAM AND SUPER TINY BASIC. THAT REALLY CAUGHT MY INTEREST, AND SOON I FOUND THAT THE MATHS WAS'NT BIG ENOUGH, SO I DECIDED TO UPGRADE. NASCOM WERE IN TROUBLE WITH. NASCOM II AT THE TIME, AND AS I WAS IN THE BARNET AREA, I CALLED IN AT COMPSHOP, SAW SOME DEMONSTRATIONS, AND BOUGHT A 16K LEVEL II TRS-80.

I CERTAINLY FOUND ENOUGH MATHS IN THAT, AND DECIDED TO EXPAND TO DISC BEFORE REALLY LEARNING HOW TO USE THE SYSTEM. SO I BOUGHT 32K EXPASION(COMPSHOP), PERTEC DRIVE0(ROSTRONICS), MICROPOLIS DRIVE1(TANDY) AND A BASE 2 PRINTER(INTELLIGENT ARTEFACTS). A DISC INSTRUCTION COURSE ON 4 DISCS(TANDY) COMPLETED MY SYSTEM. AND EVERYTHING SEEMS TO WORK.

I HAVE NOT HAD ANYTHING LIKE THE TIME I WOULD HAVE LIKED, MY SPARE TIME SEEMS TO DISAPPEAR SO QUICKLY THESE DAYS, BUT I AM DOING SOME PRACTICE. I HAVE RUN INTO A FEW SNAGS, HOWEVER. ONE IS THAT I BOUGHT NEWDOS+ AND GOT APPARAT DOCUMENTATION WITH IT. I FOUND THAT IT WAS NEVER INTENDED FOR A BEGINNER. THE WORDS MEAN LESS THAN NOTHING TO ME. ANOTHER IS THE TANDY COURSE. I HAD LEARNED TO MAKE BACKUP COPIES, BUT HAD FAILED TO DO SO. I DID WRITE-PROTECT THEM, HOWEVER. NOW I FIND THE PROTECT PATCH IS MISSING FROM THE SECOND DISC, AND SOMEHOW IT HAS BEEN CORRUPTED SP THAT IT NOW WILL NOT LOAD. THE OTHERS SEEM TO RUN OK. I DON'T KNOW HOW OR WHEN THIS DAMAGE OCCURED, BUT I DO KNOW THAT THE DISC RAN OK WHEN IT WAS FIRST NEW. IF ANYONE COULD GIVE ME ANY INFORMATION ON APPARAT DOCUMENTATION, OR ON HOW TO CORRECT THE DISC ERROR, I AM PREPARED TO PAY FOR THEIR EFFORTS, AS IT SEEMS LIKE A LOT OF TIME IS NEEDED.

I TOOK ADVANTAGE OF MIKE GIBBONS OFFER OF A TICKET TO NEC. I WENT ON FRIDAY, BUT SOMEHOW MANAGED TO MISS MIKE, EVEN IF HE WAS THERE ON THAT DAY. AS I SAID WHEN I WROTE TO HIM, I HOPE TO MEET HIM AT THE BIRMINGHAM WORKSHOP. IF NOT, THEN STOKE IS NOT FAR AWAY EITHER.

MR J C BAKER,
3,CHESTERTON ROAD,
HORNINGLOW,
BURTON-ON-TRENT,
STAFFS. DE14 2SB.
TEL:-(0283) 41808.

SOFTWARE SELECTABLE LOWER-CASE/TWO-SPEED/REVERSE VIDEO

Since my last contribution I have installed the software selectable lower-case/two-speed/reverse video options and the following notes may be of help.

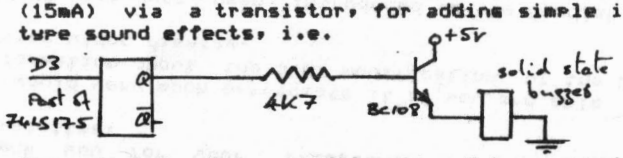
1) There is an error on page 107 of the Technical Manual. The spare LS32 gates are on Z25, not Z23 as indicated. Leave Z23 well alone.

2) First piggyback the 74LS175 latch on Z59 by pins 4,5,8,12,13,16. Then release the earthed pins by scoring at board level (be careful not to damage any tracks) and snapping/ levering the legs up with a screwdriver. This is in fact quite easy and a lot less dramatic than it sounds - see Fig. 1. Then wire up Z24, Z25, Z30, Z37, Z41, Z42 and the 74LS175 with fine (soldered) wire-wrap wire in accordance with September's diagrams. Now piggyback the tri-state buffers 74LS125 onto Z42 by pins 7 and 14 (the power supply pins), and wire up to the latch and the (previously installed?) wires from the SPDT switches for U?L case and two-speed. Finally check wiring and solder splashes. Switch on and make sure the buffers are wired correctly for normal operation on system reset.

3) The mofications are well worthwhile. Black lettering on a white screen has much better legibility, and is not as susceptible to hum bars. Apart from this, video reversal (OUT 254,4 on my system, or OUT 254,0 for normal) on changeover in two player games improves graphics no end, although there is a momentary loss of sync. on my monitor on transition back to normal.

4) The two-speed mod. does enable speed-up during games as well as under command mode (keyboard debounce becomes a problem for the first time on my system) and writes and reads 750 baud tapes quite satisfactorily.

5) The lower-case hardware can now be selected automatically by the software driver, and by any application programs requiring it. The last latch section (OUT 254,8) has been used to operate a solid-state buzzer (15mA) via a transistor, for adding simple impact or alarm type sound effects, i.e.



The other hardware modification I have carried out is to put five more keys in the keyboard matrix on row 4 (address 3808H, column 3 to 7), after 'Z', using an old calculator keyboard. This enables me to enter all the special

characters Anthony Haddock was talking about in the October issue directly (or at least my old video ROM version of them) i.e.

I've also filled in the matrix positions on row 8 (address 3880H) 1 to 7 as special function keys which will respond to PEEK commands from within programs - again with some spare keys from the calculator keyboard. For those with the new keyboard (with its new ROMs) the new row 4 keys should enable you to enter the control characters 27-31 directly with shift pressed.

I've got two more hardware projects to be implemented which may be of interest. As most members probably know, there are gaping holes in the Level 2 memory map between 3000H and 3FFFFH. In addition, there are a number of spare gates (still) on the board, and a spare 24 pin 2716 socket. The memory map is in fact:-

0000-2FFF	Level 2 BASIC
3000-37DD	unused
37DE-37ED	memory-mapped I/O
37EF-37FF	unused
3800-38FF	keyboard scan
3900-3BFF	repeat keyboard scan due to incomplete decoding
3C00-3FFF	video RAM
4000-FFFF	RAM

Two simple improvements are possible to 'plug' these holes.

The first involves the use of three spare on-board gates to fully decode the keyboard addresses (see Fig. 2). This enables 768 bytes of static RAM to be confogured in the space 3900-3Bff either internally or externally via the edge connector as a convenient and safe place to store those machine code utilities well away from the insecurities on 'MEMORY SIZE' overwrites or DOS overlays, and therefore unaffected by system resets.

The second area is to decode the addresses 3000-37EC (3000-37DF is much simpler in practice) to the spare 2716 socket (Z34 - ROM A) so that the lower 1984 bytes of a 2716 EPROM can be used for firmware. It can even be accessed through the base of the keyboard unit with a bit of case cutting. Now will someone volunteer to put Level IV, a decent cassette operating system, or even a TRS-80 'toolkit', in ROM, please? Fortunately, this decoding can be achieved with a single 74LS12 and two spare on-board inverters (see Fig. 3). There are not many spare gates left in my TRS-80! By the way, my preoccupation with spare gates is to try to minimise the extra loading on the TRS-80 power supply, which is

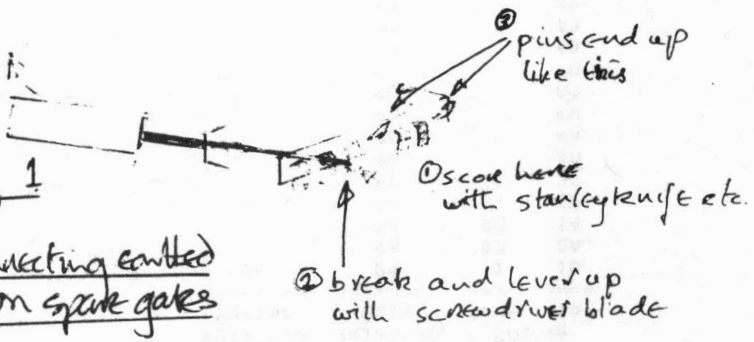
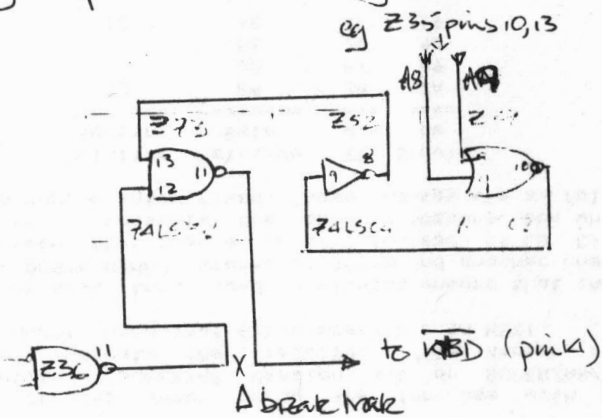


Fig 1

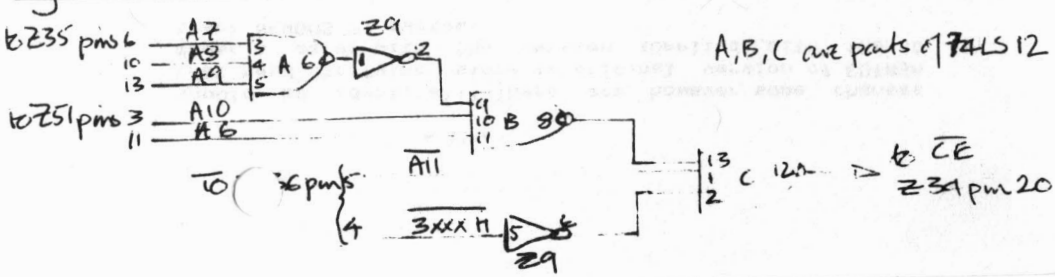
disconnecting earthed pins on spare gates

Fig 2 complete keyboard decoding using spare on board gates



see Tech. manual p 107

Fig 3 Rom B' enable &3000-&37CF (1984 bytes)



fairly near melting point on a standard 16K Level 2 system.

The second project is only at the design stage, but I'm putting together a general purpose (but simple) hardware port interface with pluggable modules for real world control (but not domination). The basic idea is:-

1) Four decoded ports with one common latch for input and another for output.
2) D/A converter with four channel multiplexer (actually a 12 bit converter enabling one of the higher bits to drive an interrupt line for excessive temperature etc).
3) Paddle interface, thermometer interface and facilities for connecting the real-time MSF clock and Morse code decoder described in previous issues.
4) Relay interface or AC interface.

I think it should cost about £5 - £10 with the A/D converter and temperature sensor. By the way, Henry's Radio at Edgware Road are selling new ITT 2020 games paddles at £1.25 the pair (+ postage, I expect) so if anybody's interested...

If there is any interest in the project I'll report it; if there is much interest I might try to sort ot out soon.

Alan Redhouse

AMENDING THE EDTASM/CMD MODULE SUPPLIED WITH NEWDOS

As you undoubtedly know the Editor/Assembler module supplied by Tandy was enhanced by the wizards at Apparat so that it would operate with disks. The one enhancement they did not make was to allow a return to DOS without requiring a re-boot of the system.

As things stand if the 'B' command is used a jump to the beginning of the ROM is taken which is the same as a reset. In a Level II machine this is fine because BASIC is automatically reinitialized. However in a DOS machine this causes a reinitialzation of the operating system. This is annoying particularly if one has various software active in high memory which then requires reloading, etc.

I have managed to figure out how to change the EDTASM in order to return to DOS using the 'B' command. This works for NEWDOS/21 as well as NEWDOS/80. (In fact the EDTASM/CMD module supplied by Apparat will execute under TRSDOS as well!) The EDTASM supplied with both systems

should be identical!! There are however some changes that need verifying since my original version of EDTASM doesn't agree with the version supplied with the 40 track NEWDOS/21 system.

The changes fall into 3 categories. (1) Append the code for command 'B' to the EDTASM/CMD file. (2) Change all references to the start of the text buffer to point past the new code. (3) Put the execution address of the 'B' command into the command table.

All changes shown below are for use with the DFS function of SUPERZAP Version 3.0 or SUPERZAP/80 since they indicate the relative file sector requiring amendment. Note that ALL numbers are in HEX!

The changes that need verifying ensure that the EDTASM uses DOS's HIMEM stored at 4049H and another unexplained amendment that does a LD C,25 instead of LD C,15. The latter is possibly due to some obscure bug which has been subsequently fixed. These changes are as follows:-

Relative Sector	Relative Byte	It was	Should be
03	B4	2B	2A
	B5	F7	49
	B6	2B	40
1B	68	0F	19

The additional code required to execute the 'B' command properly consists of instructions that replace a DOS address that EDTASM saves before overlaying when first given control, re-enables the interrupts and jumps to DOS. The changes to append the new code follow. Note that the previous contents of byte 9A onward are irrelevant.

Relative Sector	Relative Byte	Change from	to
1F	84	11	1B
	96	02	2A
	97	02	14
	98	00	6F
	99	6F	22
	9A		0D
	9B		40
	9C		FB
	9D		C3
	9E		2D
	9F		40
	A0		02
	A1		02
	A2		00
	A3		6F

The text keyed or loaded is stored in a buffer which begins at the end of the EDTASM module. Since the appended code makes the program longer than it was, the start address of the text buffer also changes. The amendments to change all the references to the start of the text buffer are as follows:-

Relative Sector	Relative Byte	Change from	to
01	29	3A	44
03	A3	3A	44
04	2D	3A	44
07	30	3A	44
08	04	3A	44
	7D	3A	44
0A	6E	3A	44
	B5	3A	44
0F	70	3A	44

All of the single character commands are stored in a table along with their respective execution addresses. The change to set the execution address of the 'B' command to use the appended code is as follows:-

Relative Sector	Relative Byte	Change from	to
06	54	00	3A
	55	00	76

The EDTASM will now return to DOS when the 'B' command is entered without a re-boot of the system.

There is an additional change that may be worth making if you have lower case drivers running. This eliminates the automatic conversion of keyboard input from lower to upper case that the EDTASM normally does. The change is as follows:-

Relative Sector	Relative Byte	Change from	to
1B	F5	61	80

Finally I should mention that a bug has been discovered in the original EDTASM as supplied by Tandy and propagated in the Apparat version. A fix has been distributed and it is as follows:-

Relative Sector	Relative Byte	Change from	to
13	AE	23	EB

AF	23	B7
B0	AF	ED
B1	95	52
B2	6F	11
B3	9C	7F
B4	95	00
B5	67	19
B6	19	24
B7	7D	25
B8	24	20
B9	28	0C
BA	07	7D
BB	25	DA
BC	20	80
BD	08	18
BE	2F	0F
BF	3C	00
C0	28	00
C1	0C	00
C2	07	00
C3	7D	00
C4	38	00
C5	08	00

Happy programming!

Jerry Ozaniec

DUPLICATING MACHINE LANGUAGE TAPES

I recently obtained a machine language program which I wanted to copy to safeguard the original.

Not having any specialised equipment to do it with, I decided to make a direct copy of the tape via another tape recorder. This I did, and the copy came out perfectly. In fact I occasionally had problems loading the original but giving my new copy a little base and extra volume I find it works every time.

Machines used were Bang and Ollefson 1100 + amplifier, coupled to a Ferguson cassette via a 5 pin DIN plug to 5 pin DIN plug 'mirror' lead.

Frank Hope

(* There is a program in the Library that enables machine language cassettes to be backed up. LFH *)

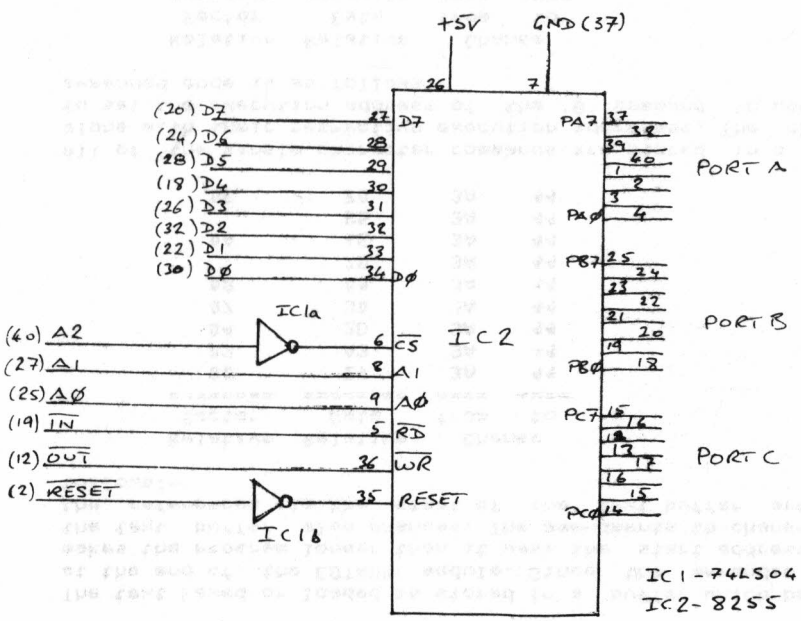
PROGRAMMABLE I/O WITH THE INTEL 82~~~~ 8255

Whilst the I/O techniques using latches and tri-state buffers that I have described previously are all that is required when simple interfacing to the outside world is desired, a need for a more sophisticated approach is sometimes needed. This article addresses that need.

Many of the semiconductor manufacturers produce programmable parallel interface devices, which are complex chips posessing two or more eight-bit ports which can be configured as inputs or outputs under software control. These can be extremely useful if you want a low-cost remote keyboard interface to your system, and you also want to drive an LED display, or for interfacing a paper-tape punch - something I am investigating.

Zilog, who manufacture the Z-80 used by Tandy for the TRS-80 CPU, manufacture such a device, the PIO or Programmable Input/Output. However, because the PIO needs to be connected to the system clock, which is not available on the TRS-80 bus, it cannot easily be used (although I know of one or two people who have done it).

Intel manufacture a similar device that does not require an input from the clock, the PPI or Programmable Peripheral Interface. This chip is extremely easy to interface to the TRS-80, as can be seen from the circuit diagram.



FIGURES IN BRACKETS REFER TO EXPANSION-PORT EDGE CARD REFS.

Three ports are available, and are accessible by I/O instructions to ports 4,5 and 6. The ports are configured for the desired operational mode by loading a control register (port 7) with an appropriate byte. There are very many options available, and I shall only give a very simple example of a program which pulses all the bits of port A. Further information is available from Intel.

```
10 REM PROGRAM TO TEST OPERATION OF 8255 PPI
20 REM PULSING OF BITS OF PORT A CAN BE OBSERVED
30 REM WITH A VOLTMETER, 'SCOPE OR LOGIC PROBE
40 OUT 7,128 : REM LOAD CONTROL BYTE
50 OUT 4,0
60 GOSUB 100 : REM DELAY ROUTINE
70 OUT 4,255
80 GOSUB 100
90 GOTO 50
100 FOR I=1 TO 200 : NEXT : RETURN
```

Leon Heller

SETTING MEMORY SIZE FROM WITHIN A PROGRAM

Members, and particularly Floppy Tape owners, may be interested to know how it is possible to set memory size for machine code routines from within a BASIC program, i.e. without answering the memory size question on power-up. this is necessary when putting long programs on to Floppy and using a DIRTOP relocation which will override any answer to the memory size question on power up.

What you do is insert as near as possible to the beginning of the program the following line, where N is the required memory size:-

```
N=**MEM size***
CLEAR 1000: MSB = INT((N-2)/256):
LSB = N-2-256*MSB: POKE 16561,LSB: POKE 16562,MSB:
clear the string space required by the program.
```

Robert Court,
30 Birkdale Road,
London W5 1JZ.

SOME EXPERIENCES WITH MODEL II

These comments refer to a standard 64K Model TI using the 1.2 DOS and BASIC as supplied. There is one extension drive and lineprinter III.

The system was purchased for a commercial client requiring to process a large number of invoices in a very busy and cramped office environment. A number of staff would be using the system and no-one wanted to know anything about programming.

Without doubt, within its price range, the model II is very competetive in meeting the requirement providing care is taken in making the system totaly user oriented.

However some problems arose and these comments are offered to Tandy as constructive criticism

1. The backup procedure is very much prone to abuse using two drives, and having twice backed up in reverse (by accidently specifying the source and destination drives the wrong way) this has now been scrapped and replaced by a self contained file copy system (transferring 100 records at a time) with no operator intervention.

2. There should be a System funtion to disable the break key without having to write a user function which then uses the service routine.

3. Similarly there should be a System function to specify the scrolling position and another to print from vdu to lineprinter. These are both possible providing user functions are written.

4. I still do not understand why certain disk errors occuring under Basic are reported as error code 1 (Next without For), rather than one of the Basic disk error report codes.

5. The door latch on the extension drive is at knee height and easily opened unintenionally. It would be better to use the same type of latch as on the System Drive (with indicator light as well).

6. The mains switch on the extension drive is also very exposed. However Tandy will bypass this with a keyswitch on the console (at extra cost).

7. The focussing on the VDU can vary across the screen, and from model to model. Variations in focussing are very tiring to operators using the machine for long periods.

8. This may seem a trivial point but it seems that tired business-men at the end of the day like nothing better than playing some games on their smart TRS-80. But there are no games for the Model II. I have converted the model I BlackJack and written a chase the snake the game but there is a demand for more.

P.J.Norris,
Rochester House,
Canon Frome,
Ledbury,
Herefordshire HR8 2TG.
Tel: Trumpet (053 183) 428

NEWS RELEASE - Software authors urgently needed!

Sigma Technical Press is well known, particularly in hobbyist circles, for its books on microcomputers. The company is now all set to expand into the area of software publishing for the small business end of the micro market. For Sigma, this is a significant change in direction, away from their traditional markets of educational and first-time users. Sigma will continue to penetrate this market, but they see business software as the growth area of the next decade.

Sigma intend to adopt a 'supermarket' approach to software publishing, using a two-pronged attack:

- Collections of small to medium sized programs that illustrate general techniques are particularly welcome. For these, the primary form of communication will be conventional books, supported by tapes and disks for those requiring computer-readable materials.

- Large, specialised business programs will use tapes and disks as the primary media. In this case, the printed word will be the supporting material.

In each case, Sigma will support the idea of software packages that are appropriate to particular ranges of microcomputers. This is exemplified by their recent publication 'Successful Software for Small Computers' which is approved by Tandy Corporation for their TRS-80 Model 1.

Sigma are approaching this whole area from the point of view of their book-publishing expertise. Authors will be paid royalties on all sales, and all products will be tested and reviewed by experts in the particular subjects. This will ensure maintenance of quality and standards, so important to all computer users.

Many hardware suppliers are opting out of the software race due to their commitment to hardware. This is unhelpful to users and, Sigma believe, will be ultimately detrimental to manufacturers. Without quality software, a computer is an EMPTY MACHINE. The new publishing initiative by Sigma will counteract this.

Prospective ftware authors should contact Sigma Technical Press on 0625- 53 05, or by writing to them at:

5 Alton Rd, Wilmslow, Cheshire, SK9 5DY

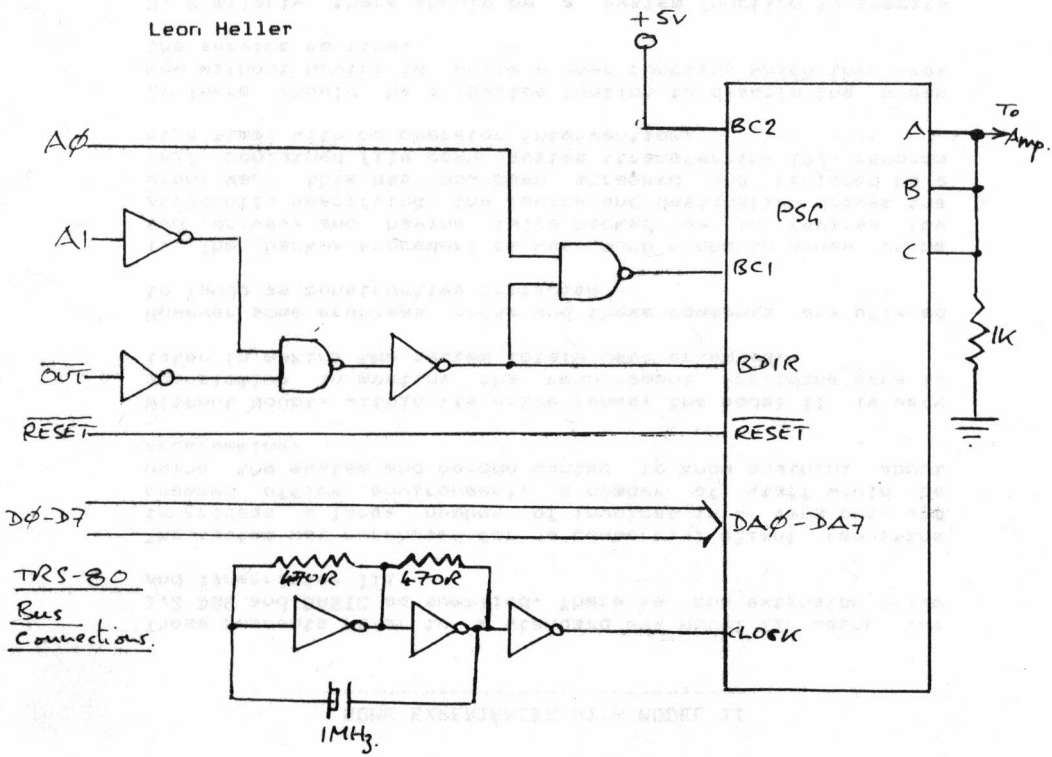
INTERFACING THE PROGRAMMABLE SOUND GENERATOR

The GI AY-3-8910/2 programmable sound generator (PSG) chips are fascinating devices. When interfaced to the TRS-80 (you only need a total of three chips including the PSG, a crystal and three resistors) you can produce virtually any sound effect you wish, with a few lines of BASIC. The circuit is described in outline only, so as to cater for both versions of the device. You will need the appropriate data sheet when assembling the unit. I hope to be producing some fully assembled versions complete with cable and connectors to go on to the keyboard or expansion interface port. You will have to provide a 5V power supply (a 6V lantern battery and series diode would do) and amplifier. The cost will be about $40.

Being of an idle disposition I won't bother to give a description of the device, and describe its mode of operation. All the details are covered in the data sheets, and there have been one or two articles in the electronic magazines.

The PSG looks like two consecutive output ports to the TRS-80 - Port 0 and Port 1. A PSG register is selected with Port 0, and the value to be loaded into that register is output to Port 1.
For instance, OUT 0,7: OUT 1,10 will load register 7 with the value 10.

Leon Heller



ious Notes on Using the Tandy Editor/Assembler

(for model I, tape based)

(1) The following errors in the Editor/Assembler documentation are not noted on the correction sheet.

Page 1 Col. 2 The definitions of # and * should be interchanged.

Pages 4,5 Command N: If the initial line number is unspecified then the current line number is used to start the renumbering, not 100 as stated.

Page 6 The sample use given in the text contains 6 errors, the first being in the first line. I suggest the following ammendments and improvements:-

1st line should be

*I100,10

Line no. 140 should be

```
LD      BC,3FFH          ;Byte count
```

Line no. 160 should be

```
LDIR                     ;white out screen
```

Line no. 190 should be

```
LP1    LD      HL,0FFFFH      ;Value to dec.
```

Line no. 230: for NO read NOT

Line no. 250: for 0H read 1A19H
(This gives a return to ready instead of a restart)

Line no. 260: change to

```
END    5000H
```

(This means that the resulting tape can be run with / instead of /20480)

Page 64 Col.1 line 17 should read DE 01

Page 73 Col.2 line 2 should read H 100

Page 103 Col.2 heading: for OUT(D),r read OUT(C),r

(2) Tips

(i) When assembling use the wait on error (WE) option thus:-

A FRED/WE

The assembly will stop at the first syntax error and wait for a key-press. Press the break key, and reply to

the prompt, *, by E (ENTER). You will then be editing the faulty line. Correct it, exit from the editor by E, and repeat the process to find the next error.

(ii) There are 3 ways of returning to the Tandy BASIC system after running machine code.

(a) By the jump instruction JP Ø at the end of the machine code program. This is exactly like turning the power off and on again. Thus you may leave the machine in any state you like.

(b) By JP 1A19H (or 66H) which returns to ready.

(c) (When the code was called from a BASIC program by the USR function rather than by SYSTEM). Return to your BASIC program with RET or, to return a value, put the value in HL and execute JP ØA9AH as stated in the BASIC manual.

For methods (b) and (c) you should leave the stack as you found it, so do a POP for every PUSH you did, do a RET for every CALL, and don't load SP explicitly.

For more advanced programmers there is an alternative to the above 3 rules, namely to save

the old stack and restore it when you finish. This is illustrated in the following example. The addresses are typical of what might used for a USR function to be used on a level II machine.

```
                ORG     7000H   ;=28672.
                ;Set this memory size before loading

OSTACK          DEFW    0       ;Reserve 2 bytes for old SP
START           LD      HL,0    ;Zero HL
                ADD     HL,SP   ;Add in the stack pointer
                LD      (OSTACK),HL  ;Save old SP
                LD      SP,7FFFH
    ;The body of the program goes here.
```

We start the new stack at the top of the memory, and it grows downwards towards the code. We have allocated 4K to hold both code and stack. At the end of the program we insert:-

```
                LD      SP,(OSTACK)
                RET
```

Also in cases (b) and (c) you should avoid writing over any other information that is important to the BASIC system. The best way to achieve this is to assemble the code to reside at the top of the

memory. Then set the memory size to the lowest address in the code. The system will then set the stack and all its working space below this address.

(iii) This tip applies to code to be called by the USR function. The level II manual tells you to load your BASIC program, then your m/c, using SYSTEM, and then POKE the start address of your m/c into addresses 16526-16527 using two POKE commands. However there is a short cut. In the assembly code place the label START where you wish to start execution when you call USR. Then at the end of your code write

```
ORG         16526          ;AN ADDITIONAL ORG
DEFW        START
END
```

After you have assembled the code the running procedure is:-

(a) Set the memory size.

(b) CLOAD your BASIC program.

(c) use SYSTEM to load the m/c.

(d) When the SYSTEM tape has loaded and you get the 2nd prompt *? don't type / but just hit break to get back to ready.

(e) Type RUN. The machine code has spliced itself into the USR function and no POKE is required.

Note: steps (b) and (c) may be interchanged if you wish.

INTERFACING A SLAVE Z-80 SYSTEM TO THE TRS-80

I have just finished wire-wrapping a small prototype system comprising a Z-80 CPU, 1 MHz clock, 1K EPROM, 128 bytes of RAM, 24 bits of I/O, a 16 channel ADC and some switches and LEDs for the person/machine interface.

Ultimately, this will form the basis of a general purpose data logging system, with any number of slave microcomputers in high-speed bi-directional serial communication with the TRS-80, or any other suitable microcomputer. Just to try things out I have interfaced the slave system to the TRS-80 via an 8 bit output port, and controlled some LEDs on the slave system from the TRS-80. The EPROM on the slave was programmed using a Softy intelligent EPROM burner, with the program downloaded from the TRS-80, following assembly on the TRS-80.

I am experiencing some difficulty in getting the ADC to work. The input multiplexer functions OK, but thats all. It must be an obscure bug in the slave system firmware - I've checked the wiring so many times I've nearly gone round the twist!

Leon Heller

COMPUTER BULLETIN BOARDS

One of the fastest growing uses of mircocomputer's these days is for exchanging information beteen computers over the phone

Private companies for a fee will let you access their computers to run programs, game's and the like, or find a wealth of information, ranging from the lastest stock market prices to the lastest news from the new york times

There is an alternative to such national enterprises and one is up and running now in HULL with another to start in the midlands soon

Computer bulleting boards also known as electronic message systems supported by local computer groups,retailers, and idividual hobbyists are simple systems permitting the users to enter and retrive messages or information

There are several software packages available for running bulleting boards in the states , one of the most usful is FORUM-80 written by Bill Abney who has organized a network of operaters and standardized the systems the latest improvement to forum-80 is the downloading of programs both basic and machine code providing the caller has a suitable program for rereiving downloads

Although every bulletin board has its own personalty, as you will find out, there is total standardization of serial word length, parity, stop bits and board rates this means that you can program your RS232 board and communicate with nearly every bulletin board

WHAT DO YOU NEED?

To access a bulletin board system you need a personal computer or termial with RS232 installed a modem and a software program The programs must organise the communication between the keyboard, crt, and the serial port

This program can be written in basic although it is far more efficient to write a machine language program to do the job The concept is simple and you should be able to write a similar program for your system

The idea is to constantly scan the serial port and the keyboard for an input from the outside world If a byte is received by the serial port, then it is displayed on the crt or printed

Once you have written or purchased a terminal program, you are ready to call a bulletin board With the serial port set up as described in table 1, pick up the telephone receiver and call the nearest bulletin board system When the other end answers, you should hear a tone on the line

Set your modem on originate as described in the instruction manual If all goes well, some sort of message will appear on your CRT/printer If not, press your carriage return key several times untill the distant system responds

The bulletin board system may ask you some mysterious questionsike 'DO YOU NEED LINEFEED?' and 'DO YOU NEED NULLS? (0 to 50)' answer 'N' to the linefed question

If you are using a printer with your TRS-80 slower than 300 baud, answer the NULLS question with an appropriate number between 1 and 50 If the number you enter is too small, the first characters in each line will not print because the head of your printer is in the process of a carriage return while those characters are being sent

By entering a large enough number to the NULLS question you force the bulletin board system to send null bytes (00 hex) while your printer is executing a return

USING THE BULLETIN BOARD

The buletin board now prints a greeting and asks you your name Use your given name; it's important Many of the bulletin boards scan the name inputted and compare it to the TO field of messages in the system The board indicates to

the person signing on that there is a message for him awaiting retrieval Signing on as "KLEMCAD:IDDLEHOPPER" defeats the whole purpose of bulletin board systems

Once you tell the system who you are, you can access the various functions of that particular system A summary of functions for the Forum-80 bulletin board systems is given in table 2

If, after calling the system you get lost, press your RETURN key several times to get back to the FUNCTION mode Then enter and H for HELP! This function explains how to use the system If you are totally lost, enter a T to EXIT, while in the FUNCTION mode, and the bulletin board system will disconnect

Do not hang up on a bulletin board system! Although the software is, in many cases, written to handle the user who just hangs up, hanging up could cause a system crash putting it out of service for many other users!

CONCLUSION

I would like to thank Bill Abney for all the information and help in starting FORUM-80 in the U K

During the last few weeks all the forum-80 bulleting boards have been updated and many new features have been added, If anybody is intrested in running a forum-80 bulleting board or would like more information on using a bulleting board please contact me at :=

FREDERICK BROWN.
421 ENDIKE LANE ,HULL HU6-8AG
TEL 0482-859169

Any one wishing to try contacting the bulleting board it it available on the above number on Tuesday and Thursday 7 00 Pm to 10 P M , Saturday and Sunday 12 00 noon to 10 00 Pm

By the way you do not have tobe a trs-80 owner to use the bulleting board any computer with an RS232 and a modem will be able to ring up and access it

FORUM-80 COMPUTER BULLETIN BOARD

FORUM-80 (the first in the U K) is a computerized bulletin board which is open for public use

Messages and notices can be posted and retrived over the telephone using a personal computer (or a main frame if thats all you've got) and a modem.

The system is oriented to the needs and intrests of the computer hobbyists, typical messages include :- for sale, wanted,personal,hints, Plus a library of programs for user to download to use on is own system

IN DEFENCE OF ZEN

As John Hawthorne, the author of ZEN, will probably not see Leon's somewhat less than adulatory review of his combined editor, assembler and debugger package, I would ask for this opportunity to leap to its defence.

Like all disk users I can appreciate the frustration Leon must have felt when handed a machine code package written for LEVEL2 tape use, that isn't on disk and clobbers the DOS when he tries to load it.

But in fairness to ZEN he really ought to have dug out and used his old tape based EDTASM as well and reminded himself of what he was comparing ZEN with, rather than bemoaning the fact that it wouldn't support macros and that he couldn't understand the fairly straight forward instructions.

A lot of the features that put, in my opinion, ZEN in a class way above EDTASM, Leon seems to have not noticed, so here we go.....

Firstly, having just received through the post your cassette the next problem is to prepare a back-up copy using your own recorder. Put EDTASM back in its box and go out and order MONITOR 3 or COPSYS; on the other hand as soon as it is loaded ZEN has most of the useful features of MON3 ready and waiting.

The WO (write object) command will write a system tape not only of ZEN itself but of any part of memory. This and the other extra features put ZEN not just a tenner (curse these machines without a pound sign) cheaper than EDTASM but more like double that figure after allowing the benefit of the monitor commands. Or put it another way, you would probably still have change enough to buy Howe's book, Barden's book, Pathways Through The ROM and a large bottle of assembler's aspirins. (Pt No. 26.0FFFFH at your Tandy store).

Having got that over with I will now concede that the EDTASM manual (most of it just the ZILOG Z80 data sheets) is a very good and useful reference book and perhaps marginally better than ZEN's, but at what a cost.!!!!!

Whilst on the subject of tapes, ZEN has the ability to verify its own source and object as well as other system tapes without degrading any program or data in memory. This is possible only because ZEN source tapes are written in block format with checksums, as all computer magnetic data should be recorded. Try and verify a recording of your masterpiece source EDTASM tape - impossible without

another TRS80 - so before it is lost forever in the bowels of the notorious CTR80 get it written down on paper.

Just to make matters worse, EDTASM's tape format can take up to 500% more room on the tape than ZEN's. Take a simple example like the assembler's friend 'INC HL'. This will take with EDTASM 14 bytes on cassette and 10 in memory; with ZEN the same instruction takes 7 bytes both in memory and on tape, plus the occaisional checksum.

The reason for the big difference is firstly EDTASM's need for an actual line number to be associated with each line of source code, just like BASIC. There's no necessity for this number as it is a simple proceedure for the assembler to scan through memory counting 0DH's at the end of each line, as ZEN does, to determine line numbers . EDTASM's writers however chose to use line numbers so that the editor could be a simple copy of the BASIC one in ROM. This meant that they then had to include a line renumbering routine that they should have put in ROM in the first place.

ZEN doesn't have a character based editor, but instead uses the simpler method of line replacement. As most assembler lines rarely contain more than a dozen keystrokes it makes for little difference.

The second big difference in memory usage is the much more compact form of ZEN source code, enabled by ZEN's ability to format the output of the assembly from free-format input.

Having got the source code into the machine we now want to test the machine code output. With EDTASM we assemble with the output to cassette; then system load the object tape and test it. Usually (what am I saying ?) INVARIABLY it doesn't work so reload EDTASM, reload sorce tape and correct errors, clean source tape and re-record, clean object tape and re-assemble.

Now with ZEN we can put a LOAD comand after the ORG in the source code and magic the machine code program direct into the TRS80's RAM. We can then use the monitor & debugger facilities in ZEN to look at the memory; jump into our program and by setting a breakpoint come back to ZEN, with the Z80's registers recorded by ZEN for inspection.

If there is a need to alter our program, ZEN still has the source code available and by editing and re-assembly we can repeat the cycle until the program is right or dawn starts to break, never needing to record anything on tape until the end. Needless to say ZEN assemblers get more sleep than their EDTASM counterparts. (O.K. the ZEN debugger has only one breakpoint, but that is better than sweet f.a.

that you get with MON3.)

If you want to put machine code routines into dummy BASIC strings then there's no better way than to use the Floppy Tape @ZEN which sits some 700 bytes above BASIC and can assemble direct into a BASIC program. A simple GOTO 1A19H from @ZEN returns to the BASIC interpreter and the program can be saved complete with its machine code USR routine. There's absolutely no need to get involved in POKing DATA statements ever again.

At the last workshop I had the original ZEN at 7000H with the source code (37K) of the Floppy @ZEN, the assembed Floppy @ZEN, and Aculab BASIC all active with a small BASIC program and we were able to jump from any one to any other.

Because of it's more wasteful use of memory Leon's friend, the Apparat NEWDOS EDTASM, would be incapable of holding the source file for ZEN never mind having memory spare for the symbol table. So can we have no more about ZEN only being suitable for short simple programs. Just for the record EDTASM couldn't handle the FLOPPY PENCIL source file but ZEN did it with 12K of spare memory.

Now for some weird reason Leon finds ZEN's capacity to assemble direct into memory as a hazard as by misuse one could load into ZEN and ruin the assembler. The same arguement applies equally to the POKE command in BASIC and the E&T commands in MON3 each of which by misuse would clobber themselves, not forgetting DEBUG and SUPERZAP, but I haven't heard Leon criticising Microsoft, Dr. Howe or Apparat.

Leon also alleges that ZEN is badly written as code and data are inextricably mixed thus making it non-relocatable. Now this puts John Hawthorne in some rather select company including the aformentioned Dr Howe & Microsoft as well as Randy Cook, Michael Shrayer, Apparat and the authors of EDTASM and SCRIPSIT; all of whom have produced software that will not relocate from low memory to high.

Surely the acid test of any software is whether it performs the function for which it was designed and not whether someone else's program is capable of relocating it. (I did offer Leon a copy of ZEN that would load from disk but he refused it).

Leon also got the wrong end of the stick with his comment on forward references. EDTASM when presented with an unresolvable label allocates the value zero and proceeds quite happily on its way, so that it is quite possible to define two variables in terms of each other without either one ever being initialised with a true value. e.g.

```
00100  ;source code
```

```
00110  VALX    EQU    VALY + 10
       ;more source code
00400  VALY    EQU    VALX - 10
       ;etc
```

There is obviously an error here, and it could go unnoticed by the programmer if line 400 was a long way after line 110. EDTASM would not spot the error, but ZEN does, as it regards it as an invalid forward reference.

As mentioned earlier ZEN has just given birth to @ZEN, the first editor assembler for the ACULAB Floppy Tape system.

With this version I have included a number of extra features (including a printer driver) and integrated the source and object file handling with the Floppy Tape system. It also reads EDTASM and MON3 symbolic dump tapes, ignoring all the unnecessary bytes and converting the input to ZEN format automatically. So it is now possible to assemble much larger programs than are possible with either the disk or tape based EDTASM.

For the last few weeks I've been using both the Floppy ZEN developing the FLOPPY PENCIL, and a disk ZEN re-creating itself in an ever improving fashion, it can even read directories. Source files, after ZEN has converted them from EDTASM format are showing a 40% reduction in disk space. With both versions I have made the source files totally compatable with Electric Pencil so that editing is now much better than EDTASM or EDIT80 could ever hope to be.

In my opinion the disk ZEN, in terms of flexibility, memory usage and the size of program capable of being assembled together with it's inbuilt monitor and debugger must make it the most powerful non-segmental assembler currently available on the TRS80.

Laurie Shields.

P.S. Just to avoid any confusion, John Hawthorne wrote ZEN for the Z80. He then adapted it to the TRS80 and after some contact between the pair of us, he sent me a copy of his source file and has allowed me to develop ZEN for the ACULAB system.

L.S.

```
1 'THIS SHORT PROGRAM DEMONSTRATES HOW IT IS POSSIBLE TO
WRITE REASONABLY EFFICIENT DATA FILES BY WRITING A SHORT
HEADER ,RATHER THAN THE 256 ZERO'S WHICH PRECEDE EACH DATA
ITEM IN THE STANDARD PRINT$-1,  ETC., ROUTINE
2 'IT WORKS BY CHANGING THE OUTPUT DEVICE DEFAULT IN
LOCATION 409CH FROM '0' (=VIDEO) TO '-1'(=TAPE) {'+1' =LINE
PRINTER}.THIS MAKES THE ENSUING PRINT STATEMENT OUTPUT ONLY
DATA TO THE TAPE MAKING IT POSSIBLE TO DEFINE A SHORT
LEADER (10-ZEROs)
3 'AND A SYNC BYTE (=A5H) AS PART OF THE DATA.AS THIS
PROCEEDURE MISSES THE PREAMBLE WHICH TURNS THE TAPE ON AND
OFF ANY APPLICATION PROGRAM USING THIS TECHNIQUE SHOULD
HAVE APPROPRIATE INSTRUCTIONS INCLUDED BEFORE AND AFTER THE
ROUTINE.
4 'IN PRACTICE, A DATA RECORD WOULD BE PACKED INTO A$
(<=239 BYTES) BY A PROGRAM LOOP READING ALL RECORDS
SEQUENTIALLY AND GOSUB-ING 100 TO WRITE OUT EACH RECORD.
RECORDS ARE READ IN AGAIN BY THE USUAL 'INPUT$-1, ETC.
ROUTINE.
5 '     THIS DEMONSTRATION PROGRAM SIMPLY WRITES KEYBOARD
INPUT DIRECT TO TAPE.
8 '
9 '             ***** INPUT DATA IN A$ *****
10 A$=INKEY$:IFA$=""GOTO10
15 IFA$=" "THENA$=CHR$(193)
16 PRINTA$;
20 GOSUB100
30 GOTO10
98 '
99 '             ***** WRITE TO TAPE SUBROUTINE *****
100 B$=STRING$(10,0)+CHR$(165)  ' HEADER + A5H SYNC BYTE
110 C$=B$+A$
120 POKE16540,255                ' SET PRINT DEVICE TO TAPE
130 PRINTC$
140 RETURN
198 '
199 '            ***** READ FROM TAPE AND PRINT ON SCREEN
*****
200 INPUT$-1,A$
210 PRINTA$;
220 GOTO200
```

FLOPPY TAPE SECTION

ALAN AND I HAVE AGREED, AS A STANDARD, A ZERO BYTE AS THE EOF MARKER FOR ALL SEQUENTIAL FLOPPY TAPE FILES.

AT PRESENT THIS INCLUDES ALAN'S EXTENDED FLOPPY BASIC (AMAZINGLY POWERFUL FOR THE AMOUNT OF RAM HE USES), THE FLOPPY @ZEN EDITOR/ASSEMBLER/FILEZAP AND THE FLOPPY ELECTRIC PENCIL.

TEXT FILES ARE TOTALLY COMPATABLE WITH EACH PROGRAM, PENCIL MAKES ASSEMBLER FILE EDITING A DELIGHT.

@ZEN IS NOW AVAILABLE (FROM YOURS TRULY) ON THE FLOPPY TAPE. IT HAS ALL THE FACILITIES OF THE ORIGINAL ZEN WITH A FEW EXTRA GOODIES I'VE PUT IN AS PART OF CUSTOMISING IT TO THE FLOPPY TAPE. MOST IMPORTANT IS PERHAPS THE POOR MAN'S SUPERZAP THAT WILL VERIFY FILE SECTORS AND ALSO GET AND PUT DAMAGED ONES.

AS SOME PEOPLE SAW AT CAMBRIDGE, I'VE ALSO GOT THE ELECTRIC PENCIL PATCHED TO THE FLOPPY TAPE AND IT PERFORMS VERY WELL. ON A 16K LEVEL 2 MACHINE IT MAKES A RATHER GOOD WORD PROCESSOR PACKGE AT AN ATTRACTRIVE PRICE.

I'VE NOT YET GOT ANY ARRANGEMENT WITH MICHAEL SHRAYER SO I CAN ONLY OFFER AT PRESENT THE FOLLOWING ARRANGEMENT TO ANYBODY WANTING A COPY:-

1. SEND ME A COPY OF YOUR ELECTRIC PENCIL.
   IT MUST BE A GOOD READABLE CASSETTE AS I WILL THEN

2. READ IT AND RELOCATE TO SUIT THE FLOPPY DIRECTORY

3. ADD THE FLOPPY FILE HANDLING COMMANDS

4. RECORD IT ONTO A 10FT FLOPPY TAPE

5. THE ONLY INSTRUCTIONS GIVEN WILL BE FOR THE NEW COMMANDS. IN OTHER WORDS I ASSUME THAT AN OFFICIAL COPY OF ELECTRIC PENCIL HAS BEEN BOUGHT INCLUDING THE INSTRUCTION MANUAL

6. THERE ARE TWO MODS TO PENCIL THAT ARE ALSO AVAILABLE:

TANDY LOWER CASE DRIVER THAT USES BREAK AS THE CONTROL KEY AND CLEAR FOR THE BREAK.

HIGH MEMORY PROTECTION THAT USES 4049H AS HIMEM TO PROTECT MACHINE CODE ROUTINES.

CURRENTLY @ZEN AND THE FLOPPY PENCIL PATCH ARE PRICED AT

$19.50 EACH.

NEWDOS 80 IS FANTASTIC

I'M JUST ABOUT TO START WORK ON INTERLINKING PENCIL AND SCRIPSIT WITH A TELEX PUNCH AND INTERFACE BOARD.

I DON'T THINK IT WILL RIVAL YOUR NETWORK BUT IT SHOULD BE FUN.

LAURIE SHIELDS

Here we go again folks! This month we bring you (with a little help from our friends e.g. Anthony Robson who wrote most of the programs), two unique and useful utilities arising from a good idea from Bob, who kept mucking his directory up and is too lazy to re-save the program,and from both of us getting fed up with writing down the start and entry addresses of machine language programs.

The first utility, DIRCHECK/BAS, when @RUN after @LISTing the tape will dump to screen the filenames with start and entry addresses for machine code programs (BASIC returning zeros and data files returning one zero and 256).

The second utility is, wait for it, RENAME/BAS!!! This allows you to rename programs already @SAVED, without calling them into memory first. First @LIST then @RUN RENAME/BAS. This will give a display similar to DIRCHECK/BAS but will then ask you for the filename to be changed. You are then asked for the new filename. Once this is entered the program will @SAVE and @KILL a dummy program called "REM". This is a ploy to make the F-tape save a new directory including the new filename (the main program will be lost). The only limitation on this utility is that there must be at least one free sector for the dummy program.

Thats all for now. Tune in next month for the next exciting instalment of the Floppy Tape saga.

Adrian Hancock
Bob James

1) If you have difficulty finding a file, type:

```
10 <ENTER>
@SAVE "REM":@LIST
```

This will write a new directory, and may help.

2) If you can find the directory, but can't load a program (length N sectors) try:

```
FOR X=1 TO N:@GET "FILENAME/EXT",X:?X;:NEXT
```

If a number is missing, a sector is bad.

3) The following may be useful:

```
OUT 240,(drive 0, or 241 drive 1 etc.)

1=RUN
2=STOP
3=PARK
4=WRITE (no RUN)
5=WRITE and RUN
```

Use is as follows:

```
@LIST "INSTRUCTIONS":OUT 240,2
```

If the INSTRUCTIONS program then calls the main program, it saves endless cycling of the tape.

Nick Robinson

(* I hope the above makes sense - Nick is a doctor, and has been trained, like most doctors, to write rather illegibly! Could all members please ensure that their handwritten contributions do not resemble the random meanderings of an ink-sodden spider. LFH *)

****

BDUMP

BDUMP is a program that enables you to use your disk-based TRS-80 Model I as a low-cost Z-80 development system.

Object code developed with a suitable assembler can be down-loaded to an EPROM programmer equipped with a serial interface (SOFTY is recommended) via the TRS-80 cassette interface and a simple level-conversion circuit (details supplied).

BDUMP is supplied on diskette, with full instructions.

Price - £30.00 (no VAT).

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD

Tel: (0908) 613004

****

PURGE - A FLOPPY-TAPE PURGE PROGRAM

```
1 @LIST:CLEAR 200:DIM F$(20):L=0
2 O=1
3 P=17408+((O-1)*16):IFPEEK(P+15)=0 THEN 15
4 IFPEEK(P)<65 OR PEEK(P)>122 THEN 16
5 Z$=""
6 FOR N=P TO P+10:Z$=Z$+CHR$(PEEK(N)):NEXT N
7 FOR N=1 TO 8
8 IFMID$(Z$,N,1)=" " THEN 11
9 NEXT N
10 N=9
11 X$=LEFT$(Z$,N-1):Y$=RIGHT$(Z$,3):Z$=X$+"/"+Y$
12 A$="":PRINT Z$;TAB(15)" DELETE YES OR NO";:INPUTA$
13 IF A$<>"YES" THEN 15
14 L=L+1:F$(L)=Z$
15 O=O+1:GOTO 3
16 IF L=0 THEN21
17 FOR N=1 TO L
18 PRINT "KILLING ";F$(N)
19 @KILL F$(N)
20 NEXT N
21 END
```

RENAME - A PROGRAM TO RENAME FLOPPY-TAPE FILES

```
1 CLEAR200:@LIST
2 O=1
3 P=17408+((O-1)*16):IFPEEK(P+15)=0 THEN 7
4 IF PEEK(P)<65 OR PEEK(P)>122 THEN 9
5 FOR N=P TO P+10:PRINT CHR$(PEEK(N));:NEXT N
6 PRINTPEEK(P+14)*256+PEEK(P+13);PEEK(P+12)*256+PEEK(P+11)
7 O=O+1
8 GOTO 3
9 O$=" ":INPUT"ENTER OLD NAME";O$:IFO$=" ":END
10 Z$=O$:GOSUB25:O$=Z$
11 O=1
12 P=17408+((O-1)*16):IFPEEK(P+15)=0 THEN 16
13 IFPEEK(P)<65 OR PEEK(P)>122 THEN PRINT O$;" NOT
FOUND":GOTO9
14 FOR N=P TO P+10:IFPEEK(N)<>ASC(MID$(O$,N-P+1,1)) THEN 16
15 NEXT N:GOTO 17
16 O=O+1:GOTO 12
17 INPUT"ENTER NEW NAME";W$
18 Z$=W$:GOSUB25 :W$=Z$
19 FOR N=P TO P+10
20 POKEN,ASC(MID$(Z$,N-P+1,1))
21 NEXT N
22 ZX$=""
23 INPUT"REPEAT";ZX$:IFZX$="YES"GOTO2
24 INPUT"READY TO
WRITE";ZX$:IFZX$="NO"GOTO34ELSE@SAVE"REM",1,32000:PRINT"DONE
```

```
!":END
25 M=LEN(Z$)
26 IF M=11 THEN 28
27 FOR N=M+1 TO 11:Z$=Z$+" ":NEXT N
28 FOR N=1 TO 11:IFMID$(Z$,N,1)="/" THEN 30
29 NEXT N:RETURN
30 X$=LEFT$(Z$,N-1):Y$=MID$(Z$,N+1,3)
31 IF N=9 THEN 32 ELSE FOR I=N TO 8:X$=X$+" ":NEXT I
32 Z$=X$+Y$
33 RETURN
34 CLS:PRINT@0,"READY":END
```

Dear Mr Heller

Further to our telephone conversation on Wednesday evening I am sending you the following information for inclusion in your news letter:-

> An evening course in Z80 machine language programming at Manchester Polytechnic - starting on 14 January 1981.
>
> The course is for ten weeks on Wednesday evenings from 6.45 to 8.45.p.m.
> Enrolment will take place at 5.45 p.m. on the first night in Room E20 of the John Dalton Extension Building, Oxford Road, Manchester (opposite the NCC Building).
>
> Fees: £20.

The course is intended for people who have done some programming in BASIC and assumes no previous knowledge of machine language. I, personally, have a TRS 80 and the course will lean towards this machine but will be suitable also for other Z80 based machines.

To give me some idea of numbers could you please let the secretary have your name sometime before enrolment - this is not absolutely necessary but it would be appreciated.

If you would like to know more about the course please telephone me - I may be 'out of the office' but I will 'phone back to you.

My Polytechnic number is 061-228-6171 - extension 2393 (Room E142) or to get the secretary the extension is 2326.

Yours sincerely

M K Cook
Lecturer in Computing/Physics

Report On Workshop Held 29th November 1980 Cambridge

The day was seriously affected by the weather as those arriving from the west drove into snow, and those leaving in the east start in snow. Our main speaker Micheal Dean could not make it along with several others. The hotel proved very comfortable with excellent facilities including coffee and two telephones.

11.00 Fast sorts using SRTV from infinite basic together with a review of using this sort in an office. Brian Pain. Here members were shown how this sort is now used in a working office together with the Timetabling.

12.00 NEWDOS 80 a review of the many features of this DOS together with comments on specific utilities eg spooling & chaining David Alletson Austin. David kindly went through this dos and assisted members with some experiences and comments. The feedback from these sessions proves that experiences and views are better than an advertisement in a magazine, and members can also run through the available documentation

13.00 Lunch Provided by the hotel was excellent and members found they could continue their conversation without having to interrupt any train of thought. For myself several members had a look at my timetabling and nominal ledger applications incorporating the infinite basic sort routine.

14.00 Communication with the outside world Leon Heller. Leon run through the current position of electronic network . Essentially the whole session explained the hardware and software requirements for a member to be able to utilise this new and exciting facility. During the afternoon Leon used the hotel's telephone on the wall and hooked up to the computer at Birmingham University. It is anticipated that at the London workshop in Southall (20th December) we will hook up to my system at Stony Stratford, with me at Southall. We shall see ! !

15.15 Aculab floppy & modifications to programs Laurie Shields. Laurie very kindly agreed to do a session and went over his work on the floppy tape, the Electric Pencil and Zen editor assembler. The floppy tape has proved an excellent add on for our equipment with several members assisting in the development.

17.00 Panel Leon Heller, Laurie Shields and Brian Pain This lasted over an hour and topics ranged from reboots, cassette loading, oxidation, Printer specifications, sources of interference, and workshop policy

Os House explained to those present the double sided, double density Shu carts that he had running as a result of obtaining a special board & removing the controller chip (1771). For further information contact him.

Well, we had to go home with snow about our ears and some ideas to mull over. The next morning we started all over again at 9.00am sharp with 3 members - the 3 Clays from Surrey - banging on my office door - well proverbially anyway.

Brian Pain

LOCAL TRS-80 GROUPS

CHELMSFORD

Contact Michael Dean,
22 Roughtons Galleywood,
Chelmsford, Essex.

Meetings

ISLE OF WIGHT

Contact M. Collins,
3 Altofts Gardens,
Ventnor 85 2008

Newsletter - Meetings

Classified Advertisements

PER INSERTION

£20 per A4 side
£10 per ½ A4 side
£5 per ¼ A4 side
Please ring for copy date

NUNEATON

Contact Alan Fortune,
47 Northumberland Avenue,
Stockingford, Nuneaton,
CV10 8ER

Tel: 0682 348972

HULL

Contact Frederick Brown,
421 Endike Lane,
Hull

Tel: 0482-859169

Meetings - second Tuesday monthly

Newsletter

NORTH WEST GROUP

Contact Melvyn D. Franklin
40 Cowlees,
Westhoughton, Bolton
BL5 3EG

Tel: 0942-812843

Newsletter - Meetings

BLANDFORD FORUM

Contact Os House,
Higher Shaftesbury Road,
Blandford Forum,
Dorset,
DT11 8SS

Tel: 0258-53737

Meetings

HASTINGS

1066 TRS 80 Club

Contact Keith Hodgson,
The Bungalow, Chapel Park Road
St. Leonards on Sea,
East Sussex,
TN37 6HU

North London
John Wellsman,
292 Caledonian Road,
London N1.
Meetings:- 2nd Friday
6.00/6.30 Monthly.
Tel:- 01-607-0157

WEST LONDON
John Carne,
14 Lyncroft Gardens,
Ealing,
London W13 9PO
Tel:01- 567-7873 (Home)
01-993- 1462 (Work)

EAST MIDLANDS

Contact Mike Costello,
17 Langbank Avenue,
Rise Park,
Nottingham, NG5 5BU

Newsletter

OXFORDSHIRE

Contact S. Bird,
139 The Moors,
Kidlington,
Oxford, OX5 2AF

Tel: 08675-6703

Newsletter - Meetings

PLUS MILTON KEYNES - every Sunday morning and Tuesday evening.

Consultation
Sales
Installation
Tutoring
Programming

Magnus Microcomputers
139 The Moors,
Kidlington,
Oxford
OX5 2AF.

08675 6703
Mon-Fri 8AM to 7PM
Visitors By
Appointment only.

Description	OxMiC Members ONLY RRP Ex VAT	Price Excl. VAT	Price Incl. VAT
Video Genie 16K RAM 12K ROM	£330.00	£285.00	£327.75
TX-80B Printer & Video Genie Interface	£430.00	£355.00	£408.25
Sound Unit (Internally fitted by dealer)	£ 15.00	£10.00	£11.50
9" or 12" Video Monitor B/W (12" Nov/Dec)	£ 69.00	£62.00	£71.30
RS232 interface Bi-Directional (Due Soon)	£ 52.00	£50.00	£57.50
Disk Drive 35 Track incl, PSU & Case	£250.00	£230.00	£264.50
Floppy Tape (Due Soon)	£173.00	£170.00	£195.50
TX-80B Printer & Pet Interface Board & Cable	£459.00	£375.00	£431.25
Accessories			
Video Genie OR Printer Cover Tx80B	£ 5.00	£4.50	£5.18
Printer ribbon	£ 3.80	£3.50	£4.03
Paper 2000 Sheets Fanfold 9½" * 11"	£ 17.00	£15.50	£17.82
Paper Roll of 8½"	£ 2.00	£1.80	£2.07
C12 Cassettes Each	£ .43	£0.37	£0.43
10 off	£ 4.30	£3.50	£4.03
50 off	£ 21.50	£16.00	£18.40
100 off	£ 43.00	£30.00	£34.50

Business Regn. Number 2611081 Proprietor S.C.Bird V.A.T. Registration Number 348 3299 26

I am willing to extend these offers to FULLY PAID UP members of the National TRS-80 Users Group.

Post & Packing will be charged to cover the cost of sending to you.

Please include 50p or 2% whichever is greater, for P&P.

Please allow 28 Days delivery.

All prices subject to change by my trade supplier.

Please tell other micro users about the NATIONAL MICROCOMPUTER CLUB. The club has been formed to draw all the micro clubs together into a strong body of micro users.

National Microcomputer Club
139 The Moors,
Kidlington,
Oxford, OX5 2AF.

NATIONAL

TRS-80

USERS GROUP

SUBSCRIPTION
RENEWAL
FORM

PUBLISHER.
B.C. PAIN
40A, HIGH STREET, STONY STRATFORD, MILTON KEYNES, BUCKS.

According to our records your subscription for issues 7-12 Volume 2
is due for renewal at £6 00

TO :

PLEASE ADD ANY CHANGE OF ADDRESS IN BLOCK LETTERS.

NAME :
ADDRESS

MY EQUIPMENT CURRENTLY CONSISTS OF :-

CPU .....
VDU .....
PRINTER .....
DISC .....
OTHER .....

MY INTERESTS ARE :-

BUSINESS ☐
SCIENTIFIC ☐
EDUCATIONAL ☐
HOBBYIST ☐
OTHER ☐.....

Sigma Technical Press

the UK software publisher

LIVING WITH THE MICRO by Martin Banks
By the editor of Microcomputer Analysis, this covers developments in the whole field of microelectronics. It emphasises 'Information Technology' — the combination of computers, communications and automation — and applications including: business systems, software, viewdata and education. "... a very brave effort at explaining a very complicated subject in simple terms, and the kind of book a managing director might read before recommending his board to spend half a million" (Electrical and Radio Trading).
Price £3.50, soft cover

SUCCESSFUL SOFTWARE FOR SMALL COMPUTERS by Graham Beech
This shows how to apply structured programming on a microcomputer, using BASIC. "... clear, easy-to-follow language. An excellent introduction to techniques such as LINKED LISTS, DATA STRUCTURES, SORTING, SEARCHING and SIMULATION. CHOCK FULL OF EXAMPLES ... EXCELLENT VALUE" (National TRS-80 Users Group Newsletter). Approved by Tandy Corp. for Model I, Level II.
Price £5.50, soft cover TRS-80 Cassette £7.50

COMPUTER PROGRAMS THAT WORK! by J.D. Lee, G. Beech and T.D. Lee
24 BASIC programs in maths, statistics, science and games. The UK best seller! "Well thought out with plenty of variety" (Micro Forecast).
Price £3.95, soft cover

Cheques etc. must be in Sterling on a UK bank.

Sigma Technical Press (T), 5 Alton Road, Wilmslow, SK9 5DY,

S Software for TRS80

Best Sellers from Southern:-

ACCEL Compiler for Level 2 BASIC £19.95
Accepts correct, properly-structured Level 2 BASIC programs. Gives 10-30 times improvement in performance of GOTO, GOSUB, RETURN, Integer operations, IF, THEN, ELSE, ON, SET, RESET, PEEK, POKE, POINT, FOR, NEXT

ACCEL2 Compiler for Disk BASIC £39.95
All the power of ACCEL on full Disk BASIC, plus performance improvements on non-integer operations and 1-dim arrays. String-handling 3 or 4 times faster

TSAVE Prepare System Tapes £4.95
Takes core-image backups of machine-code programs

FGRAF Fast Graphics £4.95
Machine-code subroutines. For drawing lines, moving balls and boxes. Callable from BASIC

SOUTHERN SOFTWARE, P.O. Box 39 Eastleigh, Hants. SO5 5WQ

Happy Memories

MEMOREX MINI-FLOPPY DISCS
IN PLASTIC LIBRARY CASES
Soft sectored for PET, TRS-80 etc:
£19.95 per 10 including VAT and Postage.

16K Memory Upgrade Kits for TRS-80, APPLE, 2020, SORCEROR £35 inclusive
(Stage your application)

RS-232 Plugs and Sockets
Male: £1.95 Female: £2.25 Hoods 75p

All prices include VAT. 30p postage on orders under £10. Government and Educational orders welcome.



HAPPY MEMORIES
GLADESTRY
KINGTON
HEREFORDSHIRE
HR5 3NY
TEL: (054 422) 618

VISA

Buy it with Access

National TRS-80 Users Group

Newsletter

VOLUME 2 ISSUE 7 JANUARY 1981

CONTENTS

2 Editorial
4 Members' letters
8 Lower case hardware patch
10 Modems
10 Chess programs
11 Simple EPROM programmer
12 Microline 80 linefeeds
13 Viewing the SCRIPSIT text storage area
13 Demise of the Model I
14 Disabling the FDC
14 Cursor location
17 Recovery of data file from a crashed Editor/Assembler
20 Electronic wallpaper
22 Control key for SCRIPSIT
24 Screen input program
27 A guide on how to use Newdos - Part 1
32 Memory protection routine
34 Communication between TRS-80 systems
35 Medical users group
35 Key repeat program
37 Screen clear with the Video Genie
37 Report on the Southall workshop
39 Model II - ERROR 49
39 Teac disk drives - a look inside
40 Daisies in the Spring!
41 Floppy Tape corner
41 Low-cost memory
42 Local groups

EDITORIAL

Well, here we are in 1981, with a lot of interesting developments due to take place in the microcomputing field. The Model III should be with us shortly, followed by the colour TRS-80. Tandy are rumoured to be working on a hard disk system for the Model II and III, and I saw somewhere that the Model II has several unused lines on the system bus, which will enable an upgrade to one of the 16 bit processors, and a lot more RAM. My guess is that it will use the Z-8000.

I think that 1981 will also see the introduction of networks on a wide scale, especially in the States. We have been having a bit of trouble with our modem; I have got it to work in originate mode at 110 baud, but there was insufficient information supplied with it for me to get it working in auto-answer mode - essential for 80-NET (our Forum-80 installation). Getting it to work at 300 baud is another problem. Frederick Brown gave me the name of someone who knew all about the things, and I now have sufficient information to get it working. I will leave a message on Frederick's Forum-80 when we are operational.

Please keep the contributions coming; provided they are not too long I don't mind too much if they are handwritten. If you send a printed contribution, please make sure the ribbon is not worn out, especially if it is a blue one: blue reproduces very badly at the best of times.

We have only received one howl of protest at the new format, from one member who said the print was too small, so I think we shall continue with the reduced size. Bertil Hagnell sent me the artwork for a much neater-looking front page, I hope you like it.

Leon Heller

Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.

Tel: (0908) 613004

Publisher:-

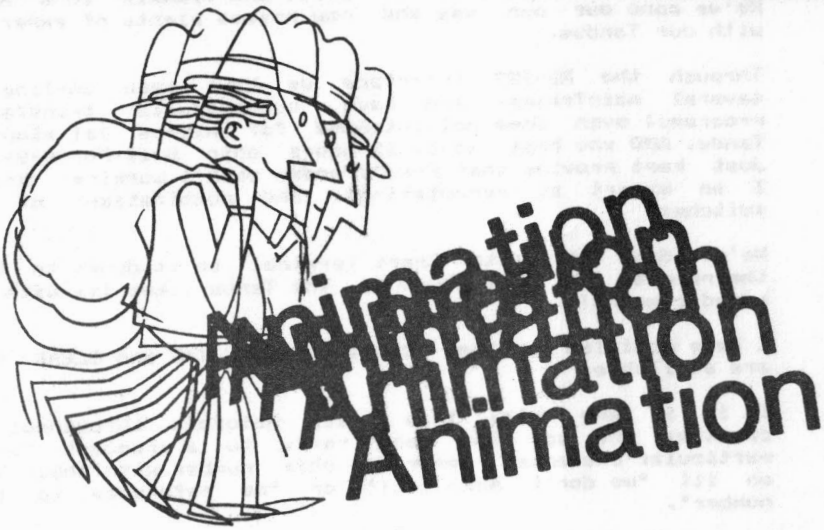
Brian Pain,
40a High Street,
Stony Stratford,
Milton Keynes.

Tel: (0908) 566660/
564271

INNOVATIVE

TRS-80 SOFTWARE

FROM THE PROFESSIONALS



Animate is a machine language program representing an entirely new breakthrough in the use of graphics on the TRS-80 or Video Genie microcomputers. As Walt Disney and others found to their profit some years ago, if you draw a number of separate pictures slightly different to each other, and then display them consecutively sufficiently fast, a moving picture is produced. This is precisely what Animate does. Pictures are built up as a sequence of frames, each one being as small or as large as you wish and composed using an easily used graphics cursor. The entire graphics content of a frame can be shifted in any direction so as to move objects without the need to redraw them in each new position. As each new frame is completed it is automatically stored in memory and given a number, so that it may be recalled and edited at will. The timing of the projection of each frame is definable up to a maximum of 100 seconds. When the picture is completed it may be viewed and edited as you wish. When the final picture is complete it may be stored on cassette as a SYSTEM program. Thereafter it may be loaded and accessed either by Animate or by any Basic program. Thus the same picture may be used in any number of different Basic programs, if you wish. Animate is available at present only on cassette for Level II or Genie machines of 16K and up. A disk version will be available shortly. A comprehensive manual is included.

£14.95 Plus VAT and 75p P & P = £17.94.

Send large SAE (38p) for our current Catalogue of TRS-80 software. Add £1.85 for a binder.

A.J.HARDING (MOLIMERX)

MOLIMERX LTD.

28 COLLINGTON AVENUE, BEXHILL-ON-SEA, E.SUSSEX.

TEL (0424) 220391 TELEX 86736 SOTEX G

MEMBERS' LETTERS

From Eric Hartley

As a new subscriber to the Newsletter, I read with interest the article on the Omicron Mapper.

The interchange of programs and systems is of real value to me. I own a Video Genie and work with TRS-80s at my school. The educational market is split and frankly in a mess. We've gone our own way and now possess plenty of expertise with our Tandys.

Through the RS-232 interface we have been on-line to several mainframes, and have successfully transferred programs; even some not intended for micros let alone a Tandy. AND you beat me by 12 hours onto Hull Forum-80. We just kept proving that Fred's modem wasn't working! Still, I am expert at permutations and combinations of DIP switches!

We've added things to Smart Terminal so it dumps to disk the program in ASCII just as the Tandy likes it, with one added command!

I have modified my Video Genie so that TAB and CLEAR keys are available.

If it is any help, I've tried Motorola throughout the country, and get the same reply to a request for a particular character generator chip number with their logo on it: "we don't make it!" or "no reference to that number".

I've plenty of information on the VG. e.g. How to create a Tandy compatible bus, and latest mods. to make the machine better.

Eric Hartley,
91 Quebec Road,
Lammack,
Blackburn,
Lancs. BB2 7DP.

(* I think some of the things Eric mentions would be of great interest to members. Please send them in.

I have had no joy with the new character generator chip, either. It is probably a standard part, but with a special number for Tandy, for which Motorola UK would have no record. LFH *)

From M. C. Barry

I received your invitation to yet another workshop, and felt the same disappointment that I felt many times before on checking the day on the calendar - a Satur).

It is obvious that you never give any consideration to your ordinary retail members who find it impossible to get off work on the busiest day - Saturday. I thought computer people (especially TRS-80 users) were logical thinkers! A workshop on the last Saturday before Christmas; the mind boggles!

Have you ever considered Sunday in London. Commuting is a pleasure, and rates of venues are cheaper and almost ALL members are off work.

Quite frankly, membership of the Group is of little use if I am unable to participate in this sort of thing. I would give a great deal to join in and receive the experience of others.

M. C. Barry

(* The previous London workshop included a Sunday session. I think that the Blandford workshop was on a Sunday, as was the Sheffield one, and there was a Sunday session at the Milton Keynes Workshop - I think that answers the criticism. Brian tells me that the workshop just before Christmas was very well attended. LFH *)

From T. R. Martin

I would be oblised if someone could kindly let me know how the Tandy Mailing List print program can be amended so that labels can be printed on my Anadex printers side by side, rather than, as at present, a long list with about a one inch gap between.

T. R. Martin FCA
8 Bovingdon Road,
Fulham,
London SW6

(* Buffering the text for three labels in a string array before printing them out should solve the problem. Has anyone modified the program? LFH *)

From J. H. Turner

I would be particularly interested to find other TRS-80 users who are using their machines in General (Medical) Practice.

I would appreciate a definitive answer about the sequence of power-on/power-off in my tape-based, 8K interface, Microline-80 set-up. According to Tandy, power-up should involve switching on the printer, then the interface, then the CPU, reversing the order when powering-down. However, several members tell me that they switch all off or on at the wall socket. Following one such power-off my CPU had to return for four weeks to Tandy for: one new ROM, four new RAMs, and various other bits. Am I likely to have contributed to the breakdown by switching all on or off simultaneously.

Incidentally, I have found it possible to recover a locked program by switching off the interface before reset; but I worry about that too!

J. H. Turner

From T. R. Martin

I am writing to enquire if you or anybody can help with the following problems.

1. I have the MONITOR programme RSM2D which I understand is not relocatable in memory without a special programme. The problem is the manual supplied with the programme is not very informative. At the moment only AD commands work and therefore if anybody has any other information concerning this programme it would be appreciated.

2. I have the programme TR COPY which I have saved onto disc by means of the programme DOS. However, when I load TR COPY from the disc it overlaps DOS and boots me into Level II Basic. Is there any way I can load this programme from disc in higher memory (it was suggested I could use RSM2D but so far I cannot achieve the load).

3. A similar problem has occurred with MICRO MUSIC which I have also saved on disc but cannot load because of overlapping DOS.

I noticed an article in this month's Practical Computing about RSM2D and relocating and I am going to try this to see if this alleviates the problem.

My main problems are that my cassette system is not particularly good and therefore I try to use Tandy disc programmes. However, certain programmes only come on cassette and I am in a Catch 22 situation as the programmes I purchase to make cassette programme loading easier also cannot be loaded.

I am not intending to write programmes at present. However, I am trying to understand the various utilities and editor assembler programmes with a view to understanding the Tandy systems. Perhaps somebody can write, in simple language, a summary of the uses and benefits of these programmes for other computer users.

T. R. Martin FCA,
8 Bovingdon Road,
Fulham,
London SW6

From John Newgas

I am writing as a satisfied user of a TRS-80 LII. Why does no-one mention that the new ROM Model 1's have both a reliable keyboard and a reasonable cassette system. I had lots of worry before I took the plunge.

I still see programs where you have to reserve memory from power up. It is easier (and less error prone) to change the memory size directly from your program. All that needsto be done is to enter the first line of your program as:

10 POKE 16561,LSB:POKE 16562,MSB: CLEAR 50: RESTORE

where LSB and MSB are the decimal forms of the byte answer to memory size.

MSB=INT(MEMSIZE/256)
LSB=MEMSIZE-256*LSB

It doesn't work correctly if the 50 is left out after CLEAR. Don't forget that the memory size will still stay set when your program ends. I normally disable the break key immediately after setting the memory size; and reset the normal memory size at the program end followed by restoring the break key.

This procedure works for the new style ROM's (15570 bytes). By the way, try typing CLEAR Ø after NEW. The memory size now appears as 15620 bytes !

Can anyone tell me how to make a program run automatically after a CLOAD. I would like to chain programs from tape. I can pass the variables by poking the values into protected memory and then follow with CLOAD:RUN as basic statements but I then have to manually press the enter key.

Finally a suggestion to those wonderful people at ACULAB. Couldn't you put a little RAM in the FLOPPY TAPE. 2K would be enough to hold the directory and allow easy loading of all programs. After all if I wanted an Expansion interface or another box I wouldn't have used a FLOPPY TAPE.

J.R.Newgas,
1 Philip Court,
89 Hornsy Lane,
London N.6.

From Peter Errington

I have an Epson TX80. printer, only recently acquired. My original programmes for Level 2 16K were written with no print options but I now need this facility. I had thought that by using the poke instructions mentioned in a recent newsletter to change PRINT instructions to L PRINT instructions this would not affect the tabbing arrangements. However, I find that this is not so. The tabbing goes haywire and spreads out very considerably. This has meant adding new alternative programme lines to suit the printer. Is there any shortcut that members can recommend, please?

I have also recently acquired an Aculab floppy tape unit and, whilst illness has prevented me from really getting to grips with the file handling and data storage techniques, I must say that the saving of programmes is now so simple that I could not again face the prospect of regularly working with the cassette and tapes, with all their unreliability.

Is it difficult to import equipment direct from the U.S.A? I am thinking of the very inexpensive 16K memory expansion interface from Microtek, mentioned by you recently.

Peter Errington FCA,
34/35 West Bute Street,
Cardiff CF1 5LH

(* One of our members has recently imported one of the Microtek units without any problems. It did have a minor fault, which I think he has rectified. LFH *)

From J. T. Lowther

As a new-comer to TRS 80 Users Group and having read through a complete issue set, I can only express my joy at such a well assembled newsletter. I have noted many comments which level criticism at the newsletter and can only say that if anyone thinks it's for a small selected group of well advanced TRS 80 users, I suggest they obtain a copy of the Sorcerers users magazine, then comment. As for a Beginners Page, yes I would like to see such an article, but it is surely up to us beginners. How can we expect other more advanced users to devote time and trouble to this chore, I for one can never find enough time to investigate my machines inards. It is up to us beginners to start such a page even if its format is one of questions and answers with comments by yourself, D.M., B.P. etc. or an easy way is for a more knowledgeable user to set us beginners a problem in programming and leave it to us to try and solve, printing the solution in the following months edition of newsletter.

I would like to take this opportunity to thank B. Pain and Dusty Miller for putting up with my 'phone calls earlier this week when I had a problem of programme loss when using cassette. Maybe someone else might be able to help. I had entered and run a programme, when I C. saved it with the correct address the tape failed to start. This left me in a C.save position with the only way out (as I know) of pressing reset, this I did only to find I had lost the programme from memory but still had it on V.D.U. I tried list, run, break, all of which only proved there was just an empty memory. This left me with no choice but to turn off and on and retype the programme.

Could you please enlighten me in any way.

J. T. Lowther,
131 South Row,
Roose,
Barrow-in-Furness,
Cumbria.
Tel: (0229) 34953

LOWER CASE HARDWARE PATCH

The modification described here provides a permanent patch on the ROM which enables the normal ASCII configuration of lower case on shifted characters. It does not affect graphics. The overall effect is as when a lower case driver modification routine is in operation but no such routine is required. Lower case is available from power up.

Before installing the modification it is necessary to have enabled bit 6 of the screen memory with the changes described by Leon in Newsletter 11 page 11. Once the new mod. is installed however, the switch on lower case is no longer necessary; or desirable.

The patch does not affect the operation of any of my programs, including Pencil, and it does avoid yet another switch bristling out of the keyboard unit. It can be installed and forgotten about. The only difference is that shifted keys are lower case.

If you run programs which use shifted keys for other purposes, for example user defined functions, these will still operate. The new function will overide the lower case. It is preferable however, to fit a control key and ascribe the alternative functions to this key. This allows both the lower case and the alternative functions.

The only disadvantage I have encountered is that the ROM test, TEST1/CMD provided with TRSDOS 2.3, will indicate a ROM A error. This shows that the mod. is in fact working. If you wish to to modify the program to operate correctly with the mod. then a byte must be zapped. In the first sector of TEST1 at byte 20H will be found 21 5D AE. It is a 16 bit checksum of ROM A. This must be zapped to read 21 40 AE. The sector is sector 00 on track 15H.

So set modifying. You have nothing to lose but but your redundant key operations. (And perhaps the warranty).

The patch required is shown in figure 1. It may be constructed easily on a piece of scrap Veroboard.

The wiring in is slightly more tricky as it requires 16 lines. The required connections are shown in figure 2. On my own computer I removed ROM A, pushed the bared wires into the ROM sockets and replaced the ROM just to test the circuit. That was about a year ago. I haven't needed to remove it since. One day I shall get around to soldering it in properly.

The ROM board is located directly to the right of the power-on LED, on the foil side of the main board. ROM A is

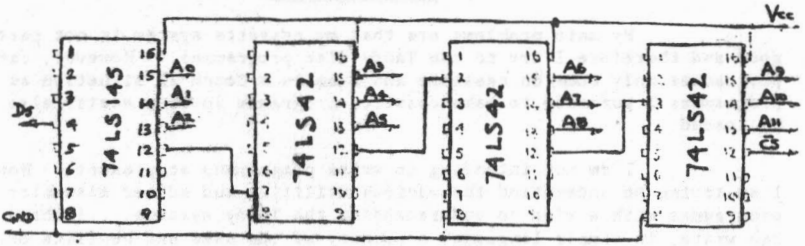


FIGURE 1 REQUIRED ROM PATCH CIRCUIT

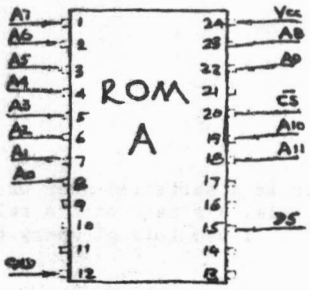


FIGURE 2 ROM PATCH CONNECTIONS TO EXISTING CIRCUIT

the chip next to the DIL socket which holds the ribbon cable. The new patch board may be mounted next to the ROM board. Mount it on an insulating block to avoid shorts.

The modification works by decoding the addresses coming in along the ROM address lines. When address 0437H is detected, bit 5 on the data bus is held low. Although 38H is put on to the bus by the ROM, it will be read off as 18H. This is the only modification required to the ROM driver routine to enable lower case.

Andrew Donald,
6 St. George's Road,
Ilford,
Essex IG1 3PD

MODEMS

Any members wishing to purchase a modem or acoustic coupler for use in this country should check that it is to CCITT specification. At least one member has purchased a Tandy modem (which is in fact a Novation Cat) and then found that they can only communicate with a system using a US modem.

Only purchase a modem using the US frequencies if you wish to communicate with systems in the US, or you can find someone similarly equipped in the UK with whom to communicate. Our 80-NET and Frederick Brown's system will be using CCITT compatible equipment, although Frederick does have a US modem that is operational in the early morning for American users.

Leon Heller

CHESS PROGRAMS

I have a copy of SARGON II which I think is the best on the market at the present time.

However, having played it a considerable number of times I find that I can beat it quite easily. For example, if it plays the French defence on level 4 (6 minutes) it is possible to mate it in under 14 moves!

With this in mind, I have recently seen advertised two more programs, GAMBIET 80 and Z-CHESS, which are both supposed to give a good game. Before I buy them I would like to assess their playing strengths, so if any members have a copy of either program, or any others for that matter, and they would like to match their program against SARGON, I would like to hear from them. I suggest we play a number of games via the telephone (I will allow the charges to be reversed), collate the results (response times, opening depth, etc.) and hopefully give an unbiased report in the Newsletter at a later date.

Frank Hope,
15 Ash Close,
Peterborough.

SIMPLE EPROM PROGRAMMER

Using the Intel 8255 device described in the last issue, an extremely simple 2716 (single rail) eraseable programmable read-only memory (EPROM) programmer can be constructed. Merely connect the data lines of the 2716 to Port A, the lower address lines to Port B, and the remaining three address lines to the lower three bits of Port C. Connect the $\overline{CE}$/PGM and $\overline{OE}$ pins to two of the remaining bits of Port C. Everything else is done with software, by outputting the location to be programmed to Ports B and C, followed by the byte to be programmed to Port A, setting $\overline{OE}$ high, and pulsing $\overline{CE}$/PGM high for 50 ms, whilst +25 volts is applied to the appropriate pin.

I am working on an 'all-singing, all-dancing' program which will allow EPROM burning from a disk file, or from keyboard entry in hexadecimal code, with screen editing. Automatic verification of every location will be included.

To check things out, I wire-wrapped the circuit, connected it to the expansion port, and wrote a couple of simple programs, one to read the EPROM contents and place them in a buffer where they can be examined with DEBUG, and one to burn zeros into every location. This proved that the approach was feasible, and enabled me to test some used 2716s that were given to me. (Thank you, Bob).

Incidentally, if anyone else is programming their own EPROMs, you do not need to spend upwards of £50 for a UV eraser. Just purchase a short-wave ultra-violet (UV) lamp, fluorescent starter and choke, and wire them up. The whole thing shouldn't cost more than about £15. Some form of box is advisable, as short-wave UV can cause permanent eye damage. Erasing time is about 30 mins with the EPROMs against the tube.

Here is one of the programs, which might be of assistance to any other members who construct a similar device.

```
;BURN - A PROGRAM TO WRITE ZEROS INTO ALL LOCATIONS
;OF A 2716 EPROM
;
PA      EQU     0           ;PORT A
PB      EQU     1           ;PORT B
PC      EQU     2           ;PORT C
CNTRL   EQU     3           ;CONTROL REGISTER
DOS     EQU     402DH       ;RETURN TO DOS
COUNT   EQU     2048        ;NO. OF BYTES TO PROGRAM
DLY     EQU     60H         ;DELAY ROUTINE COURTESY OF TANDY
DLYCNT  EQU     3411        ;COUNT TO GIVE 50 MS DELAY
;
        ORG     7000H       ;AS GOOD A PLACE AS ANY!
START:  LD      SP,START    ;INITIALISE STACK
        LD      A,80H       ;PA, PB AND PC
        OUT     (CNTRL),A   ;AS OUTPUTS
        LD      HL,0        ;INITIALISE POINTER
        LD      DE,COUNT    ;NO. OF BYTES TO BURN
LOOP:   LD      A,L         ;FORM ADDRESS - LOW BYTE
        OUT     (PB),A
        XOR     A           ;EASY ZERO
        OUT     (PA),A      ;OUTPUT ZERO TO DATA LINES
        LD      A,H         ;FORM ADDRESS - HIGH BYTE
        SET     4,A         ;PGM AND OE HIGH
        SET     3,A
        OUT     (PC),A      ;OUTPUT HIGH BYTE AND BURN DATA
        PUSH    AF          ;SAVE A
        LD      BC,DLYCNT   ;WAIT 50 MS
        CALL    DLY
        POP     AF          ;RESTORE A
        RES     3,A         ;PGM LOW TO STOP BURN
        OUT     (PC),A
        INC     HL          ;BUMP POINTER
        DEC     DE          ;DECREMENT COUNTER
        LD      A,D         ;MORE LOCATIONS?
        OR      E
        JR      NZ,LOOP     ;YES- LOOP BACK
        CALL    DOS         ;NO - RETURN TO DOS
        END     START
```

Leon Heller

MICROLINE 80 LINEFEEDS

The problem starts in the Tandy ROM where an instruction to LPRINT CHR$(10), a linefeed, is converted to CHR$(13), a carriage return, before output to the printer. The Microline sees no point in doing a CR if the carriage is already in the return position, so nothing happens.

The following subroutine will execute a linefeed and increment the counter in ROM (* I think Laurie must mean RAM. LFH *).

```
100 IF PEEK(14312) > 127 THEN 100 ELSE POKE 14312,10:
    POKE 14624, PEEK(14624) + 1 : RETURN
```

This routine will hang up if the printer is switched on but not ready, or if no printer is connected. If the printer is connected but not switched on it will not hang up.

Laurie Shields

VIEWING THE SCRIPSIT TEXT STORAGE AREA

I recently had a 'phone call from a distraught SCRIPSIT user who had entered about 15 pages of text into SCRIPSIT without saving it regularly to disk and the system had re-booted, or he had forgotten to close the drive door when changing a disk, and tried to save the file (my usual trick). He could not remember much of what he had written, and had an urgent deadline to meet. Knowing that the text was probably still in memory, after a bit of head scratching I advised him to write a simple BASIC program to PEEK successive memory locations, and display them on the screen. He was not too concerned about entering the text again, so long as he could see what he had written. I don't know if he was successful, but in case he rang back saying he had problems writing the program, I wrote a little routine to do the job. It might be of some use to other members:-

```
10 I=32610 :'start of SCRIPSIT text storage area
20 IF I>32767 THEN I=I-65536
30 P=PEEK(I)
40 IF P>=96 THEN P=P-32 :'convert to upper-case
50 PRINT CHR$(P);
60 I=I+1
70 GOTO 20
```

Using this technique a more sophisticated program could easily be written to write the memory contents to disk as a sequential ASCII file. Leo Knaggs has adopted a similar approach in his article on recovering source code when EDTASM crashes. Of course, things would be much easier if we knew where the SCRIPSIT pointers were. Has anyone got any bright ideas?

Incidentally, the unfortunate individual mentioned above told me that he had contacted Tandy at Wednesbury about the problem, but they said they coudn't help, and referred him to me! Whilst I find this quite gratifying, Tandy should be able to sort a simple problem like this out for themselves.

Leon Heller

DEMISE OF THE MODEL I

The Model I TRS-80, that we have known and loved(?) for the last two and a half years or so, is no more. Tandy will cease production of the Model I this month, replacing it by the Model III, at around the same price. The Model III is essentially a Model I in one box, with an integral keyboard and display, and optional 5 1/4 inch double density disk drives. It is available in Level I and Level II versions, with 4K to 48K of RAM. Most of the Model I software should run "as-is" on the new system; the ROM routines are in the same locations, and the disk BASIC is upwards compatible with Model I TRS-DOS. It will probably not be available in any quantity until the spring; Tandy must still have a lot of Model Is to get rid of.

Leon Heller

DISABLING THE FDC

A couple of members have recently requested information on how to disable the floppy disk controller chip in the expansion interface, so that reset is operational under Level II BASIC. I am afraid I sent them some 'duff' information, my apologies for any inconvenience.

Here is the correct way to do it.

Mount a SPDT switch in a convenient place.
CAREFULLY remove the FDC chip from its socket.
Bend out pin 3 (chip select) and replace the chip.
Wire pin 3 to the centre terminal of the switch.
Wire pin 18 and pin 20 of the FDC chip to the outer terminals of the switch.

The above should do the trick. You carry out this modification at your own risk, of course. Not having tried it I cannot guarantee that it will work.

Leon Heller

CURSOR LOCATION

The short routine herewith illustrates very well the advantage of using machine language programmes where speed is required. Just try doing the same thing in BASIC and you will see what I mean. I find it to be a handy development tool when writing assembly listings which need to send data to the screen and it is now built into one of my graphics development programmes.

The way in which the listing is laid out is the result of using the Tandy Editor Assembler which makes life so much easier that I don't honestly think I could manage without it or some similar tool.

The Editor Assembler will ferret out all your errors in grammar and syntax and if you are fortunate enough to own Newdos Plus or the Tandy Dos software then the "Debug" routine incorporated in the afore mentioned will help to sort out system faults. If you happen to have CPM there is a very useful screen oriented editor called "Scope" (in my opinion a 'Rolls Royce' editor compared to the Tandy 'Mini') however a separate assembler is required, the one I use is "Macro 80" (CPM).

My programme starts at address 8000 hex. (ORG 8000H 'line 250') and to the left of line 260 can be seen two columns the left being a series of addresses, starting at 8000, and to the right the numeric bytes entered in these addresses. For example address 8000 contains the byte 31 hex, 8001 contains byte 00 and 8002 contains 90 hex.

It is quite possible to enter these values into memory using BASIC (Level 2). You would need to write a short programme to POKE the various decimal values into the appropriate addresses using maybe a FOR -- NEXT loop with an INPUT statement to enter these bytes whilst at the same time incrementing the address numbers.

```
                00100 ;         ********************
                00110 ;         * CURSOR LOCATION *
                00120 ;         ********************
                00130 ;
                00140 ;
                00150 ;****** INITIALISE PROGRAMME ******
                00160 ;
3C00            00170 VIDEO     EQU     3C00H
005F            00180 CURSOR    EQU     95D
0400            00190 SCRBYT    EQU     400H
01C9            00200 CLS       EQU     1C9H
0049            00210 KEYBD     EQU     49H
0033            00220 DISP      EQU     33H
9000            00230 STACK     EQU     9000H
                00240 ;
8000            00250           ORG     8000H           ;START OF PROGRAMME
8000 310090     00260           LD      SP,STACK        ;SET UP STACK POINTER
8003 CDC901     00270           CALL    CLS             ;CLEAR SCREEN
                00280 ;
                00290 ;
                00300 ;****** ROUTINE TO TEST CURSOR LOCATION PROGRAMME ******
                00310 ;
8006 CD4900     00320 LOOP      CALL    KEYBD           ;SCAN KEYBOARD
8009 CD3300     00330           CALL    DISP            ;DISPLAY CHARACTER
800C CD1180     00340           CALL    CURPOS          ;CALL CURSOR POSITION
800F 18F5       00350           JR      LOOP            ;SCAN KEYBOARD AGAIN
                00360 ;
                00370 ;
                00380 ;****** CURSOR POSITION ROUTINE ******
                00390 ;
8011 21003C     00400 CURPOS    LD      HL,VIDEO        ;START OF SCREEN SCAN
8014 010004     00410           LD      BC,SCRBYT       ;LOAD BYTE COUNTER
8017 3E5F       00420           LD      A,CURSOR        ;CPIR COMPARES WITH A REG
8019 EDB1       00430           CPIR                    ;COMPARE AND INCREMENT
801B 2B         00440           DEC     HL              ;HL BACK ONE
801C 4C         00450           LD      C,H             ;FIRST VALUE INTO C
801D E5         00460           PUSH    HL              ;SAVE HL
801E 21FC3F     00470           LD      HL,3FFCH        ;LO BYTE VIDEO ADDRESS
8021 CD2E80     00480           CALL    ASCII           ;IF CURSOR FOUND CONVERT
8024 E1         00490           POP     HL              ;GET NEXT VALUE
8025 4D         00500           LD      C,L             ;SECOND VALUE INTO C
8026 21FE3F     00510           LD      HL,3FFEH        ;HI BYTE VIDEO ADDRESS
8029 CD2E80     00520           CALL    ASCII
802C 18D8       00530           JR      LOOP            ;BACK TO KEYBOARD ENTRY
                00540 ;
```

```
                00560 ;
                00570 ;         ****************************
                00580 ;         * HEX TO ASCII CONVERSION *
                00590 ;         ****************************
                00600 ;
                00610 ;VALUES TAKEN FROM C REGISTER (2 HEX CHARACTERS) AN
                00620 ;LOADED INTO VIDEO MEMORY LOCATIONS 3FFC AND 3FFE
                00630 ;VIA HL AS POINTER
                00640 ;
802E 3EF0       00650 ASCII   LD      A,0F0H   ;MASK
8030 A1         00660         AND     C        ;GET FIRST CHARACTER
8031 0F         00670         RRCA
8032 0F         00680         RRCA
8033 0F         00690         RRCA
8034 0F         00700         RRCA             ;ALIGN FOR CONVERT
8035 CD3E8      00710         CALL    CVERT    ;CONVERT
8038 3E0F       00720         LD      A,0FH    ;MASK
803A A1         00730         AND     C        ;GET SECOND CHARACTER
803B CD3E80     00740         CALL    CVERT    ;CONVERT
803E C630       00750 CVERT   ADD     A,30H    ;CONVERT TO 0-15
8040 FE3A       00760         CP      3AH
8042 FA4780     00770         JP      M,JUMP1  ;GO IF 0-9
8045 C607       00780         ADD     A,7      ;CONVERT 10-15 TO A-F
8047 77         00790 JUMP1   LD      (HL),A   ;SEND TO SCREEN
8048 23         00800         INC     HL       ;BUMP POINTER
8049 C9         00810         RET              ;FINISHED
8150            00820         END     0B150H
00000 TOTAL ERRORS
```

The section headed "Initialise Programme" consists of a list of 'mental clothes hooks' or labels to make the listing more understandable and to avoid the drudgery of remembering abstract numbers particularly when lengthy programmes are involved, a similar arrangement to the standard Z80 mnemonics listed in column four (eg:- CALL, DEC, LD etc.) but in the former case the labels are words of your own choice not exceeding six characters.

One of the reasons that the Z80 is so popular in the field of 8 bit microprocessors is that it has some very powerful commands. LDIR was mentioned in previous missive to the 'Newsletter' CPIR is another 'blockbuster'. With CPIR the contents of the memory location pointed to by the HL register is compared to the A register. If a match occours the Z flag (zero flag) is set. After each compare the HL registers are incremented by one and the BC registers decremented, this goes on until BC equals zero. CPDR(ED B9 hex), compare and decrement is very much the same but in this case the HL registers are decremented after each compare.

The programme itself, when run, displays keyboard entries on the screen with cursor identification. The bottom right hand corner of the screen presents 'on line' a four digit hex. number representing the current screen memory location occupied by the cursor.

Angus Ellefsen

RECOVERY OF DATA FILE FROM A CRASHED EDITOR ASSEMBLER

ONCE AGAIN I HAVE CRASHED THE EDITOR ASSEMBLER WITH AN UNSAVED BUFFER OF TEXT. THE DIFFERENCE ON THIS OCCASION BEING THAT I FELT SUFFICIENTLY DISENCLINED TO WASTE THE TIME THAT I HAD SPENT TYPING AND CHECKING MY DATA TO DO SOMETHING ABOUT IT.

AS OTHERS MAY HAVE EXPERIENCED SIMILAR DISASTERS, I AM SENDING A COPY OF MY SAVER PROGRAM TO YOU SO THAT IT MAY BE AVAILABLE TO ALL WHO MAY NEED IT.

YOU WILL KNOW THAT LEAVING A PROGRAM DOES NOT DESTROY ITS DATA IN MEMORY, AND WE ARE FORTUNATE THAT THE EDITOR ASSEMBLER OF NEWDOS KEEPS ITS TEXT BUFFER AT HIGH ENOUGH MEMORY TO BE ABLE TO ENTER BASIC AND RUN A SMALL PROGRAM WITHOUT DESTRUCTION OF THE TEXT.

THE BASIC PROGRAM WHICH I HAVE WRITTEN FOR TEXT BUFFER RECOVERY WILL WORK WITH EITHER OF THE NEWDOS EDITOR ASSEMBLERS, SINCE THEY BOTH USE THE SAME BUFFER AREA, AND WILL RECOVER THE SOURCE TEXT FILE FROM RAM TO A DISC FILE THAT CAN SUBSEQUENTLY BE READ BY THE EDITOR ASSEMBLER. THAT IS UNLESS THE COMPUTER HAS MEANWHILE BEEN TURNED OF, OR A LARGER PROGRAM HAS MADE USE OF THE DATA AREA.

MY PROGRAM IS LISTED IN THREE FORMS, WHICH ARE:

1. A FULL LISTING WITH NOTATIONS
2. AN ABBREVIATED LISTING WITHOUT NOTATION BUT IN LINE NUMBER FORMAT FOR BASIC
3. THE BASIC VERSION.

THE WHOLE THING WOULD NO DOUBT RUN MORE QUICKLY IF COMPILED, BUT SINCE THE ESSENCE IS IN THE SAVING OF DATA A SLOW SPEED SEEMS TO ME TO BE ACCEPTABLE.

```
 10 REM  PROGRAM TO RECOVER EDTASM DATA FILE FROM RAM TO DISC
          IN EDTASM READABLE FORMAT.
      FOR USE IN THE EVENT OF CRASH WHEN BUFFER CONTAINS DATA
          NOT YET SAFELY SAVED.

 100  CLEAR 100 :                    ENSURE ADEQUATE STRING SPACE
      DEFINT A-Z :                   IT'S FASTER TO RUN WITH INTERGERS
      NO$ = "12345"                  DEFINE SIZE OF LINE NUMBER
      AD = 30266 :                   SET POINTER TO START OF EDTASM'S BUFFER
      GOTO 120                       SKIP OVER SUBROUTINE

 110      SUBROUTINE                 INCREMENTS DATA POINTER FOR NEXT PEEK

      IF AD = 32767                  TEST FOR MAX INTEGER VALUE

         THEN AD = -32768 :          CHANGE TO MAX NEGATIVE IF FOUND
              RETURN                 FINISHED - CHANGE INCLUDED INCREMENT

         ELSE AD = AD + 1 :          INCREMENT ADDRESS BY ONE
              RETURN                 INCREMENT COMPLETED

 120  CLS :                          TIDY VIDEO LOOKS BETTER
      INPUT                          OBTAIN AN OUTPUT FILENAME
          "WHAT FILE NAME SHALL I USE " ;
          FS$ :
      OPEN "O", 1, FS$               PREPARE FILE FOR OUTPUT
```

```
        OUTPUT EDTASM FILE HEADER INFORMATION

        PRINT#1, CHR$( 211 )            START OF FILE MARK
        "FLNAME" ;                      6 BYTES OF FILE NAME

            BEGIN FILE DATA OUTPUT

            OBTAIN DATA LINE NUMBER

130     LN = PEEK( AD ) :               GET LSB OF LINE NUMBER
        GOSUB 110 :                     UPDATE DATA POINTER

        ON ERROR GOTO 180 :             PREPARE FOR OVERFLOW ERROR WHEN
                                        END OF DATA CAUSES OVERFLOW

        LN = LN + PEEK( AD ) * 256 :    ADD MSB OF LINE NUMBER
        GOSUB 110                       UPDATE DATA POINTER

140     ON ERROR GOTO 0 :               CONTINUE IF NOT END OF DATA

            FORMAT LINE NUMBER FOR EDTASM FILE

        RSET NO$ = STR$( LN ) :         CHANGE TO STRING FOR MANIPULATION

            CHANGE LEADING BLANK CHARACTERS TO ZEROS

        K = 0                           INITIATE STRING POSITION COUNTER

150     K = K + 1 :                     COUNT THROUGH FORMATTED STRING
        IF MID$( NO$, K, 1 ) = " "      IF CHARACTER IS A BLANK
           THEN MID$( NO$, K, 1 ) = "0" :       MAKE IT = 0
                GOTO 150                        TRY NEXT ONE

            SET HIGH BIT OF LINE NUMBER FOR EDTASM

160     FOR K = 1 TO 5 :                COUNT THROUGH FORMATTED STRING
            MID$ ( NO$, K, 1 ) =        AT EACH CHARACTER POSITION
              CHR$( ASC( MID$( NO$, K, 1 )) OR 128) :   SET HIGH BIT
        NEXT :

        PRINT#1, NO$                    OUTPUT FORMATTED NUMBER TO FILE
                 " " ;                  OUTPUT DATA MARKER TO FILE

            OBTAIN AND OUTPUT DATA LINE

170     LL = PEEK( AD ) :               GET LENGTH OF DATA LINE
        GOSUB 110 :                     UPDATE DATA POINTER

        FOR K = 1 TO LL :               COUNT THROUGH DATA LINE
            DT = PEEK( AD ) :           GET DATA CHARACTER FROM BUFFER
            GOSUB 110 :                 UPDATE DATA POINTER
            PRINT#1, CHR$( DT ) ; :     OUTPUT DATA TO FILE
        NEXT :
        PRINT#1, CHR$( 13 ) ; :         END OF LINE - OUTPUT CARR RET
        GOTO 130                        LOOP FOR NEXT DATA LINE

            END OF DATA ACTION

180     PRINT#1, CHR$( 26 ) ; :         OUTPUT END OF FILE MARKER
        CLOSE                           CLOSE OUTPUT FILE

190     END
```

```
100     CLEAR 100 :
        DEFINT A-Z :
        NO$ = "12345" :
        AD = 30266 :
        GOTO 120

110     IF AD = 32767
           THEN AD = -32768 :
                RETURN
           ELSE AD = AD + 1 :
                RETURN

120     CLS :
        INPUT "WHAT FILE NAME SHALL I USE " ; FS$ :
        OPEN "O", 1, FS$ :
        PRINT#1, CHR$( 211 ) "FLNAME" ;

130     LN = PEEK( AD ) :
        GOSUB 110 :
        ON ERROR GOTO 180 :
        LN = LN + PEEK( AD ) * 256 :
        GOSUB 110

140     ON ERROR GOTO 0 :
        RSET NO$ = STR$( LN ) :
        K = 0

150     K = K + 1 :
        IF MID$( NO$, K, 1 ) = " "
           THEN MID$( NO$, K, 1 ) = "0" :
                GOTO 150

160     FOR K = 1 TO 5 :
            MID$ ( NO$, K, 1 ) = CHR$( ASC( MID$( NO$, K, 1 )) OR 128) :
        NEXT :
        PRINT#1, NO$ " " ;

170     LL = PEEK( AD ) :
        GOSUB 110 :
        FOR K = 1 TO LL :
            DT = PEEK( AD ) :
            GOSUB 110 :
            PRINT#1, CHR$( DT ) ; :
        NEXT :
        PRINT#1, CHR$( 13 ) ; :
        GOTO 130

180     PRINT#1, CHR$( 26 ) ; :
        CLOSE

190     END
```

```
$  REM EDTASM RECOVERY  RUNNING VERSION
100 CLEAR100:DEFINTA-Z:NO$="12345":AD=30266:GOTO120
110 IFAD=32767THENAD=-32768:RETURNELSEAD=AD+1:RETURN
120 CLS:INPUT"WHAT FILE NAME SHALL I USE ";FS$:
    OPEN"O",1,FS$:PRINT#1,CHR$(211)"FLNAME";
130 LN=PEEK(AD):GOSUB110:ONERRORGOTO180:LN=LN+PEEK(AD)*256:GOSUB110
140 ONERRORGOTO0:RSETNO$=STR$(LN):K=0
150 K=K+1:IFMID$(NO$,K,1)=" "THENMID$(NO$,K,1)="0":GOTO150
160 FORK=1TO5:MID$(NO$,K,1)=CHR$(ASC(MID$(NO$,K,1))OR128):NEXT:PRINT#1,NO$" ";
170 LL=PEEK(AD):GOSUB110:FORK=1TOLL:DT=PEEK(AD):GOSUB110:PRINT#1,CHR$(DT);:NEXT:
    PRINT#1,CHR$(13);:GOTO130
180 PRINT#1,CHR$(26);:CLOSE
190 END
```

Lee Knagge

ELECTRONIC WALLPAPER

In the August number of the Newsletter (Page 16) there was a short program by Steve Deary demonstrating the graphics of the TRS-80, which I have taken a stage further.

Briefly, Steve Deary's program generated two random numbers, A and B, in the range 1-20 and used them to set points along a graph using the sine of A and the cosine of B. This produced a series of patterns, some pleasing and some not particularly so, depending on the combination of random numbers. Transposing SIN and COS in the line defining X and Y produces other designs, and so does using SIN only or COS only.

What this program does is simply to provide 10 pairs of numbers for each combination of SIN and/or COS, thus providing a bank of 40 patterns to be accessed randomly (line 60).

Steve Deary's program included 'T=0 to 5 STEP .01', but I have doubled the range of 'T' and this allows the moving dot to produce a more definite pattern before clearing the screen and starting on the next one. This can easily be varied by altering the range of 'T' in lines 110 - 140. Each pattern is on the screen for about a minute and a half, but this can be altered either by varying the range of 'T' or the step - .015 produces a faster dot but it is not so restful.

For anyone who wants to decide on his own bank of patterns start with:-

```
60 CLS : A=RND(20) : B=RND(20)
```

Then instead of line 80 put:-

```
80 X=63*SIN(A*T)+63 : Y=23*COS(B*T)+23
```

Finally, to see what the values of A and B you like are, add this line:-

```
95 PRINT A;B : FOR K=1 TO 250 : NEXT K
```

On the same page as Steve Deary's program was a short routine of yours for retrieving an acidentally 'NEWed' programme. I have tried this unsuccessfully. I am able to list the 'lost' programme alright, but as soon as I try to run it I get a syntax error in the first line. If I then try to list it it just prints '4 J'. Can you explain where I have gone wrong?

Do you know if it is possible to renumber an individual line? I have now and again run out of available line numbers when adding lines to the middle of a program and, not having a printer yet, I am unwilling to resequence a whole programme as my handwritten copy would no lonse
er match.

It would also be convenient to be able to transfer a short section to another part of the program as, say, a subroutine. I can alter the number in the listing by pressing 'X' in edit mode, doing an upper-case backspace right over the line number and changing the line number, but when I then try to run this it executes the line and then reports a syntax error in that line. On listing, the line is still in the same position, but with the new number.

The material in the Newsletter is obviously printed on several different printers depending, presumably, on how the material reaches you. I am considering buying a printer, and no doubt other members are, too. I think it would help us to evaluate the different printers if you could say which printers are used for certain pages.

I have just completed a program with over 500 statements in it and that has meant copying out the complete listing and then verifying it from the screen - something which has taken me several hours to do but could have been done on a printer in about 5 minutes. This has sparked off the thought that another service the user group could offer members is to provide a 'hard copy' of programs from tapes. As the originator of the idea I should offer to provide the service, and I would be glad to do so when I get my printer, but one thing that i cannot promise is a reasonably fast turn round. I am often out every night of the week and once the croquet season starts I am often occupied all weekend as well, but subject to the limitations of a slow and erratic turn round I should be glad to do it. If cassettes for printing were sent in Jiffy bags large enough to include the 'hard copy' when they are returned, then the cost could be limited to sending enough stamps to cover return postage and the cost of paper and ribbon.

```
10 'MOBILE WALLPAPER
15 'BY I.HOWARD WRIGHT FROM AN IDEA BY STEVE DEARY
20 FOR J=1 TO 10 : READ A1(J),B1(J) : NEXT J
30 FOR J=1 TO 10 : READ A2(J),B2(J) : NEXT J
40 FOR J=1 TO 10 : READ A2(J),B2(J) : NEXT J
50 FOR J=1 TO 10 : READ A4(J),B4(J) : NEXT J
60 CLS : J=RND(10) : K=RND(4)
70 FOR T=0 TO 10 STEP .01
80 ON K GOSUB 110,120,130,140
90 SET(X,Y) : NEXT T
95 PRINT A;B : FOR K=1 TO 250 : NEXT K
100 GOTO 60
110 X=63*SIN(A1(J)*T)+63 : Y=23*COS(B1(J)*T)+23 : RETURN
120 X=63*COS(A2(J)*T)+63 : Y=23*SIN(B2(J)*T)+23 : RETURN
130 X=63*SIN(A3(J)*T)+63 : Y=23*SIN(B3(J)*T)+23 : RETURN
140 X=63*COS(A4(J)*T)+63 : Y=23*COS(B4(J)*T)+23 : RETURN
```

```
150 DATA
    12,5,19,20,3,13,2,18,7,16,10,16,8,3,10,19,6,7,10,10
160 DATA 8,19,14,3,19,20,3,6,5,19,14,9,5,6,8,11,12,4,20,14
170 DATA 9,7,20,10,5,11,18,6,3,13,3,18,4,20,13,1,7,19,17,3
180 DATA
    12,10,4,11,2,6,20,12,7,10,12,7,13,15,13,11,20,14,8,11
```

I. Howard Wright,
17 Greysoran,
Sauchie,
Clackmannanshire,
FK10 3ET

(* The technique for 'resurrecting' a NEWed BASIC program seems to be OK. Two local members have used it several times. Apparently the program should be LISTed before running, following the resurrection process.

I am afraid that I have no way of knowing what printer has been used by contributors. Perhaps they could mention the model in their articles. Most of the Newsletter is done on my Tandy Line Printer II (Centronics 730 'look-a-like'). LFH *)

CONTROL KEY FOR SCRIPSIT

I HAVE JUST BEEN LOOKING THROUGH SOME BACKNUMBER NEWSLETTERS, AND NOTICED THAT I AM NOT ALONE IN MY DISLIKE OF THE '@' KEY AS THE CONTROL FOR SCRIPSIT. I FORWARD MY SOLUTION AS OF POSSIBLE INTEREST TO OTHER MEMBERS.

AFTER MUCH PONDERING, SOME MONTHS AGO I CARRIED OUT THE ELECTRIC PENCIL MODIFICATIONS TO MY CPU. AS YOU WILL KNOW, THIS INVOLVES FITTING THE ADDITIONAL VIDEO RAM CHIP TO OBTAIN LOWERCASE DISPLAY, AND THE FITTING OF A CONTROL KEY. I THEN BECAME FAMILIAR WITH THE USE OF THIS KEY.

LOGIC SUGGESTED THAT THE CONTROL KEY THAT I HAD ALREADY FITTED FOR ELECTRIC PENCIL WOULD BE EQUALLY USEFUL WITH SCRIPSIT, THUS SOLVING MY DISLIKE OF THE @.

AS MY MODIFICATION IS EFFECTIVELY OF THE KEYBOARD HARDWARE IT DOES NOT ADVERSELY EFFECT LEVEL II OPERATION OR ANY PROGRAM NOT REQUIRING THE USE OF THE CONTROL KEYS. IT IS ALSO COMPATIBLE WITH THE TANDY LOWER CASE MOD. AN ADDED BONUS FOR THOSE THAT MAY WISH TO USE IT IS THAT THE SHIFTED DOWN ARROW USED WITH ANY ALPHABETICAL KEY WILL BE DECODED BY BASIC AS THE APPROPRIATE CONTROL CODE. THIS MODIFICATION INTRODUCES A SINGLE CONTROL KEY WHICH MAY BE USED INSTEAD OF THE SHIFTED DOWN ARROW.

FOR THE BENIFIT OF NEW AS WELL AS OLD MEMBERS, I WILL DESCRIBE THE FITTING OF THE CONTROL KEY IN STAGES. ALL OF WHICH I HAVE INCORPORATED FOR EASY INTERCHANGE BETWEEN PROGRAMS FOR MY OWN USE, BUT WHICH WILL NOT ALL APPLY TO USERS NEEDING CONTROL OF ONE PROGRAM ONLY.

THE MODIFICATIONS ARE EASILY CARRIED OUT BY ANYONE WITH A SMALL SOLDERING IRON, BUT NOTE OF COURSE THAT THEIR INCORPORATION WILL INVALIDATE THE TANDY WARRANTY.

PRE-REQUISITES.

1 DECIDE WHAT TYPE OF CONTROL KEY THAT YOU WISH TO USE. THE KEY IS REQUIRED TO MAKE AN ELECTRICAL CONNECTION BETWEEN TWO WIRES ONLY, AND DOES NOT NEED TO BE SOPHISTICATED. MY OWN IS A SIMPLE PUSHBUTTON (E ON PUSH) SWITCH.

2. DECIDE WHERE YOU WANT YOUR CONTROL KEY TO BE MOUNTED. MINE IS FITTED ON THE SLOPE AT THE REAR OF THE CPU CASE, TO THE EXTREME LEFT HAND SIDE.

3. FOR INTERCHANGE BETWEEN PROGRAMS, OBTAIN A TWO POLE CHANGE OVER SWITCH. FOR SIMPLE MOUNTING A TOGGLE SWITCH IS QUITE ADEQUATE, ALTHOUGH I AM USING A SMALL SLIDE SWITCH WITH AN EXTENDED OPERATING LEVER. MY SWITCH IS EASY TO USE AND LOOKS NEAT BUT MOUNTING REQUIRES FILING AN OBLONG SLOT FOR THE CONTROL LEVER TO MOVE IN AND PROVISING OF HOLES FOR MOUNTING BOLTS. AGAIN, DECIDE WHERE THE SWITCH IS TO BE MOUNTED, MINE IS ALSO ON THE SLOPE THIS TIME INBOARD OF THE EXPANSION CONNECTOR CUTOUT.

4. FOR EASE OF FUTURE ACCESS, I DECIDED TO BUILD IN A SIMPLE DISCONNECTION FACILITY, WHICH I RECOMMEND. (THIS ALSO PERMITS DISCONNECTION OF THE MODIFICATION SHOULD THE CPU EVER NEED WORKSHOP ATTENTION). FOR THIS YOU WILL NEED A TWO PART PLUG TOGETHER CONNECTOR SUCH AS IS USED BY RADIO CONTROL MODEL ENTHUSIASTS. I GOT MINE FROM A MODEL SHOP. TWO PINS ARE REQIRED FOR CONTROL OF ONE PROGRAM ONLY, FOUR PINS FOR BOTH.

PROCEEDURE

1. TURN THE KEYBOARD/CPU UPSIDE DOWN, AND CAREFULLY REMOVE THE SIX SCREWS WHICH HOLD IT TOGETHER. MAKE NOTE OF WHICH SCREW FITS WHERE FOR RE-ASSEMBLY (THERE ARE THREE SIZES).

2 HOLDING THE UNIT TOGETHER, TURN IT THE NORMAL WAY UP. CAREFULLY LIFT THE TOP OF THE CASE AWAY FROM THE UNIT, LEAVING THE KEYBOARD ITSELF IN POSITION IN THE CASE.

3. DRILL THE CASE AND MOUNT YOUR CONTROL KEY IN YOUR CHOSEN POSITION.

4. IF YOU ARE MODIFYING FOR USE WITH BOTH PROGRAMS, MOUNT YOUR CHANGEOVER SWITCH ALSO.

5. MOUNT ONE HALF ONLY OF THE JUNCTION CONNECTOR ON THE TOP EDGE OF THE KEYBOARD CIRCUIT BOARD USING SUPER GLUE. MINE IS MOUNTED WITH THE SOLDER PINS TOWARDS THE INTEGRATED CURCUITS, WITH THE REMOVABLE HALF IN SPACE WHEN PLUGGED TOGETHER.

6. TAKING CARE TO FOLLOW THE CORRECT WIRE PAIRS, CONNECT TO THE KEYBOARD AS FOLLOWS:

FOR SINGLE PROGRAM CONTROL MODIFICATION REFERENCE TO THE CHANGEOVER SWITCH SHOULD BE IGNORED, AND THE WIRE PAIR TAKEN FROM THE CONNECTOR DIRECTLY TO THE CONTROL KEY.

	EARLY KEYBOARDS (GREEN PCB) IC NO PIN	LATER KEYBOARDS (TAN PCB) IC NO PIN	
ELECTRIC PENCIL	Z 2 4 Z 4 10	Z 2 10 Z 4 10	TO REPRESENT SHIFTED DOWN ARROW

THROUGH ONE PAIR OF CONNECTOR PINS TO ONE END OF THE CHANGEOVER SWITCH. (TOP AND BOTTOM TERMINALS).

SCRIPSIT	Z1	8	Z1	8	TO REPRESENT
	Z3	2	Z3	4	UNSHIFTED @

THROUGH THE OTHER PAIR OF CONNECTOR PINS TO THE OTHER END TERMINALS OF THE CHANGEOVER SWITCH

NOTE THAT Z1 AND Z2 ARE 14 PIN DEVICES AND THAT Z3 AND Z4 ARE 16 PIN DEVICES. PIN NUMBERS START WITH 1 AT THE MARKED END OF THE DEVICE, AND PROCEED NUMERICALLY ANTI-CLOCKWISE.

COMPLETE THE WIRING FROM THE CENTRE TERMINALS OF THE CHANGEOVER SWITCH TO THE CONTACTS OF YOUR CONTROL KEY.

7. CAREFULLY REFIT THE COVER TO THE KEYBOARD UNIT, INVERT AND REFIT THE RETAINING SCREWS.

8. TEST YOUR MODIFICATION BY POWERING UP THE COMPUTER AND PRESSING YOUR NEW CONTROL KEY. AT ONE SETTING OF THE CHANGEOVER SWITCH YOU SHOULD SEE AN @ ON THE DISPLAY, THIS IS YOUR SWITCH SETTING FOR SCRIPSIT. AT THE OTHER SWITCH SETTING YOU WILL SEE NO EFFECT ON THE DISPLAY, BUT THAT IS YOUR SWITCH SETTING FOR ELECTRIC PENCIL IN LOWERCASE. FOLLOWUP TESTING IS OF COURSE DONE BY OPERATING THE APPROPRIATE PROGRAMS.

LEO KNAGGS

SCREEN INPUT PROGRAM

This program illustrates the use of BASIC to provide a full screen editor approach as replacement for the more conventional but restrictive INPUT statement. As with the properly set up word processing programs, the keyboard's arrow keys allow the user to move freely over the screen together with a flashing cursor to indicate the current input position while ENTER serves to move on the next line. Cursor movement leaves any existing input unchanged while mistakes are corrected by over typing - unlike the total loss required when correcting a reply to INPUT.

However, unlike the free format with word processing routines, this program illustrates the use of formal screen input areas associated with a narrative description. This routine has been made as simple as possible to demonstrate the 'Forms' concept but could easily be extended to include character insert/delete, tabbing and with a suitable VDU use of reverse video for highlighting.

The first section (lines 140-420) defines the keyboard control keys. Although written for a TRS-80 model 1 this approach allows an easy conversion to other systems subject only to the presence of some form of row & column screen printing as for example with ESC codes as present on many VDU's.

The function FNP allows an easy conversion between the TRS-80 Model 1 and Model 2 by changing the screen width and depth value in line 400. For even more portability all row & column screen print instructions should be made via a common subroutine.

The second section (lines 500-610) defines:-

- the total number of input fields in F
- the length of each field in array F()
- a description of each field in array FD$()
  (Maximum of 20 characters subject to TAB in line 1020)

Section 3 (lines 1000-2070 handles the input of text and screen movement via the PRINT @ on line 2030 where SC is the screen column position and SR the row. Line 1020 is important as this is the point at which the input field array F$() is set to the appropriate length as defined by F(). This allows the use of MID$ on the left hand side of the expression in line 2070 to build up the input field in a way which is both simple and yet efficient in minimising delays due to garbage collection.

Line 2040 handles the waiting for an input character to A$ using INKEY$ within FOR-NEXT loops which also control the flashing cursor. Reducing the value of 50 will increase the flash rate and raising the value will slow the rate down.

Line 2050 serves only to terminate the Z loop - Some Basics might not allow a mid loop exit in which case 2040 should be spread over several lines using Z just as a counter as:-

```
2040 Z=0
2041 Z=Z+1
.........
2044 IF Z<50 THEN 2041
```

Line 2070 looks to see whether A$ contains a text input - ASCI code >31 except for the codes generated by the up and down arrow keys. Any text input is printed with a trailing ; to prevent CR/LF scrolling and the cursor column position is advanced by one. The print position is first set by line 2030 and subsequent characters are stacked after this position unless one of the cursor control keys is used.

Section 4 (lines 2076-2130) controls the reaction to the cursor control keys in terms of altering SR and SC. The routine is re-entered at 2020 to obtain correct positioning and to ensure that SC and SR stay within the screen limits.

After all screen fields have been completed the option is provided to perform more changes or to accept more data . This is the point at which your invoicing routine or data base manager takes over to perform something useful with the data in F$().

The CLEAR in line 4000 should be made as large as possible to minimise [illegible]ays due to garbage collection. INKEY$ is essential to [illegible]llowing input of data character by charcter without waiting for a terminating ENTER. In the model 2

the option INPUT$(1) is available and this is much more useful than INKEY$ in that line 2040 and 2050 can be replaced by:-

```
2040 PRINT YC$;:A$=INPUT$(1):PRINT NC$;: RETURN
```

In the case of the Model 2, a flashing cursor is an inbuilt part of the operating system and the YC$ & NC$ sequence ensures that the cursor only flashes while the system is waiting for input.

```
90 CLEAR 4000:'PROGRAM SCREEN
95 DEFINT S
100
'************************************************************
110 '       PROGRAM TO ILLUSTRATE SCREEN CURSOR INPUT

120 '       WRITTEN BY DERRICK ROWE 28TH DECEMBER 1980
125 '       IN MICROSOFT BASIC FOR A TRS-80 MODEL 1
130
'************************************************************
135 '
140 '     CURSOR CONTROL CHARACTERS
145 CR$=CHR$(13)          'ACCEPT DATA     = ENTER
150 BS$=CHR$(8)           'BACKSPACE       = LEFT ARROW
160 FS$=CHR$(9)           'FORWARD         = RIGHT ARROW
170 US$=CHR$(91)          'UP SCREEN       = UP ARROW
180 DS$=CHR$(10)          'DOWN SCREEN     = DOWN ARROW
190 YC$=CHR$(14)          'CURSOR ON
200 NC$=CHR$(15)          'CURSOR OFF
205 EL$=CHR$(30)          'ERASE TO END OF LINE
210 DEF FNP(R,C)=(R-1)*SW+C-1'ROW  AND COLUMN PRINT FUNCTION

400 SW=64:SD=15           'SCREEN WIDTH & DEPTH
410 SC=1                  'CURSOR COLUMN POSITION
420 SR=1                  'CURSOR ROW POSITION
490 '
500 '   DEFINE NO OF FIELDS
510 F=10
514 '
515 '   DEFINE LENGTH AND DESCRIPTION FOR EACH FIELD
520 F(1)=20      :FD$(1)="NAME"
530 F(2)=30      :FD$(2)="ADDRESS LINE 1"
540 F(3)=20      :FD$(3)="ADDRESS LINE 2"
550 F(4)=20      :FD$(4)="ADDRESS LINE 3"
560 F(5)=20      :FD$(5)="POST CODE"
570 F(6)=12      :FD$(6)="TELEPHONE NO"
580 F(7)=5       :FD$(7)="MEMBERSHIP FEE"
590 F(8)=5       :FD$(8)="MEMBERSHIP SUB"
600 F(9)=6       :FD$(9)="JOINING DATE"
610 F(10)=6      :FD$(10)="DATE PAID"
695 '
700 '   INITIALISE SCREEN FIELD IN F$
710 FOR I=1TO F:F$(I)=STRING$(F(I),' '):NEXT I
990 '
1000 'SCREEN INPUT ROUTINE
1010 'PRINT SCREEN
1015 CLS
1020 FOR I=1TO F:PRINTFD$(I);TAB(20);F$(I):NEXT
1990 '
2000 'INPUT DATA
2020 IF SR>F THEN 3000 ELSE IF SR<1 THEN SR=1
```

```
2022 IF SC<1 THEN SC=1 ELSE IF SC>F(SR) THEN SC=F(SR)
2030 PRINT@FNP(SR,SC+20),"";
2031 GOSUB 2040:GOTO2070
2040 PRINTYC$;:FOR  Z=1TO50:A$=INKEY$:IF  A$<>""  THEN  2050
ELSE
     NEXT Z:PRINTNC$; :FORZ=1TO50:A$=INKEY$:IF A$<>"" THEN
     2050 ELSE NEXTZ:GOTO2040
2050 FORZ=1TO1:NEXTZ:PRINTNC$;:RETURN
2070 PRINTNC$;:IF A$<>US$ AND A$<> DS$ THEN IF ASC(A$)>31
     THEN MID$(F$(SR),SC,1)=A$:PRINTA$;:SC=SC+1:
     IF SC>F(SR) THEN 2020  ELSE 2031
2075 '
2076 '  NOT A VALID ASCI CODE SO LOOK FOR SCREEN MOVEMENT
     CHARACTER
2080 IF A$=BS$ THEN SC=SC-1:GOTO 2020
2090 IF A$=FS$ THEN SC=SC+1:GOTO 2020
2100 IF A$=US$ THEN SR=SR-1:GOTO 2020
2110 IF A$=DS$ THEN SR=SR+1:GOTO 2020
2120 IF A$=CR$ THEN SR=SR+1:SC=1:GOTO 2020
2130 GOTO 2020
2990 '
3000 PRINT@FNP(SD,1),"ACCEPT  DATA OR MORE CHANGES   REPLY M
OR
     A";:GOSUB 2040
3010 IF A$="M" OR A$="A" THEN 3020 ELSE 3000
3020 PRINT@FNP(SD,1),EL$;
3030 IF A$="M" THENSR=1:GOTO  2020
3040 CLS:PRINT"DATA ENTERED AS FOLLOWS:-"
3050 FOR I=1TOF:PRINTF$(I):NEXT
5000 END
```

Derrick Rowe

A GUIDE ON HOW TO USE NEWDOS - PART 1

The first thing we will learn about is the BASIC available on the NEWDOS operating system, plus a few DOS commands to get the system up and running.

This series is being written in response to a request from Mr. Baker of Burton-on-Trent (see N/L V2 I6) & after talking to him for two hours over the phone. I found our conversation very interesting.

I am able to write this series, because I work with a TRS-80 48k disk system all day. As some of you know I am self-employed and my business includes programming, sales, installation, etc.

I have been a member of the Group for a long time, but I have only just starting helping out. If you need any help, I am normally available at the Users Group meetings on Tuesday nights or at home (not Tuesdays) between 6PM and 7PM. All other times my parents will answer the phone until I sell myself an answering machine. Please see my advert. elsewhere in this issue for my address & phone number.

I have typed this out on Electric Pencil (upper-case only) so any [illegible]takes must have been made during conversion to lower-c[illegible] - at least thats my story and I'm sticking to it!

O.K. here we go :-

1) Minimal DOS commands.

Take all disks out of all drives and switch on all parts of the system.
Now hold down 'break' and press the reset button.
Hit 'enter'.
Type :- PRINT MEM

COPY command:-

Now get your master copy of NEWDOS.
Check that it has the cover over the write protect notch in the side of the diskette.
Now insert the disk in drive 0.

(If you have more than one drive the next part is fairly easy)
Take a blank disk and check that the write protect notch is not covered.
If you have more than one drive insert this disk in Drive 1
a) If you have only one drive follow 'a'
b) If you have more than one follow 'b'
c) If you have NEWDOS+/NEWDOS21 follow '1'
d) If you have NEWDOS80 follow '2'

a1) Type :- COPY :0 TO :0 01/05/81
a2) Type :- COPY,0,0,01/05/81,UBB
b1) Type :- COPY :0 to :1 01/05/81
b2) Type :- COPY,0,1,01/05/81,UBB

:0 = drive zero :1 = drive one 01/05/81 = the date
UBB (NEWDOS80 only) = use as much memory as you can find ,ie. use big buffer.
The commas may be replaced with spaces.

a2/b2) Hit 'enter' when required by the system
a1/b1) When asked by the system insert the source disk (ie. the original) and the the destination disk (ie. the blank).
a1/b1) Swap them when asked - do this until copy function is complete

a11) Put the copy in drive 0 and put the original in a safe place.

We will be making copies from time to time , this is for protection of your programs - if you get it wrong using Superzap , you could have a lot of re-zapping to do .

Blank diskettes can be obtained from Os House of Blandford Computers - I think it is a good idea with Pertec & Shugart drives to buy the re-inforced Verbatim disks.

Now press 'enter'
The system boots into DOS - saying 'DOS READY' plus any heading such as 'NEWDOS80 DISK OPERATING SYSTEM'.
My own disk now says 'THIS DISK BELONGS TO [illegible].BIRD 08675 6703'

If this is not true hold down 'enter' and press reset - if it is still not true try the copy command again - if after that it still does not work - use another blank disk and try the copy command again.

Now you have got it to work type :- AUTO BASIC.

n.b. if I have put spaces in a command they must be left there!

a) hit reset
b) type :- BOOT

You should now be in BASIC , with the standard
ready
 > showing & some heading, which on my system now says
'JOE BLOGGS DISK BASIC'
P.S. THIS DISK BELONGS TO S.C.BIRD 08675 6703'

Now type :- PRINT MEM
now type :- CMD"DIR :0"
This will now display what is on drive 0
b) NEWDOS80 will tell you a lot of information about the space left on the disk
Now type :- CMD"DIR :0 (S,I)"
This shows BASIC, BOOT and various other system files.
now type :- CMD"FREE"
As you can see we don't have a lot of space left.
b) NEWDOS80 should have no space left
Now type :- CMD"DIR :0 (A)"
Now type :- KILL"SUPERZAP/CMD"
a) NEWDOS+/NEWDOS21 type :- KILL"SUPERZAP/COM"
You can also kill off other things such as
b) ASPOOL/MAS
BASIC1
LVL1DSL

Note:- BOOT, BASIC, DIR + all SYS/SYS must stay

Do not attempt this on the original

Work on a copy at all times - ** NOT ** the original

You have been warned !!!!!!!!!!!!!!

Now you have been told , we can carry on.
DIR = directory of contents on disk
I = normally invisible to directory
S = system files
A = amount of space taken up by each file

CMD"statement" passes the statement to the DOS
e.g.CMD"DIR"
CMD"FREE" shows the amount of space left on each drive

Now type in this program :-
10?"THIS IS A PROGRAM
20?"THIS IS LINE 20
25?"THIS IS NE 25
30?"THIS IS NE 30
33END

Please use the line numbers given

```
Type:-   LIST
Renumber command :-
Now type:- RENUM,
Don't forget the comma.
Type:-   LIST
```

```
It should now read :-
10 PRINT"THIS IS A PROGRAM
20 PRINT"THIS IS LINE 20
30 PRINT"THIS IS LINE 25
40 PRINT"THIS IS LINE 30
50 END
```

```
Now type :-   RENUM 100,100
Type:-   LIST
It should start at 100 & then 200 etc.
Now type:-   RENUM 1000,1000,300
Type:-   LIST
It should read 100 200 1000 2000 3000
Now type:-   RENUM 1000,10,1000,2000
Type:-   LIST
It should read 100 200 1000 1010 3000
Now type:-   RENUM,
You should be back to 10 20 30 40 50
```

```
The format is:-
RENUM   new starting line#,increment,from  old line#1,to old
line#2
No value for 1st defaults to 10
No value for 2nd defaults to 10
No value for 3rd defaults to first linenumber of program
No value for 4th defaults to last  linenumber of program
# = number     line# = line number
```

```
b) NEWDOS80 only try the following
b) type:- DU20,25:LIST
b) type:- D25:LIST
b) type:- DI20,27:LIST
b) type:- RENUM,
b) type:- DI20,60:LIST
b) type:- DI60,20:LIST
b) type:- RENUM 100,10,30,40:LIST
b) type:- RENUM 30,10,100,110:LIST
b) type:- RENUM,:LIST
```

Just one of the extras only available on NEWDOS80!

```
Now type:-  CMD"LIB"
```

This will show you the in-built DOS functions - if you only have NEWDOS+/NEWDOS21, try this on a friend's NEWDOS80 - see the extra commands available in NEWDOS80.

From now on I will use +/21 to mean NEWDOS+/NEWDOS21 and 80 to mean NEWDOS80

80 is so big one of its programs, LV1DSL1 had to be embedded in one of the other programs to get it on the disk.

Now you have learnt one or two commands you can now use the disk BASIC to write programs.

Next - SAVE & LOAD commands for cassette & disk

To load a BASIC program from cassette type:- CMD"T"
This turns off the interface clock
type:- CLOAD
The program should now load as normal - not loading is normal - you may laugh or cry now.
If the tape fails to load (it won't be long before you need it no longer!!) then you have to hit 'reset' and the system will boot back into BASIC. Go to 'CMD"T"' above and try again, adjusting volume as normal.

Hours later:-
Now you have loaded the cassette and listed it, found it to be loading bug free, type:- SAVE"FRED:0"
Your disks will come alive and "FRED" should be saved to disk. When the red light goes out, take the diskette out of the drive and type:- RUN.
If the drive starts up and the system hangs up, then cover the write protect notch on the diskette. When the red light goes out put the diskette back in drive 0. Now hold down the 'enter' key and hit reset. If you have kept your hand on reset then the system should say 'DOS READY'. Now type:- BASIC ↵.
Don't forget that space!!!
If not it should say 'READY'
 > If so type:- LOAD"FRED:0"
If also untrue then try 'enter' and 'reset' again
Now type:- LIST
Type:- RUN
The drives will start up again, but this time something like 'SYNTAX ERROR' will be displayed !!!!!!!!

If the program ran o.k. good !!!!!!!!!!!!!!!!!!
else back to loading that cassette (hee hee) or debugging the program.

If your program contains X=USR(N), it may fail.
There are one or two others Disk BASIC will not take.

Now it is running and you have saved a good copy, note that the write protect tab must be taken off to save the program.
Type:- NEW
Type:- LOAD"FRED:0"
Type:- LIST
You should have just loaded a good copy of your program in a few seconds (quicker than cassette or Floppy Tape in most cases).
(how to get killed by the Floppy Tape users group).

Check that the write protect tab is removed!
Now type:- RENUM,
Type:- SAVE"BERT:0"
Type:- CMD"DIR :0 (A)"
Type:- KILL"FRED:0"
Type:- CMD"DIR :0 (A)
Make sure that the amount next to BERT is not 0 0
Type:- NEW
Type:- LOAD"BERT:0"
Type:- LIST
a) Type:- CMD"RENAME BERT:0 TO ALF"
b) Type:- CMD"RENAME BERT:0 ALF"
80 has th /D' as an option.
Type:- CMD"DIR :0"

Note BERT has gone and is replaced by ALF
Type:- NEW
Type:- LOAD"ALF:0"
Type:- LIST
Same program, different name
Now rename this file to the name you require it to be called.

Type:- NEW
b) If you have 80 hit '123' all at once - you should be in the debugger
b) Now press reset
b) Now hit 'DFG' all at once - you should be in Mini-DOS
b) Now type:- DIR :0
b) Now type:- MDRET
b) You should be back in BASIC

Now type:- CMD"DIR :0"
If you have a parallel printer, connect it up, put the paper in and then hit 'JKL' all at once.
A copy of the screen should now be printed :- if not, but the printer in 'ON' & 'ONLINE' -: then press reset

b) Now make sure the write protect tab is off
b) Type:- CMD"S=SYSTEM :0"
b) 'DOS READY'
b) SYSTEM :0 AA=N,AB=N,AC=N ------ AS=N
b) Newer DOSs have AT=N
b) Type:- SYSTEM:0 AE=N AF=N
b) Type:- BOOT

Next month I will explain AA to AT in more detail!!!!!

NEWDOS+/NEWDOS21/NEWDOS80 is sold by Apparat.
This is written by Stephen C. Bird 08675 6703
A guide on how to use NEWDOS (c) S.C.Bird Jan 1981
The National TRS-80 Users Group has the right to publish this series in their newsletter.
S.C.Bird is the sole proprietor of Magnus Microcomputers

Stephen Bird,
Magnus Microcomputers,

MEMORY PROTECTION ROUTINE

AS A NEOPHYTE MACHINE CODE PROGRAMMER, NEWLY WEANED FROM "BASIC" I HAVE BEEN TRYING TO WRITE A M/C ROUTINE TO USE WITHIN A "BASIC" PROGRAM TO ENABLE SECTORS FROM DISK TO BE WRITTEN TO MEMORY FOR MANIPULATION BY OTHER M/C ROUTINES. HOWE'S BOOK, "MACHINE CODE PROGRAMMING FROM THE GROUND UP", INCLUDES A ROUTINE TO DO JUST THAT, BUT IT DOESN'T SEEM TO WORK WHEN THE DRIVE NO. IS CHANGED FROM THE EXAMPLE GIVEN I.E. DRIVE 1, TO DRIVE 0. I WOULD BE VERY GRATEFUL IF ONE OF THE 'EXPERTS' ON MACHINE CODE COULD GIVE SOME ADVICE ON THIS, OR POSSIBLY COULD RECOMMEND A BOOK COVERING M/C PROGRAMMING FOR DISK I/O FOR THE TRS-80.

AFTER " BASIC " I AM FINDING MACHINE CODE SOMEWHAT FRUSTRATING AND A LITTLE FRIENDLY ADVICE MAY DEI[illegible] MY TRANSPORTATION TO THE "FUNNY FARM".

IN A RECENT 80-MICROCOMPUTING ISSUE A METHOD FOR PROTECTING MEMORY FOR A MACHINE CODE SUBROUTINE FROM WITHIN A BASIC PROGRAM WAS SHOWN. BASICALLY, THE APPROPRIATE LSB IS POKED INTO LOCATION 16561 AND MSB IS POKED INTO 16562. STRING SPACE MUST THEN BE CLEARED WHICH CARRIES OUT OTHER OPERATIONS TO COMPLETE TO TASK. "CLEAR" MUST BE USED EVEN IF NO MORE THAN 50 BYTES ARE REQUIRED, OTHERWISE IT WONT WORK. TO SIMPLIFY THE OPERATION IN VIEW OF THE COMPLICATION OF NEGATIVE DECIMAL NUMBERS USED IN SOME PROGRAMS LOADING ABOVE 32767 AND TO ENSURE THE CORRECT POKING OF LSB & MSB, I HAVE WRITTEN A SIMPLE PROGRAM TO ASSIST.

THE LOADING LOCATION OF THE MC ROUTINE, NEGATIVE OR POSITIVE, IS INPUT AND THE APPROPRIATE POKES ARE GIVEN TO ENTER AT THE BEGINNING OF YOUR BASIC PROGRAM TO SET MEMORY SIZE.

SOME MEMBERS MAY FIND IT OF USE:-

```
100 '************************************************************
200 '**    INPUT MACHINE CODE STARTING ADDRESS IN DECIMAL,     **
300 '** NEGATIVE OR POSITIVE.  OUTPUT IS APPROPRIATE POKES    **
400 '**     TO RESET MEMORY PROTECTION IN BASIC PROGRAM.       **
500 '**  IT IS ESSENTIAL TO FOLLOW WITH A CLEAR COMMAND        **
600 '**  EVEN IF NO STRING SPACE IS REQUIRED AS THIS DOES      **
700 '**  NECESSARY EXTRA REGISTER SETTING TO COMPLETE TASK     **
800 '************************************************************
900 CLS
1000 INPUT"LOADING ADDRESS OF M/C SUBROUTINE, POSITIVE OR
NEGATIVE";A%
1100 A%=A%+(A%(0)*-65536
1200 PRINT:PRINT"PROGRAM LOADS AT MEMORY LOCATION"A%
1300 A%=A%-2:PRINT"TWO LESS THAN THIS SHOULD BE POKED TO
PROTECT M/CODE I.E. :-"A%
1400 HM%=INT(A%/256)
1500 LM%=A%-HM%*256
1600 PRINT"TO PROTECT MEMORY AT "A%;" IN YOUR BASIC PROGRAM"
1700 PRINT"POKE 16561,"LM%;": POKE 16562,"HM%
1800 PRINT"DON'T FORGET TO USE THE 'CLEAR ' COMMAND
IMMEDIATELY"
1900 PRINT"EVEN IF YOU DON'T REQUIRE TO USE STRING SPACE. SINCE
2000 PRINT"THIS COMMAND CARRIES OUT EXTRA REGISTER CHANGES TO
2100 PRINT"COMPLETE THE PROCESS OF MEMORY PROTECTION.
```

MANY THANKS TO BRIAN AND LEON FOR THEIR HARD WORK PRODUCING A PROGRESSIVELY BETTER NEWSLETTER AND FOR THEIR WORK IN ORGANISING SOME VERY INTERESTING WORKSHOPS.
THANKS ARE DUE TO BRIAN FOR ALLOWING THE CONTINUED USE OF HIS OFFICE AT STONY STRATFORD FOR SUNDAY MORNING SESSIONS, WHICH PROVIDE SOME USEFUL EXCHANGES OF VIEWS AND IDEAS

DAVID ALLERTON-AUSTIN
NORTH CRAWLEY, BUCKINGHAMSHIRE.

COMMUNICATION BETWEEN TRS-80 SYSTEMS

IF YOU HAVE TWO S-80'S THEN YOU CAN COMMUNICATE BETWEEN THEM BY USING TWO TAPE RECORDERS.

1) CONNECT THE TWO CASSETTE LEADS TO THEIR RESPECTIVE TRS-80
2) NOW CONNECT THE BLACK PLUG OF LEAD 'A' TO CASSETTE 'B' & LEAD 'B' TO CASSETTE 'A'
3) CONNECT THE GREY 3.5MM PLUG OF LEAD 'A' TO CASSETTE 'A' & LEAD 'B' TO CASSETTE 'B'
   THE LEADS SHOULD NOW BE CROSS CONNECTED!
4) OPEN THE RECORDERS AND HOLD DOWN THEN RECORD TAB & PRESS PLAY & RECORD AT THE SAME TIME - YOU NEED AT LEAST THREE HANDS
5) NOW TYPE OUT A SMALL PROGRAM ON COMPUTER 'A'

```
10 REM THIS IS ON COMPUTER 'A'
20 REM THIS IS A SHORT PROGRAM
```

NOW TYPE ON COMPUTER 'B' CLOAD
AND TYPE ON COMPUTER 'A' CSAVE"A"
THE STARS SHOULD FLASH ON COMPUTER 'B'
WHEN READY RETURNS , TYPE :- LIST
IF IT IS A COPY OF THAT ON 'A' THEN TYPE ON COMPUTER 'A' :- NEW
TYPE ON COMPUTER 'A' :- CLOAD
TYPE ON COMPUTER 'B' :- CSAVE"B"
WHEN READY RETURNS TYPE ON COMPUTER 'A' :- LIST
YOU SHOULD HAVE THE PROGRAM BACK ON 'A'
NOW TYPE :- NEW ON BOTH COMPUTERS
TYPE ON COMPUTER 'A' :-

```
10 REM THIS IS A COMPARE PROGRAM
20 CLS
30 ?"RUNNING"
40 FOR L = 17152 TO 18000
50 A = PEEK(L)
60 PRINT#-1,A
70 INPUT#-1,A$
80 IFA$<>"FRED"THEN?"ERROR":END
90 NEXT
100 END
```

TYPE THIS INTO COMPUTER 'B' :-

```
10 REM THIS IS PART 2 COMPARE
20 CLS
30 ?"RUNNING"
40 FOR L = 17152 TO 18000
50 B = PEEK(L)
60 INPUT#-1,A
70 IF A <> B THEN ?"COMPUTER 'A' =";A,"COMPUTER 'B' =";B
80 PRINT#-1,"FRED"
90 NEXT
100 END
```

NOW TYPE :- RUN ON COMPUTER 'B'

AND THE :- RUN ON COMPUTER 'A'

YOU CAN MODIFY A TANDY TELEPHONE AMPLIFIER (6.95) TO DO THIS INSTEAD OF USING THE CASSETTE.THIS IS USEFUL IF YOU HAVE A VIDEO GENIE. YOU WILL NEED A SOLDERING IRON.

OPEN UP THE CASE OF THE AMP. AND FIND THE 9V SOCKET.NOW CUT THE WIRES ON THE BOARD END.THEN SOLDER THESE WIRES ACCROSS THE SPEAKER.REMARK THE SOCKET 'O/P' AND CLOSE UP THE SYSTEM.ON THIS TYPE OF AMP. YOU WILL HAVE TO ADJUST THE VOLUME TO SUIT THE COMPUTER.

END OF COMMUNICATIONS IDEA (PART 1)

I HAVE A ZAP TO CHANGE SCRIPSIT TO WORK ON THE MICROLINE TO PRODUCE SMALL,MEDIUM & LARGE CHAR.S + 6 OR 8 LINES PER INCH + 64 OR 80 CHAR.S PER LINE . IE CHR$(29) / (30) / (31) & ESC + 6 ,8 , A OR B
COMMANDS ARE PS=L,PS=S,PT=6,PT=8,PT=A,PT=B
I HAVE TO YET INCORPORATE A MEANS OF GETTING MEDIUM (NORMAL) BACK ONCE ONE OF THE OTHER TWO ARE SELECTED (OTHER THAN TURNING OFF AND ON AGAIN)

I WILL (HOPEFULLY) HAVE A FINISHED COPY FOR THE NEXT ISSUE IT IS BASED ON THE MOD BY DENNIS LONG IN V2 I5.

Steve Bird

MEDICAL USERS GROUP

I would like to give the Medical Users Group another plug.

Please could anyone interested in writing programs with medical applications get in touch with me. I hope to be able to publish a specification soon.

Dr. N. D. P. Robinson,
Northwick Park Hospital,
Flat 20, Humber House,
The Residencies,
Watford Road,
Harrow HA1 3UJ

```
00100 ;PROGRAM TO GIVE A KEY REPEAT FUNCTION
00110 ;WRITTEN BY ANTHONY ROBSON
00120 ;
00130 ;CHOOSE MEMORY SIZE TO SUIT YOUR SYSTEM WHEN
00140 ;ASSEMBLING. REMEMBER TO RESERVE MEMORY WHEN USING
00150 ;BASIC. RUNNING THE PROGRAM FROM DOS GIVES A REPEAT
00160 ;FUNCTION IN DOS AND WHEN USING EDTASM.
00170 ;
00180 MEM16K  EQU     7A68H
00190 MEM20K  EQU     BC00H
00200 MEM32K  EQU     0BA6AH
00210 MEM48K  EQU     0FA68H
00220         ORG     MEM32K
00230 START   LD      HL,(4016H)
00240         LD      (CL+1),HL
```

```
00250           LD      HL,GO
00260           LD      (4016H),HL
00270           JP      402DH
00280 GO        LD      A,0
00290           LD      (4036H),A
00300           LD      (4037H),A
00310           LD      (4038H),A
00320           LD      (4039H),A
00330           LD      (403AH),A
00340           LD      (403BH),A
00350           LD      (403CH),A
00360 CL        CALL    0
00370           CP      0
00380           JR      Z,NONE
00390           LD      HL,LAST
00400           LD      B,(HL)
00410           CP      B
00420           JR      NZ,DIF
00430           LD      B,A
00440           LD      A,(TEST)
00450           CP      1
00460           JR      NZ,RT
00470           LD      A,B
00480           RET
00490 RT        LD      A,1
00500           LD      (TEST),A
00510           LD      HL,LAST
00520           LD      (HL),B
00530           LD      BC,25000
00540           CALL    60H
00550           JR      CL
00560 DIF       LD      B,0
00570           LD      HL,TEST
00580           LD      (HL),B
00590           LD      HL,ZERO
00600           LD      (HL),B
00610           LD      (LAST),A
00620           RET
00630 NONE      LD      A,(ZERO)
00640           CP      0
00650           JR      Z,SETZ
00660           LD      A,0
00670           LD      (TEST),A
00680           LD      (LAST),A
00690           LD      (ZERO),A
00700           RET
00710 SETZ      LD      A,1
00720           LD      (ZERO),A
00730           XOR     A
00740           RET
00750 ZERO      DEFB    0
00760 LAST      DEFB    0
00770 TEST      DEFB    0
00780           END     START
```

SCREEN CLEAR WITH THE VIDEO GENIE

The Video Genie lacks the TRS-80 'CLEAR' key. The same function can be achieved by pressing 1,2 and BREAK simultaneously.

Nick Robinson

REPORT ON THE SOUTHALL WORKSHOP - 20 DECEMBER 1980

This was an early Christmas present to myself made possible by the excellent facilities provided by Dave Futcher, the headmaster of the Beaconsfield Road First and Middle Schools, where the workshop was held. This time there were no parking problems. Three rooms were used for lectures, systems, and of course, the food.

Over 10 systems were in attendance, with floppy tapes well represented, as well as the usual disk-based units. One member, Victor Saleh, had Newdos80 running with double-sided and double-density drives, and answered many questions about this combination. Another feature was a rescue mounted by Chris Cain on a member's disk. It was suggested that this rescue service should be offered on a confidential basis, as no secrets are left once an audience has seen Superzap zoom over a Disk!

Another nice feature was the attendance by two members of Tandy's Seacoal Lane staff, who brought along a Model 1 and a Model 2 for members to compare, evaluate and ask questions about. Also present was Derrick Rowe whose company uses both models. Once again, it could be seen that the usual friendly atmosphere was building up, with the floppy users being especially vocal and enjoying themselves. It has been pointed out to me by one or two MK members that those dreaded cliques can be seen on occasions, but really they are just an example of members going over a common interest, which can be joined at any time by a member at his first meeting.

The programme was as follows:-

10.15 Brian Pain: Review of 1980

As this suggests, I ran through the year, going over the various things that have been seen from my position at the hub of the group as it stands at the moment. From a personal point of view it has been very enjoyable and I only hope 1981 is as good.

11.00 Dave Futcher: Use of the Model 1 in Junior Education

Dave uses a 16k system in his school, with a floppy tape unit for storage. When he demonstrates the system the pupils' efforts always go better with the fast facilities of the floppy

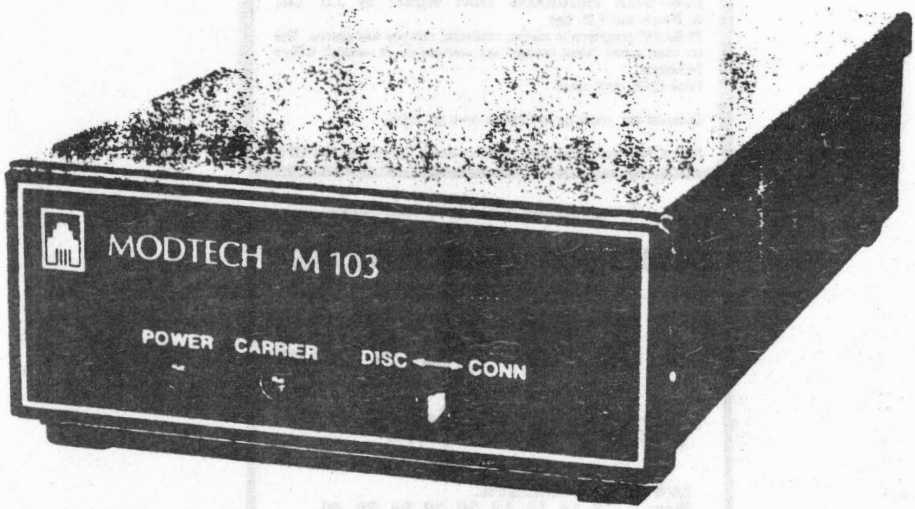
MODTECH INC.

ORIGINATE ONLY
DIRECT-CONNECT MODEM

THE MODTECH M103 IS AN ORIGINATE ONLY MODEM COMPATIBLE WITH THE BELL SYSTEM 103/113 DATA SETS AND PLUGS DIRECTLY INTO TELEPHONE LINES USING THE CONVENTIONAL MODULAR JACK FOR SUPERIOR DATA RELIABILITY NOT FOUND IN ACOUSTIC COUPLERS. THE M103 PROVIDES IMMUNITY FROM ROOM NOISE AND MECHANICAL VIBRATIONS WHICH ARE COMMON PROBLEMS WITH ACOUSTIC COUPLING.

IT WILL OPERATE AT A MAXIMUM DATA RATE OF 450 BITS PER SECOND ASYNCHRONOUSLY, FULL DUPLEX WITH OR WITHOUT LOCAL COPY.

THE M103 IS SIMPLE TO OPERATE AND PROVIDES VISUAL INDICATORS FOR CARRIER DETECT AND POWER. A FRONT PANNEL SWITCH IS PROVIDED FOR MANUAL CONNECT OR DISCONECT.



M103 FEATURES:

- FCC APPROVED FOR DIRECT CONNECTION TO TELEPHONE LINES
- HIGH DATA RELIABILITY USING VOICE GRADE LINES
- QUARTZ CRYSTAL ACCURACY AND STABILITY
- FULL DUPLEX ASYNCHRONOUS OPERATION
- LOCAL COPY (OPTIONAL)
- EIA RS232C TERMINAL INTERFACE
- 20ma TTY INTERFACE (OPTIONAL)
- BELL 103/113 COMPATIBILITY
- RELIABLE DATA RATES UP TO 450 BITS PER SECOND
- PORTABILITY, PLUGS INTO CONVENTIONAL RJ11 PHONE JACK
- COMPACT AND LIGHT WEIGHT FITS UNDER STANDARD OFFICE PHONE
- HIGH RECEIVER SENSITIVITY
- OPERATOR CONVENIENCE INDICATORS FOR POWER AND CARRIER DETECT
- LINE CONNECT/DISCONNECT SWITCH
- AUTO LINE DISCONNECT WITH LOSS OF CARRIER
- LOW POWER CONSUMPTION
- SIX MONTH WARRANTY

TO USE FORUM–80, MICROLINK AND TALK TO OTHER COMPUTERS
YOU NEED A MODEM
MADE IN U.S.A. TO U.K. FREQUENCYS.
SPECIAL OFFER TO TRS–80 GROUP MEMBERS
ALL IN PRICE OF £150 INCLUDING P.& P.
FOR MORE DETAILS CONTACT :–
FRDERICK BROWN 421 ENDIKE LANE HULL HU6 8AG
TEL: (0482) 859169

Consultation Sales Installation Tutoring Programming	Magnus Microcomputers 139 The Moors, Kidlington, Oxford, OX5 2AF.	08675 6703 M-F 8AM-7PM Visitors by Appointment Only.

Description (OxMiC & TRS-80 U/G)	RRP	OxMiC Mail Order	OxMiC Retail (MAY 81)
All Invoices show VAT&Post Seperate	ALL Including	V.A.T. @ 15%	
Video Genie 16K RAM 12K ROM	£379.50	£350.00	£330.00
As Above + Sound Uint (Fitted)	£396.75	£370.00	£345.00
As Item No. 1 + Lowercase (Fitted)	£423.20	£390.00	£370.00
TX-80B Printer	£454.25	£400.00	£380.00
Video Genie Interface For TX-80B	£ 40.25	£ 37.00	£ 34.50
9" Green Screen Monitor Metal Case (6mt DEDUCT £15)	£109.25	£105.00	£ 94.30
Expansion Interface Without RS232	£224.25	£195.00	£182.00
As Above + Bi-Directional RS232	£258.75	£225.00	£210.00
Dynamic S100 16K RAM CARD	£115.00	£100.00	£ 95.00
As Above , 32K RAM CARD	£161.00	£150.00	£140.00
EG400 (SA400) Drive with PSU & Case	£258.75	£240.00	£220.00
Dual Teac 40 TRACK DRIVES	£506.00	£480.00	£497.00
Dual Teac 80 TRACK DRIVES	£741.75	£715.00	£670.00
4 Drive Cable	£ 37.95	£ 36.00	£ 34.00
2 Drive Cable	£ 20.13	£ 19.25	£ 18.00
Expansion Interface To Printer Cable	£ 20.70	£ 19.85	£ 19.00
Floppy Tape Master Drive ACULAB FOR J.G.	£200.10	£190.00	£180.00
Floppy Tape Slave Drive	£143.75	£140.00	£134.00
NEW NEW NEW NEW NEW NEW			
MX-80 Printer Upgrade On TX-80B	£460.00	£450.00	£430.00
Centronics 730/PARALLEL	£431.25	£410.00	£390.00
Centronics730/SERIAL	£N.A.	£460.00	£430.00
Centronics737/PARALLEL	£488.75	£465.00	£440.00
Centronics737/SERIAL	£N.A.	£515.00	£480.00
730/737 Adapter Cable To Centronics Std. //	£N.A.	£ 26.50	£ 25.00
EG100 12" Monitor (Video 100)	£ 80.50	£ 77.00	£ 72.00
Others----------			
Cassettes C12 Special Digital 10 OFF	£ 5.80	£ 5.80	£ 5.18
50 OFF	£ 29.00	£ 27.00	£ 23.58
100 OFF	£ 58.00	£ 52.00	£ 46.00
Floppy TAPE Cartridges 5 OFF	£ 10.05	£ 9.75	£ 9.25
10 OFF	£ 20.10	£ 19.00	£ 18.00
Any Standard Length 5-75Ft. 20 OFF	£ 40.20	£ 37.00	£ 35.00

DON'T FORGET TO MENTION THE NATIONAL MICROCOMPUTER CLUB TO EVERYONE.!.!.

AS AT 6 JAN 1981

Business Registration Number 261108 (

Proprietor Stephen C. Bird

V.A.T. Registration Number 348 3299 26

IF YOU ORDER SEVERAL ITEMS MAIL ORDER THEN THE BALANCE OF THE £ WILL BE RETURNED TO YOU.

WE ALSO SELL OTHER PRINTERS + OTHER MICROCOMPUTERS + ANSWER MACHINES + BLANK VIDEO CASSETTES.. SUPERBOARD / APPLE II / TRS-80 MODEL I, II, III / SHARP / SUPERBRAIN W/IEEE

DUPLITAPE FOR LEVEL II TAPE USERS

END DIFFICULT LOADS AND COPY ANY PROGRAM OR FILE DIRECT FROM TAPE TO TAPE

BESTAPE IS A UNIQUE COPY PROGRAM WHICH ACTUALLY REMOVES AND CORRECTS TAPE ERRORS. IT WILL PRODUCE PERFECT TAPES EVEN FROM ORIGINALS WITH TIMING ERRORS AND BAD PULSES. THESE PERFECT COPIES ARE Easy TO LOAD.

COPY ADVENTURES, GAMES ETC. , WITH A 4 or 16K MACHINE. PROTECT YOUR ORIGINALS SAFELY. AVAILABLE RAM DOES NOT LIMIT THE LENGTH OF PROGRAM WHICH MAY BE COPIED.

£9-50 from ALBION SOFTWARE
LAMMAS ROAD,
LONDON, E10

Telephone 01-539-7074

or S.A.E. FOR FURTHER DETAILS.

LAURIE SHIELDS SOFTWARE

I CANNOT SELL YOU 'ELECTRIC PENCIL' BUT I CAN PATCH YOUR COPY TO RUN ON ANY COMBINATION OF THE FOLLOWING :-

-:- ACULAB FLOPPY TAPE -:-
-:- TANDY LOWER CASE -:-
-:- VIDEO GENIE -:-
(SCRIPSIT PATCHES AVAILABLE SHORTLY)

aZEN

* EDITOR *
* ASSEMBLER *
* DEBUGGER *
* FILEZAP *

YOUR ACULAB IS INCOMPLETE WITHOUT IT

DISC USERS

THE ALL BRITISH ZEN EDITOR/ASSEMBLER IS NOW ON DISCS. IMAGINE A COMBINATION OF MONITOR 3, NEWDOS EDTASM, 28K MORE RAM, DOUBLE THE DISC STORAGE AND YOU'VE GOT ZEN.

151, LONGEDGE LANE, WINGERWORTH,
CHESTERFIELD, DERBYS. S42 6PR.
0246 75568 EVENINGS OR WEEKEND.

Sigma Technical Press

the UK software publisher

LIVING WITH THE MICRO by Martin Banks
By the editor of Microcomputer Analysis, this covers developments in the whole field of microelectronics. It emphasises 'Information Technology' — the combination of computers, communications and automation — and applications including: business systems, software, viewdata and education. "... a very brave effort at explaining a very complicated subject in simple terms, and the kind of book a managing director might read before recommending his board to spend half a million" (Electrical and Radio Trading).
Price £3.50, soft cover

SUCCESSFUL SOFTWARE FOR SMALL COMPUTERS by Graham Beech
This shows how to apply structured programming on a microcomputer, using BASIC. "... clear, easy-to-follow language. An excellent introduction to techniques such as LINKED LISTS, DATA STRUCTURES, SORTING, SEARCHING and SIMULATION. CHOCK FULL OF EXAMPLES ... EXCELLENT VALUE" (National TRS-80 Users Group Newsletter). Approved by Tandy Corp. for Model I, Level II.
Price £5.50, soft cover TRS-80 Cassette £7.50

COMPUTER PROGRAMS THAT WORK! by J.D. Lee, G. Beech and T.D. Lee
24 BASIC programs in maths, statistics, science and games. The UK best seller! "Well thought out with plenty of variety" (Micro Forecast).
Price £3.95, soft cover

Cheques etc. must be in Sterling on a UK bank.

Sigma Technical Press (T), 5 Alton Road, Wilmslow, SK9 5DY.

Happy Memories

4116	200ns	£2.25	4116	150ns	£4.95
2114	450ns	£2.95	2114	200ns	£3.95
2708	450ns	£4.95	2716	5V	£9.95

Memorex soft-sectored mini-discs with free plastic library case £19.95 per 10.

Low profile I.C. sockets:
Pins: 8 14 16 18 20 22 24 28 40
Pence: 10 11 12 16 17 19 21 27 37

Euroconnectors:
64/96 Male (right angled) £2.39 64/96 Female £3.52
RS232 connectors (solder):
Male 25 way: £1.86 Female 25 way: £2.13
Hoods: 66p

ALL PRICES VAT INCLUSIVE
Please add 30p postage to orders under £10.
Government + Educational orders welcome
£10 minimum



Happy Memories
Gladestry
Kington
Herefordshire
HR5 3NY
Tel: (054 422) 618



12.00 Derrick Rowe: Model 1 in Business

Derrick described his company's use of the Tandy in day-to-day operations, and really emphasised just how useful he has been to the group. Whenever a member has a problem that comes within his area of expertise then advice or ideas have always been forthcoming .

1.00 Lunch

This consisted of a buffet with wine and was certainly very relaxing and sociable with much swopping of ideas and experiences.

2.00 Derrick Rowe: Model 2 in Business

Derrick showed several features: connecting the two models, using the compiler, graphics, and Scripsit. Finally we were given a preview of how his company gives a potential customer a quote depending on the customer's circumstances.

3.30 Chris Cain: Newdos80 File Handling

This was the first time file handling had been dealt with at a workshop, and Chris had been asked the previous evening to run through something, in between pints on a payphone!

He was concerned about running out of material, but once he started work on the overhead projector there was no problem with questions or material. Thank you very much, Chris.

4.30 Bob James: Floppy Tape Position

This was an informal session which ranged over a variety of issues and there were grumbles when it had to be called to a halt. Never mind, it will start again at Milton Keynes.

5.30 Peter Goodfellow and Brian Pain: Sorting with Infinite Basic

This was a more formal session than hitherto, where two heads proved very useful when showing uses of Infinite Basic. Peter ran through the steps required to set up a module, and I showed a timetabling application that my college department is using.

6.15 Closedown

There was no time for a panel and anyway everybody had had a full day!

From these notes, it will be noticed that we did not have Leon with us, as he felt too groggy to travel. The other point is that Peter Goodfellow helped with chairing the meeting to allow me to concentrate on admin and procuring the food. This was the ninth workshop in 1980 - all were enjoyable and seemed to provide something for everyone who attended.

Brian Pain

MODEL II - ERROR 49

As a result of my requesting some information on ERROR 49, which some Model II users are experiencing, a couple of members contacted me with some suggestions that might be of interest to other users.

One cause is apparently a bug in the DOS, resulting in incorrect interrupt handling. Tandy have a patch which is supposed to correct the bug, but there are some doubts as to its effectiveness.

The bug appears to manifest itself as ERROR 1 whilst in BASIC - NEXT without FOR - and can also be caused by disk damage. Examine the disk, and if no visible damage is apparent (rotate the disk in the sleeve), trap the error (ERROR 1) and execute an immediate RESUME.

Leon Heller

FOR SALE

TRS-80 16K Level II; complete with monitor and cassette recorder. Has Tandy lower-case mod. and switchable Level I and Level II. Only £390.

Peter Toothill.
Tel: (051) 220 9733

TEAC DISK DRIVES - A LOOK INSIDE

Before returning a faulty Teac disk drive to Tandy, I thought I'd have a look inside to see if there was anything obviously wrong with it. The drive belt had come off its pulleys, which explained why it didn't work!

Whilst I had the cover off, I examined the unit closely, and was very impressed with the standard of construction, compared with the Micropolis drives previously sold by Tandy. Another good point was the extensive use of low-power Schottky TTL devices in the control board circuitry, which means that they run very cool. Moreover, they have 40 track capability, so you can get a bit more storage if you modify your DOS or use Newdos80.

If you can get them at an equivalent price, they would appear to be a better buy than complete drives incorporating the Shugart SA400, that are obtainable from some suppliers.

Leon Heller

DAISIES IN THE SPRING!

The New Tandy Printer

On a visit to London two weeks ago, I was very pleased to be able to see the new Tandy Daisy Wheel Printer II at the London Computor Store. I was told that a few had been specially flown over from Japan, and that the bulk supply would not arrive until March. The price was quoted as £1099 inclusive of Vat but without cable. I was very impressed by its speed (43 characters per second - less than the Anadex, but acceptably fast) and by the clean, high quality type. Three Daisy Wheels are available: it is normally supplied with Courier 10 font and alternatives are Prestige Elite and Madeleine which are extras at £15 each.

The Printer is in fact manufactured by Ricoh and supplied to Tandy to their specification. This is reassuring since the Ricoh Printer appears to have built up a good reputation for rubustness and reliability over the past few years. I have heard the comment 'built like a battleship', and have never been quite clear whether this was a entirely a compliment or a slight criticism of its heavy construction. However, the demonstration of the machine in operation gave confidence and the machine design looked excellent. Changing the Daisy wheel was a very simple matter, and took only a few seconds. Need an extra Daisy Wheel cost as much as £15 ? Perhaps the price isn't too bad for 124 characters - I don't know. Surely too one would hope for more than three wheels to choose from, but perhaps this will come later. But the characters include quite an exotic range of foreign characters, 'e' with accent grave and aigue, umlauts on A,O,U,a,o,u, together with underlining and double underlining: mu and beta: fractions, quarter, half and three-quarters. What tremendous luxuries for an ex-Matrix user !!

One can select 10 or 12 characters per inch either by switch or by software and it is surprising how much difference in appearance and packing this 20% change makes. Proportional spacing is also provided. It prints up to 163 characters per line with paper width up to 15" and friction feed. (Traction feed is an extra and I guess expensive.) It handles up to six paper sheets and there a paper thickness adjustment. The ribbon comes in an expensive looking cartridge - I did not think to ask the cost, but I suppose that if it is reliable and even in quality, it can save many headaches. There is a Print Intensity Adjustment (Low, Medium and High) and of course one uses 'Low' for single sheets.

Details are given of the various Software control codes: for example, 08 Hex for backspace, 0A for linefeed, 0D for linefeed with carriage return, 0F for underline, 1B

01 to 1B 06 for spacings varying from a sixtieth to a tenth inch, 1B 0A for reverse linefeed, 1B 1C for half line feed, etc. Examples are also given of control codes written in Basic.

Returning to Sale, enquiries at the local Tandy revealed that delivery is in fact not so gloomy and that if I ordered one now, I might get one by the end of January. I enquired whether they supply (free of charge one hopes) a modified programme for Scripsit (or a patch that one can write in), but this apparently had not yet been explored (or at any rate the local people did not know of it). I will write a note on my experiences with this Daisy Wheel Printer when I have had some experience with it. Daisies come in the Spring, Tra La!

Bill Cowhig,
21 Priory Road,
Sale M33 2BS.
Tel: 061-973 3604

FLOPPY TAPE CORNER

Here is a little program which will resave difficult Floppy files:-

```
10 @LIST:INPUT"FILENAME/EXT";A$:INPUT"NO.OF
   SECTORS",N:FORX=0TO(N-1):@GETA$,X:?X;:@PUTA$:NEXT
```

Aculab recommend OUT 240,0 for stopping the tape rather than OUT 240,2.

Nick Robinson

LOW-COST MEMORY

The last few months have seen another dramatic drop in the price of the 4116 dynamic RAMs used in the TRS-80. The cheapest source at the moment appears to be:

Microdigital Ltd.,
Freepost (no stamp needed),
Liverpool L2 2AB.

who are asking £18 + VAT for 16K (eight chips). They are guaranteed for 12 months.

Leon Heller

National TRS-80 Users Group

Newsletter

VOLUME 2 ISSUE 8 FEBRUARY 1981

CONTENTS

2 Editorial
3 Members Letters
6 Floppy Tape With Level III Basic
7 Printer Problems
10 Scripsit Modification
11 Scripsit Text Recovery
12 Daisy Wheel Driver Improvements
13 Floppy Tape Programs
15 More Daisy Wheel
17 Menu Tip
18 Milton Keynes Workshop Report
20 Floppy tape Corner
22 Some Notes from Brian
24 Local Groups

EDITORIAL

I must apologise for the delay in publication and the reduced size of this issue. I've just had two more sessions in hospital.

This is also the reason for the delay in getting 80-NET going. However, Frederick Brown is sending me one of his modems, so we should be on-line by the time you receive this issue.

Editor:-

Leon Heller,
6 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.
Tel: (0908) 613004

Publisher:-

Brian Pain,
40a High Street,
Stony Stratford,
Milton Keynes.
Tel: (0908) 566660/
564271

****

PROGRAMMABLE SOUND GENERATOR BOARD

I am now taking orders for the programmable sound generator board based on the G.I. AY-3-8910 P.S.G. chip and described recently in the Newsletter. The board will contain the P.S.G. device, interface circuitry, an amplifier (200mW output into 8 ohms) and a connector onto the Tandy bus. You will need to provide a 5V power supply (a 6V battery and series diode will do) and a speaker. A manual will be provided, together with some software on cassette. The price will be £35 (no VAT).

Please make cheques payable to LFH Associates Ltd.

Leon Heller

****

Volume 2,Issues 7-12	(£6.00)	Jan 81 - July 81 (Inc post)
Volume 2,Issues 1-6	(£5.75)	July 80 - Dec 80 (Inc post)
Volume 1,Issues 7-12	(£5.25)	Nov 79 - June 80 (Inc post)
Volume 1,Issues 1-6	(£3.25)	Jan 79 - Oct 79 (Inc post)

Library List ----- 50p plus postage
Membership List -- 50p plus postage

MEMBERS' LETTERS

May I start by saying how useful I find our newsletter to be, and contributors should beware of finishing their articles with '...if there is any interest, I will', I can assure them that I for one have yet to read an uninteresting entry (with the possible exception of those from members whose talents lead them to destructive and negative criticism).

Can I ask out of curiousity whether some of the members have a 'DI' instruction for the human brain i.e. do you sleep!!!

Having bought a computer instead of a car I find it difficult to get to meetings,so, is there anyone who can offer me a lift (petrol money of course) to meetings they attend, I live near the M32 in Bristol.

I also note that there is a meetiing scheduled for Bristol quite soon - anybody requiring accomodation should get in touch with me at the Telephone number below the charge will be only nominal, in fact I'd be quite willing to waive payment altogether for a good barter. I can take two people - either a couple or two members (and systems) particularly those with breadboarding experience.

Could I suggest that members who do not mind being disturbed include their phone number with correspondence..mine is 512283 (Bristol)

Is anyone willing to write a kiddies guide to breadboarding. I quite understand the circuit diagrams in the magazine but suspect my first attempts will result in I.C.'s floating in a pool of solder. What I need is names of good books, tips on technique and on the best types of equipment to use.

I have recently ordered an ACULAB floppy tape system for my 16K/L2 system after reading high praise for it in the newsletter. (Can I sue if its not true ?..Joke really). What I am worried about however is the tape based software notably Adventure and Edtasm which will not produce copies on the Floppy tape i.e. storing half played games. Any advice from members who have already done these conversions. Of course I could replace my Edtasm with @ZEN (sorry Laurie), but I already have a good assembler!!!

Bit of advice-if you're upgrading from LeveL I to II.you don't HAVE to have the numeric keypad.

Does the Library support Floppy tapes?

Anyone willing to store some software on ROM chips?

Will a Video Genie interface work with a Tandy CPU and is there any advantage ?

Whilst we're on the subject does anyone know why V/Genie has'nt been sued by Tandy or is it made under licence.

I think reducing the size of the newsletter is O.K. ,but could we have it so when it is opened from the side or the top,all the pages are the right way up.

Why not call the mag 'FB' (Think about it)

Well thanks again and I'll try next time to send more answers than questions..

ROGER BAMKIN,19 WOOD STREET,
EASTON,BRISTOL.

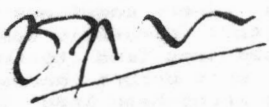
I wonder if you could use the pages of your newsletter to help me with 2 minor problems I have, concerning saving two programmes to floppy tape.

Try as I might I cannot get the TANDY LOWER CASE DRIVER to save on floppy. The traditional method of start and entry addresses fails as does using the Offset Loan Module in Extended Basis. The net result of all attempts is a large graphics block in top left of screen and a cursor that moves in fits and starts.

Could someone who has @ saved the Harding INVADERS programme with the autostart give me a tip, so I can get this on floppy too.

Thanks for a great newsletter and excellent workshops.

Yours sincerely,



David J. Futcher

MICROTEK units are now available in the UK. from Kingston Computers Ltd.,Elecricity Buildings,Filey .N Yorkshire.YO 14 9PJ. phone Scarborough 51414

We phoned one afternoon, ordered with an Access card and the unit arrived the next day, complete with instructions, a circuit diagram and its test certificate.

Unfortunately something vital must have got shaken up in transport because it didnt work.

Another phone call and a replacement came via Securicor, within 24 hours.

We paid £123 + vat for the 32K printer memory version.This works out rather more than getting it direct from Microtek in California(assuming import duty of about 15%) but we thought it well worth the extra money to have the speed of delivery and service that we had.£

A. Taylor.

EDUCATIONAL SOFTWARE

A plea for converting programmes to run on TRS-80's

There are small pockets of school developing software for educational use for the TRS-80. Already there is the beginning of some liason between them. I regularly exchange material between Ealing and a school in Bristol. Anyone developing educational software who wishes to exchange programmes or ideas - do contact me.

Unfortunately, many different machines are being used in the Education field. Some Local Education Authorities have specified the purchase of particular machines such as Research Machines 380Z. Other authorities have a hotch-potch arrangement.

It is very sad that much education software is being developed and in use of PET, TRS-80 and RM 380Z etc. But NO ATTEMPTS are being really made to convert them for different machines. In my own Education Authority a number of us particularly think TANDY'S TRS-80 gives best performance and best value for money.

The growth of machines in school depends on software development. Too often schools are working on their own developing programmes that others have developed months before. For instance there are some excellent primary school software developed by Newman College in Birmingham but specifically for 380 Z. W.Wollard in Southampton has developed a suite of programmes for slow learners but for PET. Many other examples exist in Cambridge, South London and Maidenhead.

Authors of software in Schools are very pleased(usually) to give their permission for others to use and adapt their programmes. Roger Keeling at Newman College has indicated this to be recently. His college have some excellent simulations and maths skills programmes ready for adaptations toTRS-80.

THERE MUST BE EXPERTISE WITHIN THE NATIONAL GROUP TO ASSIST IN THIS WORK. The TRS-80 is the world leader but is being held back in the U.K. because of inroads made by other machines and school software developments.

Can I ask for members of the users group to contact me. Rise to the challenge and offer to convert programmes. The more educational programmes available, the more TRS-80 that will be sold in education and that must have a benefit for all current users !

DO CONTACT ME IF YOU WOULD LIKE TO ASSIST IN GETTING SOME EDUCATIONAL PROGRAMMES UP AND RUNNING ON THE TANDY.

David J. Futcher
Head Teacher
Beaconsfield Combined First and Middle School
Beaconsfield Road
Southall
Middlesex.

01-574-3506

USING THE ACULAB FLOPPY TAPE WITH LEVEL III BASIC

There is nothing more galling than finding that the software that you have that is cassette-based is incompatible with a newly acquired Floppy Tape system. Such incompatibilities included until recently Electric Pencil (now very competently modified by Laurie Shields), and Scott Adams Adventures. Here are some reasons why this software may be incompatible:-

1) the whole of available RAM is used, including the input/output buffer
2) the directory vector area (16813,16814) is over-written so that the system does not know where to look for the directory
3) the program uses a machine-language routine that overwrites the directory.

I got in touch with Alan Pound of Aculab, who gave me the following patch for Level III. He has given his permission for this patch to be freely used and exchanged between group members. Apparently A.J.Harding also uses this patch.

Load Level III under SYSTEM:-

```
*?LEV3
*?/114

POKE 17689,201
POKE 17690,0
POKE 17691,124
POKE 17695,201
POKE 17696,151
POKE 17697,25
POKE 17698,201

@SAVE"LEV3",21,17152,17152
```

Mark Brooker

Apologies to Mr. J.S. Linfoot. I omitted to attribute the article on the Tandy Editor/Assembler in the December issue to him.

Leon Heller

PRINTER PROBLEMS

Mr M.Hutchings,
Tandy Corporation (UK) Ltd,
Bilston Road,
Wednesbury,
West Midlands WS10 7JN

Dear Martin,

My Lineprinter II (Serial Number 00556) has just been returned to you for the third time in six weeks. The problem has been that the printer ribbon keeps turning over as the print head traverses the paper, sometimes causing partial printing of each character, generally towards the end of a line. The ribbon always does tend to turn over, but the print quality problem only occurs occasionally, generally during a long run. The print head load lever has now snapped off: this appears to be unrelated to the other problem. The first alleged repair was about £7.00, according to the docket, whilst the second was around £15.00. Since nothing whatsoever appeared to have been done to the printer, it is difficult to see how two different repair charges should be claimed.

Another user tells me he let you have a disk drive for checking and speed adjustment. The unit was returned with the speed even more out of tolerance than when you received it! I understand from one of our members who works for Tandy that the engineers ('bodgers' might be a better name for them!) are on a bonus system, and that no check is made on the effectiveness of their work. I intend to publish this letter in the next issue of the National Users Group Newsletter, and would be delighted to publish any response Tandy Corporation might care to make.

Yours Sincerely,

L.F. Heller

L.F.Heller,
Chairman, National TRS-80 Users Group.

c. Mr. J.Nicholls, Tandy Corporation (UK)
Mr. L.Payne, Hi-Vu Electronics, Wolverton.

TANDY
Tandy Corporation (Branch UK)
Registered Office:
Bilston Road, Holyhead Road,
Wednesbury, West Midlands WS10 7JN
Telephone: 021-556 6101/2
Telex: 339423
Registered No. F7893
Registered in U.S.A.

TRS-80 Customer Services

Our Ref: JDH/TS

Mr L F Heller
8 Morris Walk
Newport Pagnell
Bucks
MK16 8QD

Feb. 6, 1981

Dear Mr Heller

Thank you, your comments are most certainly appreciated.

We have located two recent repairs done in January of this year. Tag number 41966 was received by our Service Facility on January 7th. This repair was completed on the 9th of January. The ribbon was replaced in that it was damaged. The damage was done due to spurs protruding from the ribbon carrier mechanism. These spurs were removed and adjustments were made to the ribbon mechanism.

The ribbon cost was £6.65 plus VAT
The Labour cost was £15.70 plus VAT

Due to an error in the manner in which the tag was completed by our engineer it is more than likely that the total charges were not accessed by our dealer in Wolverton.

The second repair tag, number 41969 was received here on January 23rd. The repair was completed on January 24th. No mention was made on the repair tag that the unit had recently been in our Service Facility a full service was performed and all adjustments were checked for correct tolerances , a labour charge was assessed.

The labour cost was £15.70 plus VAT

It is at best extremely difficult to comment on someones remarks who purports to work for our company and yet knows nothing about its operations. Our engineers are not on a "bonus system". Every computer engineer in our employment is a salaried member of staff. In dealing with computers quantity is not an objective, but achieving a quality repair is considered to be of prime importance.

System and component checks are carried out on all repairs prior to their return. All of our engineers must rework any repair they did and is returned as a re-entry.

I noted the hash sign in your letter. The enclosed may be of some assistance. It has only recently been developed and we have found it effective when used with SCRIPSIT, the Model I and our new Daisy Wheel Printer. It may or maynot work on your Line Printer II.

If we can be of any further assistance please do not heistate to contact this office.

Sincerely

J D Hartmann

J D HARTMANN
MANAGER

PROGRAM TO MODIFY SCRIPSIT (MOD I)
TO PRINT A POUND SIGN (£) FROM A HASH SIGN (#) ON THE VDU
FOR THE 26-1158 DAISY WHEEL PRINTER

1/ Type DEBUG <ENTER>

2/ Press <BREAK>

3/ Type DFF00 <ENTER>

4/ Type S <ENTER>

5/ Type M FF00

6/ Press <SPACE BAR>

7/ Input code pressing <SPACE BAR> after each input

```
FF00H  E5 21 42 FF 34 35 E1 20 2D 11 43 FF CD 30 44 CD
FF10H  28 44 3E 01 32 42 FF 3E 21 32 67 52 21 FF FE 22
FF20H  68 52 3E CD 32 9E 7A 32 97 7A 21 00 FF 22 9F 7A
FF30H  22 98 7A C3 00 52 FE 23 20 04 3E A3 18 00 32 E8
FF40H  37 C9 00 53 43 52 49 50 53 49 54 2F 4C 43 03
```

For a 32K machine (16K E/I), change all (5) bytes of FF to BF, and locate at BF00H to BF4EH.
To use with SCRIPSIT/UC (instead of SCRIPSIT/LC), change the last but 2 Bytes from 4C to 55.

8/ When complete press <X>

9/ Type G402D <ENTER>

10/ Type DEBUG (OFF) <ENTER>

11/ Type DIR

12/ Use DUMP command to save the code on disk, ie.

```
DUMP YOURNAME/CMD:0 (START=X'FF00',END=X'FF4E',TRA=X'FF00')
for 48K

DUMP YOURNAME/CMD:0 (START=X'BF00',END=X'BF4E',TRA=X'BF00')
for 32K
```

SCRIPSIT TEXT RECOVERY

The following notes should be of use to anyone using Scripsit or the Editor Assembler, in the event of an unexpected reboot.

SCRIPSIT TEXT RECOVERY.

The text area starts at address 7F61 and the address of the end of the text is stored at 7C2B (LSB) and 7C2C (MSB).

To recover text after a reboot, the following procedures should be used.

TRSDOS 2.3 USERS.

Step 1. Type DEBUG and press enter.
Step 2. Press BREAK. (To enter Debug).
Step 3. Type G6451 and press ENTER.
Step 4. The Scripsit "SPECIAL COMMAND?" line should appear, and the text may be saved to disk using the S command.
Step 5. After the disk activity lamp goes off, press RESET.
Step 6. Type DIR and press ENTER. (To disable Debug).
Step 7. Reload Scripsit and your text file.

NEWDOS 21 USERS.

As for TRSDOS 2.3 but omit step 6.

NEWDOS 80 USERS.

Press 123 to enter DEBUG.
Type G6451 and press ENTER.
Press CLEAR.

EDITOR ASSEMBLER TEXT RECOVERY.

NEWDOS 21 USERS.

Type DEBUG and press enter.
Press BREAK. (To enter Debug).
Type G5BDA and press ENTER.
The Editor Assembler prompt "*" should appear, and the text may be written to disk using the W command.
After the disk activity lamp goes off, press RESET and reload the Editor Assembler. (To re-enable the Break key).

NEWDOS 80 USERS.

Press 123 to enter Debug.
Type G5BDA and press ENTER.
To restore the cursor, press DFG to enter Mini-Dos and exit via MDRET.

(The above text was printed on a Centronics 737.)

David Andrews,
10 Vincent Street,
Ewood,
Blackburn,
Lancashire,
BB2 4JL.

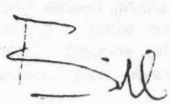
DAISY WHEEL DRIVER IMPROVEMENTS

I have improved the Driver Programme for the Daisy II Tandy Printer. First, it is comprehensive and includes all the Driver codes in the Daisy Manual, including the ones which give the six shifts from one-sixtieth inch to one-tenth inch. (The sixtieth enables 'Bolding', but not of course of the quality that a one hundred and twentieth would give). Also the coding is now simplified and is now PT=F,G,H,I,J,K,O,S,T,V,a or c. F to K cover the new shifts: O is the reverse line feed: S,T and V cover the space modes (twelfth, tenth and proportional mode spacing): a and c half line feed and reverse. PU= A,C,F,G, and H cover backspace, line feed, carriage return with line feed, and enabling and disabling underline printing.

I still get underlining on the last character in the line preceding the one being underlined, and this is puzzling, since I have eliminated addressing errors in the previous programme which I thought would account for it. I am still searching for the cause !

I have just received from Harding the Superscript Driver programme since this has obvious advantages, particularly in underlining words in the middle of a line. As yet I have not found out how to enter it correctly. I have no doubt that this will be sorted out soon. I have also modified Scripsit to make available all the extra characters on the Daisy Wheel, but am still playing with it to get the best coding.

Your sincerely,



P.S. I expect this will arrive too late for the March News-sheet, but if it is possible to include a footnote to say that I can send an improved programme on receipt of a large stamped envelope, this would save any Members who have Daisy II entering the one I had previously sent you.

```
F02900   CD24 6ED1 CDFA 52C3 706E 0000 0000 0000 .$n...R.pn......
F02910   0000 3AB9 7CB7 2801 05C9 EB09 79B7 C825 ..:.|.(.....y..%
F02920   C9FE 8CCA 8371 FE8D C289 71C3 8371 2812 .....q....q..q(.
F02930   FE0D 280E FE0A 280A 083E 2032 E837 08C3 ..(...(..>.2.7..
F02940   745F 32E8 37C3 745F 3B01 0571 77C2 A57A t_2.7.t_;..qw..z
F02950   0156 A57A FE54 C2D1 7ACD EA7A 3E1B CDF3 .V.z.T..z..z>...
F02960   7A1A 13D6 45CD F37A C9FE 42C2 D57A CDEA z...E..z..B..z..
F02970   7A3E 1BCD F37A 1A13 D626 CDF3 7AC9 0000 z>...z...&..z...
F02980   FE55 C2BD 75CD EA7A 1A13 D639 CDF3 7AC9 .U..u..z...9..z.
F02990   0000 0000 0000 0000 0013 1A13 FE3D C2BD .............=..
F029A0   75C9 D5CD 3B00 D1C9 0202 0052 0000 0000 u...;......R....
F029B0   416C 7465 7265 6420 746F 2067 6976 6520 Altered.to.give.
F029C0   5072 696E 7420 5479 7065 0046 6565 6400 Print.Type.Feed.
F029D0   2600 556E 6465 726C 696E 6500 436F 6465 &.Underline.Code
F029E0   4400 5600 4C6F 6E67 004D 6F64 6966 6965 D.V.Long.Modifie
F029F0   6400 436F 7768 6967 0031 332F 322F 3831 d.Cowhig.13/2/81
```

Bill Cowhig

FLOPPY TAPE CORNER

```
 0 CLS:PRINT"THIS PROGRAMME KILLS FILE NAMES.
     PRESS ANY KEY TO CONTINUE":GOSUB23
 1 @LIST:CLEAR200:DIMF$(20):L=0
 2 D=1:DL=((PEEK(16814)*256)+PEEK(16813))
 3 P=DL+((D-1)*16):IFP)32767THENP=-1*(65536-P)
 4 IFPEEK(P+15)=0THEN16
 5 IFPEEK(P)<65ORPEEK(P))122THEN17
 6 Z$=""
 7 FORN=PTOP+10:Z$=Z$+CHR$(PEEK(N)):NEXTN
 8 FORN=1TO8
 9 IFMID$(Z$,N,1)=" "THEN12
 10 NEXTN
 11 N=9
 12 X$=LEFT$(Z$,N-1):Y$=RIGHT$(Z$,3):Z$=X$+"/"+Y$
 13 A$="":PRINTZ$;TAB(15)" DELETE YES OR NO";:INPUTA$
 14 IFA$<>"Y"THEN16
 15 L=L+1:F$(L)=Z$
 16 D=D+1:GOTO3
 17 IFL=0THEN22
 18 FORN=1TOL
 19 PRINT"KILLING ";F$(N)
 20 @KILLF$(N)
 21 NEXTN
 22 END
 23 A$=INKEY$:IFA$=""THEN23ELSERETURN
```

```
0 CLS:PRINT"THIS PROG. CHANGES FLOPPY FILE NAMES
  AND READS M/C START AND ENTRY ADDRESSES":GOSUB 38
1 CLEAR200:@LIST
2 FORI=1TO2000:NEXT:CLS:O=1
3 PRINT@0,"FILENAME/EXT","START","ENTRY"
4 PRINT"******** ***","******","******":PRINT
5 DL=((PEEK(16814)*256)+PEEK(16813))
6 P=DL+((O-1)*16):IFP)32767THENP=-1*(65536-P)
7 IFPEEK(P+15)=0THEN11
8 IFPEEK(P)(65ORPEEK(P))122THEN13
9 FORN=PTOP+7:PRINTCHR$(PEEK(N));:NEXT:PRINT"/";:FORN=P+8TOP+10:PRINTCHR$(PEEK(N
));:NEXT
10 PRINT"",PEEK(P+12)*256+PEEK(P+11),PEEK(P+14)*256+PEEK(P+13)
11 O=O+1
12 GOTO6
13 O$=" ":PRINT@960,"ENTER OLD NAME";:INPUTO$:IFO$=" "GOTO13
14 Z$=O$:GOSUB29:O$=Z$
15 O=1
16 P=DL+((O-1)*16):IFP)32767THENP=-1*(65536-P)
17 IFPEEK(P+15)=0THEN21
18 IFPEEK(P)(65ORPEEK(P))122THENPRINTO$;" NOT FOUND":GOTO13
19 FORN=PTOP+10:IFPEEK(N)()ASC(MID$(O$,N-P+1,1))THEN21
20 NEXTN:GOTO22
21 O=O+1:GOTO16
22 PRINT"ENTER NEW NAME";:INPUTW$
23 Z$=W$:GOSUB29:W$=Z$
24 FORN=PTOP+10
25 POKEN,ASC(MID$(Z$,N-P+1,1))
26 NEXTN
27 INPUT"CHANGE ANOTHER NAME (Y/N)";ZX$:IFZX$="Y"GOTO2
28 INPUT"READY TO WRITE - PRESS ENTER ";Z$:@SAVE"REM",1,32000:PRINT"DONE !":@LIS
T:END
29 M=LEN(Z$)
30 IFM=11THEN32
31 FORN=M+1TO11:Z$=Z$+" ":NEXTN
32 FORN=1TO11:IFMID$(Z$,N,1)="/"THEN34
33 NEXTN:RETURN
34 X$=LEFT$(Z$,N-1):Y$=MID$(Z$,N+1,3)
35 IFN=9THEN36ELSEFORI=NTO8:X$=X$+" ":NEXTI
36 Z$=X$+Y$
37 RETURN
38 A$=INKEY$:IFA$=""THEN38ELSERETURN
```

I am afraid I have no record of who supplied this. I will credit the author in the next issue if he/she contacts me.

MORE DAISY WHEEL

I took delivery 5 days ago from our local Tandy of the Tandy II Daisy Wheel Printer and it is proving excellent to use and produces a very clean and impressive page. But, alas, there are snags ! I seem to remember that when the bells rang and publicity was at its height for the new Tandy Model II Computor about to be launched, we were solemnly told that this new super TRS would not in any way reduce the service and support given to the Model I.

This unfortunately proves not to be true. I am told that the version of Scripsit provided for Model II is designed to work with the Daisy Wheel Printer and enables underlining, bolding, use of extra characters, etc. — in fact all the exotic capabilities of the Daisy Wheel. Not so the poor owners of Model I Scripsit! They are expected to make do and mend and there appears not to be any addition or modification of Scripsit which enables Model I users to take advantage fully of the new Printer. As second class citizens, I have no doubt that something will arrive in 3 or 6 months time.

In the meantime, I have been grateful for the Scripsit programme for the Centronics Printer written by Dennis Long on page 24 of November 1980 issue, and have modified this to make it usable for the Tandy II Printer. Below are printed out two versions of a modified programme. In both cases, the routine for printing large characters (PS) has been eliminated and the space used otherwise. Programme ASCRIP/L PB=0,4,5, or 7:PT=0 or 2: PB=0,4,5, or 7. BSCRIP/L is the same except that there are more options and PU=0,2,5,6 or 7. PB=0 gives reverse line feed, and PB=4,5, and 7 gives twelfth, tenth inch and proportional spacing. PT=0 and 2 gives half line spacing forward or back .(In fact I find in practice that PT=0 gives one-and-half lines forward). PU=Y or N gives underlining or not for ASCRIP, and PU=7 and 6 for BSCRIP. The extras in BSCRIP PU=0,2 or 5 should backspace a character width, or give two types of line feed. They do not appear to operate but I think it probable that they are over-ridden by the inbuilt SCRIPSIT print-out programme.

Underlining works well except that, oddly, the last character in the line before the one designated for underlining has an underline. One can easily insert a full-stop further along this line so that this oddity is not obtrusive. The use of the reverse line feed (PB=0) together with underlining means that one can underline any selected words in a line: one simply types the same line twice, rubs out the unwanted words in the second line which is then fed back a line and then underlined. (Sounds complicated, but it works !)

It is early days yet and I am still hoping that somewhere in the Tandy organisation there is a nice little patch which I can add to my Scripsit which is better and more comprehensive than that described above. In particular, to make available all the additional characters on the Daisy Wheel for printing (it holds 124). It is a positive nuisance that so far I have been unable to print out the English pound sign in Scripsit (one can of course in Basic).

ASCRIP/L TANDY Daisy Wheel Scripsit Modification

```
F02900  CD24 6ED1 CDFA 52C3 706E 0000 0000 0000 .$n...R.pn......
F02910  0000 3AB9 7CB7 2801 05C9 EB09 79B7 C825 ..:.|.(.....y..%
F02920  C9FE 8CCA 8371 FE8D C289 71C3 8371 2812 .....q....q..q(.
F02930  FE0D 280E FE0A 280A 083E 2032 E837 08C3 ..(...(..>.2.7..
F02940  745F 32E8 37C3 745F 3B01 0571 77C2 A57A t_2.7.t_;..qw..z
F02950  0156 A57A FE54 C2BA 7ACD EA7A 3E1B CDF3 .V.z.T..z..z>...
F02960  7A1A 13D6 14CD F37A C9FE 42C2 D57A CDEA z......z..B..z..
F02970  7A3E 1BCD F37A 1A13 D626 CDF3 7AC9 0000 z>...z...&..z...
F02980  0000 0000 FE55 C2BD 75CD EA7A 1A13 D628 .....U..u..z...(
F02990  CDF3 7AC9 0000 0000 0013 1A13 FE3D C2BD ..z..........=..
F029A0  75C9 D5CD 3B00 D1C9 0202 0052 0000 0000 u...;.....R....
F029B0  416C 7465 7265 6420 746F 2067 6976 6520 Altered.to.give.
F029C0  5072 696E 7420 5479 7065 0046 6565 6400 Print.Type.Feed.
F029D0  2600 556E 6465 726C 696E 6500 436F 6465 &.Underline.Code
F029E0  4400 5600 4C6F 6E67 006D 6F64 6966 6965 D.V.Long.modifie
F029F0  6400 436F 7768 6967 0032 332F 312F 3831 d.Cowhig.23/1/81
```

BSCRIP/L TANDY Daisy Wheel Scripsit Modification

```
F02900  CD24 6ED1 CDFA 52C3 706E 0000 0000 0000 .$n...R.pn......
F02910  0000 3AB9 7CB7 2801 05C9 EB09 79B7 C825 ..:.|.(.....y..%
F02920  C9FE 8CCA 8371 FE8D C289 71C3 8371 2812 .....q....q..q(.
F02930  FE0D 280E FE0A 280A 083E 2032 E837 08C3 ..(...(..>.2.7..
F02940  745F 32E8 37C3 745F 3B01 0571 77C2 A57A t_2.7.t_;..qw..z
F02950  0156 A57A FE54 C2BA 7ACD EA7A 3E1B CDF3 .V.z.T..z..z>...
F02960  7A1A 13D6 14CD F37A C9FE 42C2 D57A CDEA z......z..B..z..
F02970  7A3E 1BCD F37A 1A13 D626 CDF3 7AC9 0000 z>...z...&..z...
F02980  0000 0000 FE55 C2BD 75CD EA7A 1A13 FE59 .....U..u..z...Y
F02990  3E0E 2001 3CCD F37A C913 1A13 FE3D C2BD >...<..z.....=..
F029A0  75C9 D5CD 3B00 D1C9 0202 0052 0000 0000 u...;.....R....
F029B0  416C 7465 7265 6420 746F 2067 6976 6520 Altered.to.give.
F029C0  5072 696E 7420 5479 7065 0046 6565 6400 Print.Type.Feed.
F029D0  2600 556E 6465 726C 696E 6500 436F 6465 &.Underline.Code
F029E0  4400 5600 4C6F 6E67 006D 6F64 6966 6965 D.V.Long.modifie
F029F0  6400 436F 7768 6967 0032 332F 312F 3831 d.Cowhig.23/1/81
```

B 11 Cowhig

MENU TIP

When I am using programmes with a good deal of Data which I constantly need to up-date, and where there is a largish Menu, I always make the last item of my Menu:

10. SAVE BKLIST/S

(BKLIST/S happens to be the name of the programme and 10. the item on my Menu list). This goes to line 9999:

9999 SAVE BKLIST/S: GOTO 5500

The line 5500 is the line where my Menu begins, and so one can make a second copy by Saving on another Disc if desired or carry on using the programme. This saves time as well as ensuring one does not make a mistake with the spelling of the programme name.

Bill Cowhig

FOR SALE

TRS-80 16K Level II:Expansion Interface 32K:
Two Disk Drives:Line Printer(Tractor Fed):
Newdos:Bulk Eraser etc. View With Pleasure:
First Offer #1380

Ring Mr Hayward Sandbach 2416 (work)
061-485-1183 (home)

IBM Golfball typewriter modified to print through cassette port with special driver routine. This enables high quality typed letters to be produced from Scripsit etc. Offers around #350.00 invited.

R. Hyde & Son Ltd
Claredon Steel Foundry
Chesterfield
Tel: 0246-72181

New "Sovereign SMC 601" Music Centre (30/12/80). Exchange hardware, cash adjustment.

D. Carroll, 6 Oxford House, Turves Green, B'ham 31 021-475-8711

NOTES ON MILTON KEYNES WORKSHOP HELD 16,17,18TH JANUARY 1981

The workshop always seems to start when a member arrives at the office on Friday afternoon. So this time it was Tony Seal from South London arriving by train and bus, which proves any member can rely on public transport to make a workshop. By the Sunday evening Tony found another member at Milton Keynes who lived just 5 miles away, and in fact will help Ron Everitt to form a South London group! Just over a dozen members enjoyed the light buffet at Stony Stratford before making a convoy to the college where a distraught Chris Cain thought it was the wrong weekend or something.

The Friday evening was every thing it should have been, busy, sociable, stimulating and a time for meeting old members, as well as the newer members who had not been to Milton Keynes before. From what I can gather the session went into the next morning, but this was to be expected, and really was part of a very enjoyable scene.

Saturday saw bleary eyes meeting new arrivals and so we were set for a very fine day. Due to the members involved I decided that the job of assisting members and admin was paramount, so the reports on the lectures and presentations will be brief, but hopefully an indication of the scope they covered.

Essentially Saturday was devoted to three interests, Basic with Ian Sinclair - who writes for 80 - MicroComputing, Machine Code - Andrew McDonald - a mathematician and teacher, and the 'Fringe'. Suffice to say the Fringe were up to all their tricks and antics whether cassette or DOS based. With us we had Os House of Blandford Computers who had a "Trade Stand" for the benefit of the members.

Ian Sinclair was back by popular request and both he and Andrew took very long sessions - both morning and afternoon - which can only be done at a weekend. Ian very kindly has given the Group publishing rights to his articles and it is hoped these will be available for members as a service (at a price of course).

Andrew covered many points and from members reactions could have easily started from where he left off at his previous session. Andrew was asked to do this longer session for two reasons - members have said they have great difficulty 'getting into Machine Code' and one or two of us had seen some of his work at Oxford and Cambridge.

At the end of Andrew's long session, members were all trying to get up and formally thank him, instead they just applauded! Enough said.

For me the whole week was made when I pressed a 10p into a pay telephone and a Tandy talked to another computer at the other end. Originally a room with a telephone had been booked to do a communications demonstration. As that telephone had not been switched through, the dem. was a non starter. All was not lost - why - all we had to find was any old telephone -and so this pay phone was found in a corridor and the equipment was set up and hocked up. The actual dem. was done with a college monitor in the college corridor with members also in that corridor. For me it was the ultimate in communications - using a home computer and a public telephone. The next development is using ultra-sonics to connect in offices without trailing wires - watch this space.

Following communications was Ron Wellsted who is a hardware designer, and the Z80 was his subject. This was based on his talk at Blandford which generated considerable interest. Again at Milton Keynes the session developed, and many found it useful, but the real solution is for Ron to give us some notes for the newsletter (come on Ron).

Would you believe at least two members played some game right through Saturday PM to Sunday AM! For music lovers 10 of us went to see Johnny Dankworth and Don Rendall blow at the Wavendon Theatre. Preceding this was a scenic trip of n roundabouts and for next loop roads.

Back to Sunday AM saw even more bleary eyes and new arrivals wondering what sort of world they had entered, never mind 4 bodies rolling out of a caravan which soon convinced them they were amongst real enthusiasts.

The morning started with the AGM, which lasted around one and a half hours covering the agenda and other points. For northern members, this will be held in Manchester next January (1982) so that democracy can be seen to be done (or is that the law). For those interested, copies of the 1980 accounts are always available from the office (as well as 1979).

Laurie Shields and Keith Bedford followed the AGM and Laurie illustrated many points using his system hooked up to a college monitor. Laurie's currrent areas are Scripsit, E/Pencil,Zen and the Floppy tape (also the lower case mod). Many members have already been referred to Laurie and it is hoped that this assistance will continue to be available.

After lunch I did a very quick run through on sorting using Infinite Basic. About a dozen members are now using this technique, and the comments at my sessions are always on the poor documentation available with the tapes. For anyone interested I now have several pages of notes, specifically aimed at using (SRTV, SRTC, SCNT). As an office SRTV is used daily on clients records - in producing a detailed trial balance for accounts preparation.

During my lecture, Keith Bedford took a short session on DOS SYS indicating a surprising level of interest which will have to be properly covered in the future.

Chris Cain,by popular request,did a long afternoon session on NEWDOS 80 file handling, which from the reaction was needed and most helpful! None of his handouts were left behind so NO is the answer before you ask.

Bob James and Adrian Hancock took a session on Floppy Tape for newcomers and existing users alike. Bob and Adrian are normally in the office on Tuesday evenings (7.30 - 10.30) and Sunday mornings (10.00 - 1.00), so please ring in with any pleas for help.

The last short session was by Leon on his own design stand-alone Z80 Board with an EPROM,which once programmed, then controlled some LEDs. The idea is to hook the Z80 to machines on the shop floor, with readings being sent to the main CPU for logging etc. My own feeling is that with 48 hour days and pounds in the bank, life could really be interesting. Anybody out there with pounds for several good causes?

So the weekend was over with some good moments to savour, and some worries to consider. More PERSONAL property was STOLEN - Mags and approx 20 Disks - with 2 from September 80 being RETURNED! I will close on that sombre thought.

Brian P

Aculab Floppy Page

Anthony has managed to modify JKL to run on the Aculab under XBAS. This enables the contents of the screen to be outputted to a line printer (graphics inluded with suitable printer). The program originally came from 80-US and was modified at a Sunday morning workshop on Brian's system. The program will run on a standard Aculab system altough it will have to be relocated to 32000D.

```
00100           ORG     0BF10H
00110 START     LD      HL,(401EH)
00120           LD      (DISPLY+1),HL
00130           LD      HL,CHECK
00140           LD      (401EH),HL
00150           JP      06CCH
00160 CHECK     PUSH    AF
00170           PUSH    HL
00180           PUSH    DE
00190           PUSH    BC
00200           LD      A,(3802H)
00210           CP      28
00220           JR      Z,JKL
00230           LD      A,(3810H)
00240           CP      28
00250           JR      Z,TWO34
00260 OUT       POP     BC
00270           POP     DE
00280           POP     HL
00290           POP     AF
00300 DISPLY    JP      $-$
00310 JKL       LD      HL,3C00H
00320           LD      B,64
00330           LD      C,16
00340 LOOP1     LD      A,(3840H)
00350           CP      4
00360           JR      Z,OUT
00370           LD      A,(HL)
00380           CP      128
00390           JP      M,CONT1
00400           LD      A,46
00410 CONT1     CALL    LPRINT
00420           INC     HL
00430           DJNZ    LOOP1
00440           LD      A,13
00450           CALL    LPRINT
00460           LD      B,64
00470           DEC     C
00480           LD      A,C
00490           CP      0
00500           JR      NZ,LOOP1
00510           JR      OUT
00520 TWO34     LD      HL,3C00H
00530           LD      D,16
00540 LOOP6     LD      E,0
00550 LOOP2     LD      B,64
00560           PUSH    HL
00570 LOOP5     LD      A,(3840H)
00580           CP      4
00590           JR      NZ,CONTA
00600           POP     HL
00610           JR      OUT
```

```
00620 CONTA   LD      A,127
00630         LD      C,(HL)
00640         CP      C
00650         JP      M,LOOP3
00660         LD      C,128
00670         SET     6,C
00680 LOOP3   LD      A,E
00690 LOOP4   CP      2
00700         JR      NZ,LOOP4A
00710         BIT     6,C
00720         JR      Z,LOOP4A
00730         LD      A,(HL)
00740         PUSH    AF
00750         JR      CONT4
00760 LOOP4A  OR      A
00770         RLA
00780         RLA
00790         PUSH    HL
00800         PUSH    DE
00810         LD      HL,INDEX
00820         LD      D,0
00830         LD      E,A
00840         ADD     HL,DE
00850         JP      (HL)
00860 INDEX   BIT     0,C
00870         JR      CONTB
00880         BIT     1,C
00890         JR      CONTB
00900         BIT     2,C
00910         JR      CONTB
00920         BIT     3,C
00930         JR      CONTB
00940         BIT     4,C
00950         JR      CONTB
00960         BIT     5,C
00970 CONTB   POP     DE
00980         POP     HL
00990         PUSH    AF
01000         JR      Z,CONT3
01010         LD      A,35
01020         JR      CONT4
01030 CONT3   PUSH    DE
01040 CONT4   PUSH    DE
01050         CALL    LPRINT
01060         POP     DE
01070         POP     AF
01080         CP      4
01090         JR      Z,CONT5
01100         CP      12
01110         JR      Z,CONT5
01120         CP      20
01130         JR      Z,CONT5
01140         LD      A,E
01150         INC     A
01160         JR      LOOP4
01170 CONT5   INC     HL
01180         DJNZ    LOOP5
01190         LD      A,13
01200         PUSH    DE
01210         CALL    LPRINT
01220         POP     DE
01230         POP     HL
01240         INC     E
01250         INC     E
01260         LD      A,6
01270         CP      E
01280         JR      NZ,LOOP2
01290         LD      BC,64
01300         ADD     HL,BC
01310         DEC     D
01320         LD      A,D
01330         CP      0
01340         JP      NZ,LOOP6
01350         JP      OUT
01360 LPRINT  EQU     3BH
01370         END     START
```

Bob James

Adrian Hancock

BANDA / CENTRONICS 730 / LINE PRINTER II

I recently cut a banda on my Centronics 730. This system of duplication is unpopular with typists being very messy when erasing. By using our systems the banda can now be used in a class / lecture, with the text obviously saved for re use or editing.

ELECTRIC PENCIL

Recently we had trouble with my system and could not save a file on disk. This text was then saved on tape, with a subsequent power down to reboot where the text saved to disk first time !

CCTV : a local Milton Keynes member brought his Baird video into my office and recorded from my system. There seems an obvious use where simple presentation can be put together on the VDU first then recorded.

B.C.Pain

****** STOP PRESS ******

More Local Groups

SWINDON AREA:
Contact: Bob Sparling,
The Ridgeway,
51 Station Road,
Chiseldon,
Nr.Swindon,
Wilts.
SN4 OPW.

BRIDGEND AREA:
Contact:Peter Chapman,
36 Park Court
Bridgend,
Mid-Glam.
Telephone:(0656) 3484

EDINBURGH GROUP:
Contact: J.Johnson,
6 Allen Park,
Kirkliston,
Edinburgh EH2o 9HA.
031-3332411 (Evenings)

Next Meeting: March 11th
Venue: Mansion House Hotel,
Milton Road West,
Edinburgh.

Meetings Proposed Monthly

ALBION SOFTWARE

LAMMAS ROAD

LONDON E10 7QT

DUPLITAPE - A PROGRAM TO COPY AND IMPROVE LEVEL II TAPES

DUPLITAPE CAN CAN COPY ANY PROGRAM OR DATA FILE NO MATTER WHAT LENGTH. IT WILL ACTUALLY REMOVE AND CORRECT TAPE ERRORS - ALLOWING PERFECT COPIES EVEN FROM DIFFICULT ORIGINAL TAPES. DUPLITAPE WILL COPY ANYTHING IN LEVEL II TAPE FORMAT INCLUDING MACHINE CODE (SYSTEM) TAPES,BASIC PROGRAM TAPES, ELECTRIC PENCIL FILES ETC.
DUPLITAPE NEEDS TWO CASSETTE RECORDERS AND IS NOT SUITABLE FOR A VIDEO-GENIE. FOR 4 or 16K MACHINES.

.....

CHAIN-LINK - ALLOWS CHAINING OF BASIC PROGRAMS.

CHAIN-LINK ALLOWS VARIABLES TO BE PASSED FROM ONE BASIC PROGRAM TO ANOTHER BASIC PROGRAM LOADED IN AFTERWARDS. THIS ALLOWS LARGE PROGRAMS TO BE SPLIT UP TO RUN ON A MEMORY SIZE WHICH MIGHT OTHERWISE BE TOO SMALL.
CHAIN-LINK ALSO ALLOWS MERGING OF BASIC PROGRAMS, AND THE KEEPING OF TWO SEPARATE PROGRAMS SIMULTANEOUSLY IN MEMORY.
CHAIN-LINK IS NOT COMPATIBLE WITH DISK OPERATING SYSTEMS AND IS MEANT FOR USE WITH TAPE BASED SYSTEMS.
CHAIN-LINK WILL BE AVAILABLE FROM MARCH 31st 1981.
FOR 16K MACHINES.

Rd.,

.....

EACH PROGRAM COSTS £9-50 INCLUDING POSTAGE.

TELEPHONE 01-539 7071 for FURTHER DETAILS OR SEND S.A.E.
Telex 27950 Quote ref. 3635 Daily.

LOCAL TRS-80 GROUPS

CHELMSFORD

Contact Mrs A. Dean,
22 Roughtons Galleywood,
Chelmsford, Essex.

Meetings

ISLE OF WIGHT

Contact M. Collins,
3 Altofts Gardens,
Ventnor 85 2008

Newsletter - Meetings

Classified Advertisements

PER INSERTION

£20 per A4 side
£10 per ½ A4 side
£5 per ¼ A4 side
Please ring for copy date

NUNEATON

Contact Alan Fortune,
47 Northumberland Avenue,
Stockingford, Nuneaton,
CV10 8ER

Tel: 0682 348972

HULL

Contact Frederick Brown,
421 Endike Lane,
Hull

Tel: 0482-859169

Meetings - second Tuesday monthly

Newsletter

NORTH WEST GROUP

Contact Melvyn D. Franklin
40 Cowlees,
Westhoughton, Bolton
BL5 3EG

Tel: 0942-812843

Newsletter - Meetings

BLANDFORD FORUM

Contact Os House,
Higher Shaftesbury Road,
Blandford Forum,
Dorset,
DT11 8SS

Tel: 0258-53737

Meetings

South West London Group
Contact: Ron Everitt,
2a Longdown Lane North,
Ewell,
Surrey,
Tel:01-394-2123

North London
John Wellsman,
292 Caledonian Road,
London N1.
Meetings:- 2nd Friday
6.00/6.30 Monthly.
Tel:- 01-607-0157

WEST LONDON
John Carne,
14 Lyncroft Gardens,
Ealing,
London W13 9PO
Tel:01- 567-7873 (Home)
01-993- 1462 (Work)

EAST MIDLANDS

Contact Mike Costello,
17 Langbank Avenue,
Rise Park,
Nottingham, NG5 5BU

Newsletter

OXFORDSHIRE

Contact S. Bird,
139 The Moors,
Kidlington,
Oxford, OX5 2AF

Tel: (5-6703

Newsletter - Meetings

PLUS MILTON KEYNES - every Sunday morning and Tuesday evening.

Local Groups (continued)

Colchester Area
Contact: Roy Smith
8 Mallard Close,
Layer-De-La-Haye,
Colchester,
Essex.

Tel: Layer 442

Meetings:- Weekly
(Anticipated)
Details:- From Above

Glasgow Area
Contact: Jim McPherson,
Tel: Uddingston 4813717
or 4812797)
No Meetings as yet as no premises available but meetings anticipated.

Medical Sub-Group
Contact: Nick Robinson,
The Residences,
Northwick Park Hospital,
Watford Road,
Harrow,
Middx HAI 3UJ.

Educational Sub-Group
Contact: Dave Futcher,
Beaconsfield First & Middle School,
Beaconsfield Road,
Southall,
MIDDX.

Tel: 01-574-3506 (School)
01-743-5310 (Home)

MERSEYSIDE MICROCOMPUTER GROUP

TRS-80/VIDEO-GENIE SPECIAL INTEREST GROUP

The Merseyside Microcomputer Group has now formed a special interest group for those interested in the TRS-80 and Video-Genie machines.

Anyone who wants further information should contact Peter Tootill on:-

(051)922 7260 ext. 250 or 211 (work)

or (051)220 9733 (home)

Birmingham Group
Mike Gibbons
1 New Street,
Castle Bromwich,
Birmingham B36 9AF
Tel: 021-747-2260

Barrow In Furness
Contact: J.T. Lowther,
131 South Row,
Roose, Barrow In Furness,
Cumbria.
Tel: (0229) 34953 (Home)
26214 (Business)
Meetings Anticipated

Ipswich Area Group
Contact: Geoff Jackson,
40 Westgate,
Ipswich.
Tel: (0473) 218855
Meetings Anticipated

Gloucester Area Group
Contact: John Christie,
23 The Crofts,
Newent,
Glos GL18 1SQ
Tel: 0684-294516 (W)
0531-820996 (H)

Magnus Microcomputers - 139 The Moors - Kidlington - Oxford - OX5 2AF. Phone 08675 6703
Visitors By Appointment ONLY. Phone Between 7.30 A.M. & 6.30 P.M. Mon - Sat + 2 - 5 P.M. Sun.
Consultation - Sales - Installation - Tutoring - Programming

Description (TRS-80 Users Group)	RRP	Mail Order	Retail	Mail Order	Retail	Mail Order	Retail	
Video Genie 16K RAM 12K ROM	£373.75	£350.00	£330.00	£345.00	£320.00	£345.00	£320.00	New Price
Centronics 737-2 Parallel Printer	£488.75	£465.00	£440.00	£450.00	£420.00	£450.00	£420.00	New Price
9" Green Screen Monitor (Metal Case)	£109.25	£105.00	£94.30	£103.00	£93.00	£109.25	£103.00	
9" B&W Monitor (" ")	£97.75	£90.00	£79.30	£88.00	£78.00	£100.00	£93.00	
Expansion Box for Video Genie Without RS-232	£224.25	£195.00	£182.00	£189.00	£175.00	£224.25	£195.50	
Expansion Box " " " With RS-232	£258.75	£225.00	£210.00	£220.00	£200.00	£258.75	£230.00	
16K S100 RAM Board For Above Boxes	£115.00	£100.00	£95.00	£96.00	£90.00	£115.00	£100.00	
32K S100 RAM " " " "	£161.00	£150.00	£140.00	£146.00	£135.00	£161.00	£150.00	
Single TEAC Drives - Grey - 40 TRACK	£271.40			£260.00	£240.00	£260.00	£240.00	NEW ITEM
Dual TEAC Drives - Grey - 40 Track	£506.00			£480.00	£450.00	£480.00	£450.00	NEW ITEM
Dual TEAC Drives - White- 40 Track	£506.00	£480.00	£457.00	£475.00	£450.00	£490.00	£466.00	Match V.G.
80 Track Drives At Similar Discounts - Please ASK.....								
Quad Disk Drive Cable	£37.95	£36.00	£34.00	£35.50	£33.50	£40.00	£37.95	
Expansion (V.G. or S-80) to Cent. Parall	£20.70	£19.85	£19.00	£19.00	£18.50	£22.00	£20.70	
Adapter From Cent. Parall to 730/737 Bus	£ N.A	£26.50	£25.00	£25.50	£24.00	£27.00	£25.50	
V.G. Interface to Parallel Printer (Cent)	£40.25	£37.00	£34.50	£36.00	£33.50	£38.00	£35.00	
Floppy Tape (ACULAB) V.G Master Drive	£200.10	£190.00	£180.00			£190.00	£180.00	
Floppy Tape (ACULAB) S-80 Master Drive	£194.35	£190.00	£180.00			£190.00	£180.00	
Slave Drive (ACULAB) V.G. or S-80 (STATE)	£143.75	£140.00	£134.00			£140.00	£134.00	
MX-80 Printer BI-Directional	£460.00	£450.00	£430.00	£440.00	£420.00	£460.00	£440.00	
C12 Cassettes DATA QTY 10	£5.80	£5.80	£5.18	£5.00	£4.50	£6.50	£5.80	
C12 CassetteS DATA QTY 50	£29.00	£27.00	£23.58	£24.00	£22.00	£30.00	£26.00	
Floppy Tape Cartridges QTY 5	£10.05	£9.75	£9.25	£9.50	£9.10	£10.05	£9.75	
xxxx 4116 Dynamic RAM 250 ns QTY 8	£70.00			£22.00	£20.00	£22.00	£20.00	NEW ITEM
xxxx 4116 QTY 16	£140.00			£42.00	£38.00	£42.00	£38.00	NEW ITEM
MODEL III S-80 Level III 48K	£790.00			£750.00	£710.00	£750.00	£710.00	NEW ITEM
MODEL III S-80 Level III 16K	£700.00			£680.00	£640.00			
MODEL III Double Density Disks & DOS Extra - Allow 6 Weeks - C.W.O. ONLY								
NEC SPINWRITER £1380+VAT	£2000.00			£1630.00	£1587.00	£163.00	£1587.00	NEW ITEM

Business Registration No. 2611081 V.A.T. Regn. No. 348 3299 26
Proprietor - Stephen C. Bird - C.W.O. (Unless STATED) Gives 3% Discount
3% Does Not Apply To Orders Under £50.00 - ACCESS & BARCLAYCARD SOON Mid-March ?
Sales Via ACCESS or BARCLAYCARD Will Incur A 3% Handling Charge
The New Higher Prices are due to increased postage & increased suppliers charges

Most NON-Stock Items (Unless STATED) Can Be Obtained Within 24 Hours IF Ordered Before 2 P.M. Mon - Thurs.
If Ordered Fri - Sun Then Will Be Available Tuesday (Normally).
Due To The 737-2 Parallel Printer Being Popular A 2 Week Delay May Occur - This is down to centronics themselves
WE SELL OTHER MICRO'S - ANSWERING MACHINES - PRESTEL ADAPTERS - BLANK VIDEO CASSETTES
Magnus Electronics - SELL CHIPS - COMPONENTS - INTERFACES - BOOKS - C.B. Accessories - ETC.
DETAILS FROM Magnus Electronics - 139 The Moors - Kidlington - Oxford
ALL CHEQUES to - MAGNUS MICRCOMPUTERS

INNOVATIVE TRS-80 SOFTWARE

FROM THE PROFESSIONALS

INSTANT SORT/SEARCH DATABASE

Everything in electronics takes a finite time, consequently nothing can be instantaneous. However a database that will search 500 records and sort the names into alphabetical order in 1½ seconds, that will go on to do the same thing with 1,000 names in only 2½ seconds, is fast. If you add that ability to search 500 or 1,000 records for a specific range of names or ages or sexes or whatever, in such a small amount of time that it is not worth timing it, then the program deserves to be described as instantaneous. Especially as these times are attained on a standard Level II TRS-80.

These results are achieved, obviously, by some very clever machine language coding. This however is not enough. After all GSF from Racet will sort 1,000 arrays in about 11 seconds and that is indeed a clever program. No, in order to achieve the results required from this program it is necessary to change one's entire overview of database.

There are many databases available for the TRS-80 now. All of them have been designed to store as much data as possible as easily as possible. Not as an afterthought, but not as a prime design requirement, they have also incorporated as fast a sort as was practicable. This program was designed from the outset to achieve unbelievably fast sort and search times. Indeed we do not recommend this database for application in which fast searching or sorting is not a prime requirement. And what are the applications? It's a hackneyed phrase to say that they are limited only by the user's imagination, but that's about it. Let's take an example. Suppose you are running a marriage or data bureau. An ordinary database will file all the names and addresses away together with the necessary information as to sex, age and so on and with some you would be able to sort the list, so that only people with similar characteristics were eventually obtained. With this database you could, for instance, file the name, sex, age, category of hobby, category of chief interest, vital statistics and other data so that at the touch of a button you could instantaneously display on the screen all women of a certain age with certain vital statistics, living in a certain area. You could also display men with similar (excluding the vital statistics!) data that fall into similar categories. And all of this almost instantaneously. Not everybody runs a marriage bureau, but other applications are not hard to think of. Estate agents can file details of property away so that they can instantaneously obtain data on houses in a certain area or of a certain size. Doctors can reach information as to patients with similar diseases, ages or whatever immediately. In the home, a record library can be stored and every record by a certain composer written in a certain year can be accessed without delay. The list of applications is endless. For any use where it is important to extract information within a certain range or it is important to sort information, this database will find a use.

The prime commands and features of this program are as follows:

Datafile creation

1. Create a file.
2. Add a record.
3. Delete a record.
4. Display a record.
5. Tape a file.
6. Amend a record.
7. Display the file data.
8. Load a tape.

Sort/Search

1. Sort up or down.
2. Page forward or backward.
3. Select a range for search.
4. Select or exclude a category.
5. Select or exclude on initial letter.
6. Resort records in a sort.
7. New sort all records.
8. Extended sort.
9. Arithmetic.
10. Display file data.
11. Load a tape.
12. Printout sorted data.

The data is displayed in columnar form and the data may be alphabetical, alphanumeric, integer or decimal. The number of columns is from 2 to 10 and the records may contain a maximum 44 - 60 characters depending upon the number of columns used. Columns may be of any width within the screen capacity but integer or decimal columns more than five and six characters wide respectively will not have the option of searching within a range.

The program consists of two parts. The first is used for entering the data and the second for the sort or search. The second part overlays the first when it is loaded so only 4K of memory is used by the entire program. The remainder of your memory space is available for data. The amount of data that can be contained will of course depend upon the amount of memory available, but as a rough guide a 16K user will be able to manipulate at one time 250 records of 39 characters each or 514 records of 17 characters each. As a further rough guide on sorting speed, the time to sort 1,000 records on fields of random strings of random length, or of random number between 1 and 99,999, averages under 2½ seconds.

Numeric columns either integer or decimal may be arithmetically manipulated almost instantaneously. A total may be cast or an average taken for any numeric column up to five digits. This is so fast that when adding 1,000 numbers totalling over 50 million, only a slight hesitation can be noticed before the total is given.

In summary therefore this program is ideal for any application concerning the manipulation of information whether it be business, personal or hobby which can be comfortably displayed as one record per line upon the screen and in respect of which it is required that super fast searches or sorts be carried out. The program is supplied on cassette. At this time it is not compatible with disk systems. A disk version is in the course of preparation. The cassette includes a set of data randomly generated which can be fed into part 2 of the program to demonstrate the fantastically fast sort and search features.

Tape for 16K TRS-80 or video genie £19.50

All prices exclusive of VAT which should be added at the prevailing rate. Postage and packing including VAT 75p regardless of the number of programs ordered.

Send large SAE (44p) for our current Catalogue of TRS-80 software. Add £1.85 for a binder.

A.J.HARDING (MOLIMERX)

MOLIMERX LTD.

28 COLLINGTON AVENUE, BEXHILL-ON-SEA, E.SUSSEX.

TEL: (0424) 220391 TELEX 86736 SOTEX G

National TRS-80 Users Group

Newsletter

VOLUME 2 ISSUE 9 MARCH 1981

CONTENTS

2. Editorial
3. Members' Letters
15. Software Review - Superscript
16. Medical Sub-Group Newsletters
16. Floggy Tape Problem
16. 80-NET
17. Nascom - TRS-80 Interfacing
18. Scripsit / Pencil File Rescue
19. FORTH
20. C.A.L. For Blind Students
22. Video Genie Memory Expansion
23. Remote Control For Your Computer
23. FORTH Interest Group (FIG)
24. Saving Micromusic On Disk
26. Software Review - A Series Of Maths Games
28. Renumber Program
29. Program Save Routine
31. Games By John Elliott
32. Teachers' Needs From The TRS-80 Users Group
32. Avoiding Cassette Relay Problems
33. Hardware Review - Modtech Modem MI03A
34. Model II Section
35. Model III Impressions
36. Information Wanted : IBM 72 Composer
37. Workshop Reports
39. Local Groups
42. Library Update



SOFTWARE

The superb ZEN Editor/Assembler/Debugger is now available for Disc, Cassette or Aculab operating systems.
All versions have been enhanced with a wide range of extra commands to provide the user with facilities not available on any other assembler.

Aculab version #19.50
Cassette version #19.50
Disc version #29.50

HELP/CMD will recover Scripsit or Pencil text from memory lost through re-boots, disc crashes or other acts of the devil.

Disc only #14.50

BACKUP Total security now for the Aculab.
Any data, including the directory, can be read from a floppy, stored on another floppy or cassette and transferred back again.
Recover unlistable tapes if you have previously saved a copy of the directory.
Numeric printouts of the directory and re-entry from the keyboard also allowed.

Aculab only #12.50

Electric Pencil is the word processor for the Aculab.
Your cassette version modified and upgraded to give the full power of a disc based system.

Aculab only #19.50

Electric Pencil does work with the Tandy lower-case but you will have to send your copy to me first for the modification.

Disc or cassette #9.50

Laurie Shields Software, 151 Longedge Lane, Wingerworth, CHESTERFIELD.
Tel 0246 75568 Evenings or weekend.

EDITORIAL

I have now virtually cleared the backlog of articles for the Newsletter, and hence I am now urgently in need of contributions for the next issue.

80-NET is now operational and running from Brian's office.

My printer saga continues! Tandy gave up and sent me a (used) replacement which has just started introducing additional line feeds. I complained bitterly to Tandy Customer Service and they are going to let me have a brand new one straight from the warehouse. Mr J.D. Hartmann, Manager, Customer Service, was very helpful.

According to Tandy, the Model I will continue to be sold outside the US. They will probably be sending me a note for inclusion in the Newsletter clarifying matters. I apologise to them and to anyone else for any misunderstanding my article might have caused.

Leon Heller

Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.
Tel: (0908) 613004

Publisher:-

Brian Pain,
40a High Street,
Stony Stratford.
Milton Keynes.
Tel: (0908) 566660/
564271

MEMBERS' LETTERS

From Nigel Dibben

My name in the last newsletter was attributed to the use of control characters in output. I suspect that that is not what I had in mind but rather the use of shift down arrow and a letter key for INPUTting control characters. Eg : ctrl-A for break ctrl-B for 32cpl.

John Wellsman could try this :-

```
10 CLS
20 I$=INKEY$:IF I$="" THEN 20
30 PRINT @ 64,ASC(I$)
40 GOTO 20
```

then try pressing shift-down arrow and B to Z, (A will give 1 which is Break).

The other trick is to press Z, R and S to W together to set the arrows and underscore. Redundant letters, can be edited out,

viz: Z,R,S gives up arrow
Z,R,T gives down arrow
Z,R,U gives left arrow
Z,R,V gives right arrow
Z,R,W gives under line

I've taken up the voltage dropping suggestion and now use 160V AC mains. Alan Redhouse might try this on his to reduce the load on his power supply. Most of the heat is generated by trying to lose about half of the power supplied to the keyboard. Incidentally, the voltage dropper is out of an old radio - variacs cost money.

I look forward to getting details of the Manchester meeting, maybe I could contribute something to it?

All the best,

Nigel Dibben,
97 Worth Clough,
Poynton,
Cheshire,
SK12 1SH

From Tony Cottingham

I read of the Tandy TRS 80 Users Group which you run, in Educational Computing. At this college we are considering how best to invest in microcomputers to support Computer

Studies, Admin, general applications across the curriculum and CAL as it develops.

Please can you send me details of your Users Group. If possible I would also welcome your comments on the advantages of the TRS-80 as compared, say, with the 380-Z, an alternative we are considering. Our LEA provides software support only for the 380-Z at present.

Tony Cottingham,
Burleigh Community College,
Thorpe Hill,
Loughborough,
Leicestershire LE11 0SG

From Chris Dempsey

Further to my recent telephone conversation, I have obtained a multi-conector for the keyboard conector, but it does not appear that the Microtek expansion unit is compatible with the Aculab. The Floppy Tape appears to work perfectly, but the Microtek unit produces some wonderful and weierd effects, most of which appear to be connected with the error handling routines and the four arrow keys. Completely unexplained SN, BS, 00 errors occur, or the machine goes into command mode, etc.

I'm not completely sure whether this is all incompatibility, or whether there is perhaps a fault in the Microtek unit, but not knowing much about these things it is difficult to say. The Microtek comes up with the comment fee memory (31956) size and I have a PACKER program for 32K which appears to work O.K.

Perhaps you could put a note in the next newsletter to warn people to avoid making my mistake (nearly £100 of unusable hardware now on my hands) until I have contacted Microtek re the solution.

Any members who have hit the same problem - I would be very interested to hear from you.

Chris Dempsey,
36 Buller Road,
Barking,
Essex.

(* Your problems could be caused by improper bus termination. Aculab sell a special connector which might help matters. Have you checked your edge card connectors for oxidation? This can also cause similar symptoms. LFH *)

From S.P. Brodrick

Perhaps you could advise me as to whether or not RS-232 may be driven from the CPU to drive an ASR (ie similar) printer: indeed why not dimmers and the outside world? What does the Tandy printer interface do - any good for serial printers or should it be used in combination with RS-232. Retail Stores + Wednesbury are not Wonderfully helpful over this.

I am the proud owner of a 16K level II Model I CPU, Monitor and CTR80 who is more than pleased with its performance. I have been concerned with light engineering calculations, sales information (clients profile, visits, quote details etc.), budget management, domestic etc.

S.P.Brodrick,
Brynawyn,
31 Great Break,
Welwyn Garden City,
Herts AL7 3EZ.

(* THe low-cost serial interface sold by:
3-Line Computing,
36 Clough Road,
Hull.
will solve your problem. The Tandy printer interface is for a parallel printer only. LFH *)

From M. Barry

Finding newsletter much too advanced and useless to me at my present level. You have completely ignored your members' letters to come down to earth for at least 50% or more of the production. It is a great pity as you put such a lot of hard work into it. When I have the money to expand and add disk drives to my TRS 16K then I may be able to use your no doubt invaluable advice. I have talked to some other members and they agree with me.

M.Barry

(* As I have said a couple of times, if anyone will provide articles for beginners I'll publish them! 'nuff said? LFH *)

From R.J.Bullard

Micro-80 publish a book by Edwin Pacy -'Level II ROM Reference Manual'

I wonder whether you know of this book and would comment on its worth, or would the book from Hardings - 'Machine Language programing from the Ground Up',be better value. As regards 'Level II ROM Reference Manual', I have written to Tandy to enquire as to where the book could be obtained - regrettably I received no reply whatever. could you please be of assistance?

R.J.Bullard,
'Laburnum',
Old Salisbury Road,
Abbotts Ann,
Nr. Andover,
Hampshire SP11 7NS

From Chris Dempsey

I have now had an opportunity to make further experiments with the Microtek memory expansion unit that I previously wrote to you about. The conclusion that I have had to come to is that there is something wrong with the unit that I have received, rather than there being any basic incompatability between it and the Floppy Tape drive.

I have run the Microtek unit without the FT drive attached, and it still produces strange result (though not as often). This all appears to centre around untrue error messages, but it also seems to have a liking for hanging up the machine, and also going into command mode while a program is running.

I've decided that due to the cost of returning the unit and hoping to receive a reliable unit in return, and my own ignorance of what goes on inside the equipment I'm using, that my only course of active is to return the unit and ask for a refund.

There goes my chance of a cheap memory expansion, I'm afraid (Total import price was just over 90 pounds for the 16K unit - I'm sure somebody will import them into this country one day and offer them at double the price as usual).

While writing may I congratulate you on what I feel has been a great improvement on the newsletter over the past 9 months. I would however, like to make the following suggestions:-
1. I too was unable to make the workshop held on the last Saturday before Xmas (whether it was well attended I don't

Know, but a different date might have produced even better attendance), and am unable to justify the time or money in coming to Milton Keynes. This is not too onerous, but it appears that the only way to now use the library is by turning up at a workshop. To my knowledge there has been no update distributed June 1980, and I'm sure that it has grown considerably in size since then.

I realise that at is costly to produce several updates regularly, best a six monthly one, with rates of new programs being published in the intervening newsletter is surely not too much to ask!!

2. Could we not start a newsletter section giving full reviews of new products, especially software (and already on the market products). I'm sure that the members of the Users Group possess many programs (of all kinds), and their comments could be useful to other prospective purchasers.

As an example, I an contemplating purchasing Computer Bismark, but cannot work out how the price is justified, especially when Avalon-Hill are now marketing excellent wargames for one third the price. Somebody already owning the program might be able to give me some reason why I should / should not purchase.

Obviously somebody would have to arrange this centrally and work out a format for reviewing and assessing programs.

3. This is probably a futile request, but what about a membership list? For all I know the chap across the road may also think he's the only owner/member in Barking. I know other people have offered to produce the membership list, so what's the stumbling block??

Lastly, a query and some information. I would be interested to hear from any members who own Floppy Tape drives and have found that tapes made on their machines are incompatible with another machine. This problem is somewhat disadvantageous and I would be interested to know whether it has affected any other people.

Recently, you published a letter regarding the range and availability of computer magazines in this country. It might be worthwhile mentioning in the newsletter, the names of the suppliers of the three best TRS-80 orientated mags (in my opinion):

Softside + 80-US from the Software House,
146 Oxford St.,W1.

Micro-80 from LEP Enterprises,
17-23 Cambridge Rd.,Barking,Essex.

I've recently purchase Learning Level II by David Lien, well worth the money. I would heartily recommend it to any beginner, it is much better than stumbling unaided through

the Tandy - Level II manual.

Finally, I've never seen the following published in the Newsletter, so it might be useful (from Softside magazine):-

Rather than having to power off and re-start every time you have a program to run that requires a memory protection input (and does not set it from inside the program),

Enter - system
Then - /117

This will lose all info. in the computer, but will return you to the mem size question, I've found it to be very useful with the Floppy Tape, and helps avoid powering off/on whilst forgetting there is a wafer in the drive - which usually ruins the program at that point by producing bad sectors in some way.

Chris Dempsey,
36 Buller Road,
Barking, Essex.

(* Library and membership lists are available from Brian at 50p each.

It is up to members to provide reviews. Please send them in! LFH *)

From Bob Sparling

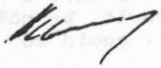
First of all thank you for your help and advice on starting and running a local TRS-80 Club. We had our first meeting at the beginning of March 1981. This meeting was a great success (we now have about 15 members) and we will now meet regularly once a month on the first Sunday in the month.

I have just received the Newsletter for February from you, I can see you sometimes have the same problems I have, getting enough reaction and letters from members to put in a Newsletter. This has prompted me to write to you on this subject. I feel that if local user groups were to belong to a national body (perhaps a subsidiary of the National TRS-80 USERS GROUP) and send in their Newsletters, we could all benefit. Firstly we could find points of interest from the other groups and put them into our own Newsletter. Secondly I for one would like comments on the content of my own Newsletter. This would help my own group to produce a better Newsletter and perhaps generate more interest and comment from members. A National Group for Clubs could offer this sort of help, and a lot more of course, so if any one else feels the same way may be we can get something going.

Now two problems I hope some one can help with. Firstly I have Scripsit and have copied this on to Newdos 21. While operating under Newdos, errors and reboots are bugging me. The only error I can demonstrate is to load a file and try to chain another file using the L,C command, I get "No More Room". This happens even if I load in from the original TRSDOS disk under Newdos system. I would like to run Scripsit under Newdos because I have 40 track drives and Newdos for 40 tracks, TRSDOS for 35 Tracks. The second problem is that I would like to run CP/M software on my TRS-80, but all CP/M software starts at address 100H. I remember you did a report on a sort of memory mapper to allow this software to run. Can any one offer any more information on this subject, i.e. which is the best, where can I buy and how much will it cost etc.

This is my first contribution to the Newsletter, sorry its all questions and queries. I hope to be able to offer more than this in the future, once I get organized. Thank you for the marvelous effort you and Leon make in running the National TRS-80 Users Group. After starting and running a local group myself, I can fully appreciate your efforts.

Yours sincerely



Bob Sparling.
TRS-80 Club (Swindon).

(* Scripsit will not run under Newdos without some modifications. Has anyone got details of the 'zaps' needed?. Regarding CP/M, the Omikron Mapper and Freedom board are the two alternative ways to go. By all accounts the Mapper is very much the better of the two, except that Charles Davies (who has just installed one) tells me that it works in one of his keyboards, but not in the other!
LFH *)

From David Trayler

I have an Exatron Stringy Floppy which I purchased because I had been warned that the Lvel 11 16K Model 1 machine was very difficult to load from tape. However I have not experienced any problems with the tape recorder and on the two occasions that Ihave had any problems it has turned out to be faulty tape. The strangest was a T-Bug supplied by Tandy and turned out to be dead. My problem is that to store Data on the Exatron Stringy Floppy it necessary to have a Data I/O tape and this has proved unobtainable so far. The original supplier has packed up and the new importer is not prepared to support machines not purchased through him despite the fact that he was not importing them at the time. I have been told that it is possible to write one but I have to confess that I would not know how to start Is there anyone that can help me?

The stringy floppy is ecellent for Basic programs and is very quick and simple to use. System tapes require the starting and finishing to address be be stated and ~~xxxx~~ this is no problem if you write your own but producing back up copies of proprietry tapes is not quite so easy. I have a copy of RSM2 which can help but the longer programs take up too much room and therefore I have not been able to transfer the Adventure tape to waffer.

One of the big attractions of a Micro Computer is the convenience of the system as a word processor but the cost of a suitable printer is out of proportion to the rest of equipement. I have a small manual typewriter that is a wonderful piece of engineering and it cost me less than £50 a few years ago. A good electric typewriter would set me back less than £200 and considering the complexity I would have little to complain about. To get a printer of the same quality would set me back at least five times the price and the equipement is less complicated. I have an Olivetti printer with uper and lower case that would do very nicely but it needs servicing. I would not mind paying to get the job done but Olivetti have decided that they want these machines off the market to make way for their new Daisy wheel It is infuriating that although they admit that they could do the job without to much difficulty they have a policy of non co-operation in keeping this type of machine going. I should say in their favour that they have offered a new machine at a good discount and in the strict business sense it would represent better value for money. However I am not in business and do not derive an income from word processing. If anyone knows where I can get one of these machines serviced then I could raise the money.

The reason for which I need a printer is to be able to print letters and result sheets for a Swimming Club. Like most amateur clubs we have a typewriter and a Duplicater. The cheapest form of printers are Mattrix Printers and I am interested to know if there is one that can cut stencils for a duplicator. I have asked several manufacturers and they do not seem to know or even understand. It appears that they are now under the impression that everyone uses photocoping or small offset machines. The big problem appears to be that many of the mattrix heads rely on the ribbon to lubricate the wires and if the ribbon is removed as with a normal typewriter then the heads will eventually seize up for lack of lubrication. I would be intersted in your experiences. Do you know anything about the availability of electronic stencils. The electronic stencil cutters are available at a high price and I could do with cutting service.

A further peice of advise that I could use would be on the possibility of being able to get Word Processing caried out from tapes. By this I mean is there any where that could take cassettes from a TRS-80 and turn out hard copy? Is it technically possible? Even better for me would be the facility to send the information by telephone and receive the hard copy by post. However I have some doubts about the posibilities that use modems as I have enough trouble making a normal telephone call from my house

without interfearance crackles and the occasional cross line. It took the G.P.O several months to get a data Line for our Head Office to link with the wharehouse a few miles down the road. The trouble appears to be that the telephone lines in this area are very old. The G.P.O. are converting the exchanges but it will be years before they can replace all the old lines.

As a beginner I need more help than I can give in return but as a photographic technician I can offer any help in that direction that might be rquired. I have done a little work on a Home Made (VM unit but it lacked application to these who do not have a reader. Our company are looking into the use of Cibachrome Copy materials to produce hard copy from a Monitor. By the use of filters it is possible to produce cloured images from a black and white monitor.

Regards D Trayler
Derek Trayler

(* MON3 obtainable from Hardings will tell you the start, end and entry points for any System tape. Memory might be a problem if you only have 16K, however.

As you say, it is not advisable to try cutting stencils with a matrix printer. You might find the print wires seizing up in their guides from lack of lubrication - rather expensive! Daisy wheel printers are quite satisfactory for stencil cutting, I have heard. Your software needs to make two passes or more to ensure that the cutting ocurrs.

Can any members help with printing from Pencil/Scripsit cassettes. This might be a useful service. A charge would have to be made, of course. LFH *)

From Angus Ellefsen

Further to my programme "CURSOR LOCATION" published in January edition of the newsletter I had a very friendly phone call from a member who, although I took a note of his name and have since lost it in my usual absent minded way, pointed out a defect in my programme.

The programme presuposes that the Cursor routine has been previously activated. If it has'nt then the programme will not work. To rectify matters right at the begining of the programme after ORG 8000H : LD SP,STACK : CALL CLS : make the following entry.

```
LD    A,14D
CALL  DISP        ;Turns on cursor
```

Once again thank you to the member who phoned and apologies for any inconvenie caused.

Regards. Angus Ellefsen

56 Ashby Avenue
Chessington
Surrey. KT9 2BU

Dear editor,

I started this letter way back in Nov/Dec shortly after joining the group and receiving your parcel of back-issues ! My letter was in the form of a Dist Basic (Newdos+) file of comments as you have suggested and I was also testing out a newly installed ULC mod. from Tandy. Unfortunately, as I neared the end of my labours and was in the process of editing out a typo, using the (,) utility in NEWS, I must have got my keys in a twist ! I made some mistake which called for a syntax error message - and I didn't have SYS13 in my one and only drive. My workPiece bombed out, and I didn't have the Presence of mind to rescue it with a (BASIC #). I resolved never to write by computer again !

But time is a great healer, and as my subs. is up for renewal I thought I might have another go and send an accompanying letter in response to a number of interesting matters in recent issues of the news - letter.

EQUIPMENT

First, some brief details of my equipment. I started out with a 4k Level I machine in May '78. The magazines at the time were busy extolling the virtues of the Pet and the Nascom when I happened to notice the Tandy on display at their Wimbledon store ... Yes, it was available over the counter, ready to run. A brief look at Lien's manual was enough to persuade me to cast care to the winds and commit myself. I kept telling myself, by way of justifying the enormous expense and explaining it to the family, that it was an investment for life, an essential educational tool for the family's necessary part of my degree course - I was doing a part-time Maths. degree at the time - and all the other lies with which we delude ourselves that what we want to do is what we must do.

Fortunately, I've never had to regret this spot investment. While the supporters of the Pet and the APPle (i.e. all the people involved in the Poor-quality computer mags. in this country) continue to look down on the TRS80, I'm more convinced than ever that I made a wise buy if only because the store from which I bought it is only 15 mins. drive away. But there are many other, more fundamental reasons.

Of course, the people at Tandy are not a benevolent charity, and they're no fools either. It wasn't long before I had exhausted Lien and Level I and had to invest in Lev.2 . Fortunately, around this time I discovered Softside and Prog 80 - two magazines imported by Rostronics. These, together with Lev.2 and the addition of 16k memory (from a kit supplied by Rostronics), were all the inspiration I needed to become fully addicted to this fascinating hobby. Prog 80 supplied the idea for a simple cassette control box which eliminated all the annoying problems associated with the CTR 41 recorder, and also provided a sound outlet for some of the routines which James Garon began in the early issues of this excellent mag.

I enjoyed a Year's completely trouble-free computing with this set-up, exploring the mysteries of assembly singerly with the help of EDTASM and Particularly MONS, which Laurie Shields apparently despises .. more about that later. As my interest in assembly work increased I decided to invest in EDTPLUS, supplied by John Harding - this is the Microsoft combined assembler/monitor you referred to in your review of ZEN (?) in the September issue. EDTPLUS is a marvellous utility but leaves precious little memory free in a 16k machine. Also, at this time, I was beginning to get impatient with the snail's pace of the cassette and it became very clear that I would have to branch out if I was going to keep pace with the ideas which came pouring in from Softside, Prog80 and, now, 80US and 80MICROCOMPUTING, not to mention Byte and Kilobaud. I had followed with interest the current reviews of the Exatron Stringy Floppy, and felt it might be a relatively inexpensive way forward. It was now Sept. '80. I met Alan Pound at the exhibition in Hammer - smith and was convinced that the Aculab was a better alternative and invested in one from CompShop. It proved a great disappointment ! After two days using it, I developed cold feet and realised I had made a mistake. I didn't experience any significant increase in speed - certainly not with any Program of 16k, Particularly if I tried to store it on one of the longer tapes. Most annoying of all, I found I couldn't use any of my machine language Programs which overlapped Aculab's director system. I believe they've solved this Problem now, but the relocate function on my model didn't help. I Phoned CompShop and asked if I could change my mind ! Fortunately, they agreed, and so began my introduction to the expansion interface and disk (a Teac single drive). I'm glad I made this investment. I doubt if I would ever have lived with the Aculab. The disk system and the vast range of associated software available for it is simply light years ahead.

Not that there haven't been Problems. I had a worrying Perio[illegible] the disk drive at first [illegible] Cumana disc[illegible]ed

a Problem Peculiar to single drives. I would like to record here my appreciation of Cumana and John Harding who combined to solve this Problem. Both companies are genuine in the service they provide and the concern they extend to their customers who experience any difficulties. I was actually invited down to Guildford to have all my equipment checked out. It's comforting to know you can rely on support like that when you are investing a lot of money in computer equipment.

Shortly after setting up the expansion interface and disk, I decided to have Tandy's ULC mod. and, at the same time, had them change the crystal in the keyboard for 50hz timing. This latter mod. has been of doubtful value. My VDU display has stabilised in one respect - it no longer quivers visibly - but instead has developed an annoying tendency to wave about from side to side, almost imperceptibly. Tandy have offered me a new VDU for £100 ! I'm not sure if this is the answer... since the new crystal was installed the VDU controls at the back have had to be adjusted to the point where no further adjustment is possible. Also, my expansion interface has begun to play up. On several occasions, after powering up the interface, DPII, VDU and keyboard in that order, the Lev.II title message has appeared quicker than usual and I find on doing a (PRINTMEM) I get 15772 rather than 48340 - the 32k memory in the interface acts as if dead. This problem only seems to occur on Power-up as described, and has not, as yet, occurred after a normal, successful Power-up. When it does occur I find it's not sufficient just to Power-down, wait a few minutes, then repeat the sequence. I have to w[illegible] an hour or so before tr[illegible] again. Last time this occurred - about a fortnight ago - I decided, rather than twiddle my thumbs for an hour, to have a look inside the interface. I found that several of the memory chips - serial no. MM5290J-3 - were not sitting straight in their sockets, and also several of the tiny capacitors around them were bent over and making physical contact with the chips. Do you think this could have been significant ? I carefully seated the chips and bent back the capacitors. The problem has not occurred since then, but that may well be purely coincidental.

At any rate, I am well satisfied with my disk system and keep my fingers crossed hoping that such Problems don't develop into a major breakdown. The speed of disk, together with the greater capacity of 48k have provided tremendous flexibility for using various assembling and monitoring techniques and utilities ... which brings me to my next point concerning EDTASM, MON3 and Laurie Shields' blistering attack on both in this month's newsletter.

RESOURCES

I probably owe more to MON3 than to any other piece of software. Perhaps it's simply because it was the first monitor I used which was completely meaningful and worked first-time almost exactly as described in the clear manual supplied with the tape. I had TRUG for several weeks before buying MON3 and couldn't fathom how to use it. MON3 showed me what an assembly listing looked like, and straight away some of the articles I had read began to make sense.

Some time later, Barden's book on Assembly Language came out and did much to foster my interest in this area. I quickly tired, however, of the tedious business of assembling to tape with EDTASM, so I invested in in Microsoft's Editor Assembler Plus (also from John Harding). Now I can assemble into memory directly and use ZRUG, which is an integral part of EDAP. It has the ability to set 8 break-Points simultaneously, though I've rarely used more than two at a time.

The real value of EDAP has only become apparent recently when I began to use it together with MON3. EDAP has three convenient entry Points, two of which Preserve the edit buffer from a Previous write. I can now use MON3 to convert m/c in memory to EDAP source code, insert this into EDAP's buffer(71C9ff.) and after adjusting the necessary buffer Pointers, Jump back to EDAP and work on the source. It's MON3's self-relocating ability which makes this kind of work Possible. MON3 can sit in literally any 4k slot in RAM, the only snag being MON3's stack which is at X4288. This can foul up some Programs which have a stack in the same 'free' area, so I've scrubbed out the rather long title message and replaced it with the stack which now resides inside MON3 itself.

Another great advantage I find with MON3 is the ease with which changes can be made to it to accomodate personal requirements. Anyone who has read Howe's book 'From the Ground UP', mentioned in a recent newsletter, will find the code in the monitor itself quite familiar. I've successfully modified Parts of the monitor so as to get a neat Printout on my Quick Printer II (QP2) without any annoying wrap-around in disassemblies and dumps. I've also been able to rewrite the operand display to replace the '$+/-' notation with the more meaningful absolute address reference. As an example, MON3's block move routine is rather Primitive; there's an error whereby the last byte of the specified block never gets

moved, and it can't cope with overlaps. The following is a rewrite of the relevant code, expanded to deal with any valid block move :-

```
A1      EQU     9FB6H
A2      EQU     9FB8H
A3      EQU     9FBAH
COMM    EQU     9058H
        ORG     92ECH
MOVE    LD      DE,(A3)
        PUSH    DE
        OR      A
        SBC     HL,DE
        JR      NC,FORW
        LD      HL,(A2)
        OR      A
        SBC     HL,DE
        JR      NC,BACKW
FORW    CALL    SUB
        INC     BC
        POP     DE
        LDIR
        JR      RESTRT
BACKW   CALL    SUB
        ADD     HL,DE
        EX      DE,HL
        POP     HL
        ADD     HL,BC
        EX      DE,HL
        INC     BC
        LDDR
RESTRT  JP      COMM
SUB     LD      HL,(A2)
        LD      DE,(A1)
        OR      A
        SBC     HL,DE
        PUSH    HL
        EX      DE,HL
        POP     BC
        RET
        END
```

The format of the block move command is <M A1 A2 A3> where A1,A2 are the addresses of the block to be moved and A3 is the destination start address. The source listing is from EDAP; I pencil in comments myself after getting a neat print-out on GP2. The m/c was assembled directly into a copy of MON3 in memory X9000 -9FBD, with an operative version of MON3 at XF000-FFBD. By jumping from ZBUG to MON3 I managed to rescue the source from EDAP's buffer for dumping to disk.

```
92EC ED5BB69Fmt: LD   DE,(9FBA)
92F0 D5      U   PUSH DE
92F1 B7      7   OR   A
92F2 ED52    mR  SBC  HL,DE
92F4 3008    0   JR   NC,92FE
92F6 2AB89F  *8  LD   HL,(9FB8)
92F9 B7      7   OR   A
92FA ED52    mR  SBC  HL,DE
92FC 3009    0   JR   NC,9307
92FE CD1593  M   CALL 9315
9301 03          INC  BC
9302 D1      Q   POP  DE
9303 EDB0    m0  LDIR
9305 1803        JR   9312
9307 CD1593  M   CALL 9315
930A 19          ADD  HL,DE
930B EB      k   EX   DE,HL
930C E1      a   POP  HL
930D 09          ADD  HL,BC
930E EB      k   EX   DE,HL
930F 03          INC  BC
9310 EDB8    m8  LDDR
9312 C35890  CX  JP   9058
9315 2AB89F  *8  LD   HL,(9FB8)
9318 ED5BB69F-*6 LD   DE,(9FB6)
931C B7      7   OR   A
931D ED52    mR  SBC  HL,DE
931F E5      e   PUSH HL
9320 EB      k   EX   DE,HL
9321 C1      A   POP  BC
9322 C9      I   RET
```

I don't really see Laurie Shield's point about assembling huge blocks of code at one time. Is this ever necessary? I'm sure one major factor in deciding which editor/assembler to use is the ease with which it can be adapted to suit one's own needs. On this count alone, MON3 is the best monitor for me and I have no inclination to look around for anything else.

I would be interested to hear from other members who, like me, are learning and enjoying assembly programming. Perhaps, by reporting one another's preoccupations, useful ideas and applications will emerge. As GP2 is all I can afford at the moment, and for the foreseeable future, I'm afraid I would like to see it's output become more acceptable. This is why I'm stubbornly submitting this letter from my GP2 print-out, pasting it onto A4 paper and making a photocopy in the local library ! I hope you can read it ...dare I hope you'll have the courage to publish it as is ?

I enclose my subscription and look forward to future revelations from the "Gang of Four"- Shields, Ozaniac, Dibben and Yours truly ! Perhaps I should say "Gang of Five", as R.V. Long, in the November issue, has produced a work of art ...really outstanding in presentation and content.

Yours sincerely,
John Phelan.

Software Review - SUPERSCRIPT.

Following Bill Cowhig's letter about his Daisy Wheel printer and Scripsit, I also would like to write in praise of Dennis Long's modification to this program for the Centronics 737 or LineprinterIV. However I have found in "Superscript" from Acorn Software the answer to my wish to more fully utilise the specialist functions of my 737 printer when using Scripsit.

Superscript is an add on to Tandy's Scripsit and contains drivers for serial and parallel printers which may be customised to specialist printers. I used it firstly to drive my ICL Termiprinter using the serial interface, but found myself attracted to the Centronics 737 Parallel printer. Among the drivers available is one for the 737 and also Daisy II. There are also drivers for NEC5530, NEC5510 and Diablo serial and parallel.

The driver of your choice is then merged with the Scripsit original using a machine-code program which also incorporates other modifications to Scripsit. These allow access to the disk directory, and the ability to kill files if required, without exiting the program.

Other modifications also present allow the use of [ ] and { } and also ^ as extra characters. Underlining may be switched on and switched off anywhere in the line and the use of subscript and superscript as follows:-

$X^2 + Y^2 = Log_e PI$

The ability to use BOLDFACE on the 737 prints double width ie. **Double-width.**

Other typefaces may be accessed also using other control characters

PROPORTIONAL.
PROPORTIONAL Double
Smaller print

There is also the ability to allow insertion of text into the Scripsit printout by including other control characters in the text file. When printing out, the program halts at this stage and prompts for input of the text to be inserted before continuing, obvious uses here are Dear So and So or letter references or invoice numbers etc.

All in all an excellent package for the Centronics 737 and I would think for other printers too and well worth the small additional charge on top of Scripsit itself.

As a consequence of my purchase of the 737 I have available for sale a TANDY QUICKPRINTER II, which is now surplus to requirements. Anybody interested in this printer or wanting to know more about Superscript I am available on Tenbury Wells (Worcs) (0584) 810015.

Brian J.Tongue.

MEDICAL SUB-GROUP NEWSLETTER

The Medical Sub-Group publishes a newsletter which is free to all medical/medical laboratory users of TRS-80s on receipt of a SAE (two if they want the next edition!) from :-

Dr. Nick Robinson,
The Residency,
Northwick Park Hospital,
Harrow, Middx.
Tel: 01-864 5311

Nick Robinson

FLOPPY TAPE PROBLEM

Have any other Floppy Tape users solved the problem of compatibility across units. I recently tried out a tape sent by another user, which failed to work on my system until I adjusted the motor speed inside the Aculab unit.

Does anyone know how to set things up to a standard, or what is the correct speed? One simple possibility might be to adjust the speed so that, say, 30 sectors were created on a 10' tape, though I'm not sure what the length tolerance is on the tape. Anyone got any better ideas?

John Keneally

(* This does indeed seem to be causing problems to Aculab users. Our local Aculab 'gurus', Bob James and Adrian Hancock tell me that someone has written a program that checks the speed. does anyone have any more details on this? LFH *)

80-NET

80-NET, the Group's FORUM-80 computerised bulletin board system is now operational, thanks to the loan of an auto-answer modem by Frederick Brown of 3-Line Computing in Hull. We are 'on-line' every night except Tuesday from 18.00 until 08.30 the following morning, all day Saturday, and Sunday afternoon.

Please contact Brian for details. Subscribers ($10.00 as mentioned in a previous issue of the Newsletter) will receive a copy of the FORUM-80 Users Guide (two volumes). This is essential to make best use of the system.

The system has been running on a trial basis on my home telephone for a few days without too many problems, apart

from the occasional reboot caused by central heating and 'fridge mains spikes getting through my rather ineffective home-made line filter.

Initially we will only have two drives operational, so the storage capacity will be rather limited, and we will not be able to include the library for software downloading or the local features facility. Other FORUM-80s are:-

Hull (0482) 859169 Tuesday and Thursday evening. Weekends

London 01-286 6207

Frederick Brown (Hull) and Leon Jay (London) are the organisers.

Leon Heller

NASCOM - TRS-80 INTERFACING

As a new TRS-80 user,I have found my existing Nascom 1 useful as an intelligent controller for interfacing the TRS-80 to the outside world.Without an expansion interface,or similar,the TRS-80 is somewhat deaf and dumb,but hooking up via the cassette interface gives access to the various Nascom interfaces,including the RS232-compatible serial I/O.Nascom ad-ons are also cheap,as can be seen from a scan through the adverts,and can easily be driven from the TRS-80 Basic.At present,I have arranged a patch into the video driver,so that any screen input can optionally be echoed on the Nascom printer,but a more general message routing program is under development so that several peripherals can be handled.If anyone would like a copy of the hardware and software,drop me a line.Since I am a new member,my address is not on the list,so here it is :-

Mr J.Keneally,
31 St Helens Road,
Weymouth,
Dorset DT4 9DY.

SCRIPSIT/PENCIL FILE RESCUE

Rescuing SCRIPSIT or PENCIL files lost in memory due to Re-boots, DOS errors or Disc crashes etc.

1. **DON'T SWITCH OFF.**

2. **You are in a mess and God knows what state the DOS is in, regain control over the machine by re-booting TRSDOS 2.3. Keep the ENTER key down just in case there's an AUTO command.**

3. **Format a blank disk if you haven't one available.**

4. **If you've got ZEN load it and follow the instructions in the manual, else**

5. **If you've got my REVIVE program, run that and just answer P or S, else**

6. **Now you'll have to do it the hard way.**

7. **Key TAPEDISK (ENTER).**

8. **After the ? prompt key the following:**

   (a) for PENCIL file: F FILESPEC 6C01 FFFF 402D (ENTER)

   (b) for SCRIPSIT ": F FILESPEC 7F62 FFFF 402D (ENTER)

   for 16K machines 7FFF and 32K BFFF instead of FFFF

9. **The whole of the possible text memory is now on disc, so make a Backup copy of the disc before switching off, as this will also verify that the disc is readable.**

10. **Unfortunately the data on the disc is not in a format that is readable by either PENCIL or SCRIPSIT so post your disc to me and for a modest fee and by return post you will have your text file restored.**

TRS80 SCRIPSIT & ELECTRIC PENCIL
==========

RECOVERY OF TEXT FROM MEMORY AFTER A REBOOT
DOS OR HARDWARE FAILURE

```
 5  REM  COPYRIGHT (C) 1981 LAURIE SHIELDS
10  ON ERROR GOTO 80
20  CLS:
    PRINT:
    PRINT "F I L E   R E S C U E"
30  PRINT:
    INPUT "SCRIPSIT OR PENCIL"; A$
40  IF LEFT$( A$, 1) = "S" THEN N = 32610 ELSE
    IF LEFT$( A$, 1) = "P" THEN N = 27650 ELSE 30
50  LINEINPUT "FILESPEC ? "; A$:
    OPEN "O", 1, A$
60  IF N > 32767 THEN N = N - 65536
```

```
70  C = PEEK(N):
    PRINT CHR$(C);:
    PRINT#1,CHR$(C);:
    N = N + 1:
    IF C <> 0 THEN 60 ELSE
    FOR N = 1 TO 256:
    PRINT#1, " ";:
    NEXT:
    GOTO 90
80  CMD"E"
90  CLOSE:
    END
```

PROCE DURE:
==========

1. DON'T SWITCH OFF.

2. RE-BOOT DOS WITH WITH ENTER KEY DOWN

3. FORMAT NEW DATA DISC IF NECESSARY.

4. ACTIVATE BASIC.
   (BUT WITH ONLY 1 FILE IF IT WAS PENCIL TEXT)

5. DO NOT USE ANY NEWDOS TYPE CMD COMMANDS.

6. RUN "RESCUE"

7. ORDER 'HELP/CMD' BEFORE IT HAPPENS AGAIN.

Laurie Shields

FORTH (M.M.S. v1.8 &1.9)

I am running MMS FORTH on my system and I would like to hear from anyone else who is also using it. For those who don't know FORTH I can't describe it easily other than to say than it is highly structured unlike Basic, very fast running, and in some ways very close to machine language.

I would be particularly interested to know if anyone has been able to modify FORTH to run on an ACULAB floppy tape. For all those who are Exatron users a modification is already available. I believe this gives the usual virtual memory facility which makes a 16k TRS-80 behave like a 75k machine by swopping memory and back-up storage.

J. Newgas.
1, Philip Court
89, Hornsey Lane
London, N.6.

Computer-assisted learning for blind students

Developments in microcomputer technology have created new opportunities for the application of computers in teaching. This is particularly true where cost have previously been an inhibiting factor; a significant feature in providing computer assisted learning for blind students.

During 1980, a project commenced within the Open University which had as its principal objectives:

(a) to provide synthetic speech output for blind students using computer programs (written in BASIC) on a microcomputer,

(b) to use a low-cost commercially available speech synthesis system that could lead eventually to it being made widely available to students.

To date, the project has concentrated on the development of a dictionary/conversion program which takes a source program (written in BASIC; VDU output) and converts it to an object program that only uses synthetic speech as the output medium. This involves (a) replacing all the strings in the source program by equivalent phonemes, (b) converting all PRINT, INPUT, DATA and string statements to an appropriate format for use with synthetic speech, and (c) adding subroutines to the object program that will provide support facilities to a blind student using the program e.g. repetition of speech, validation and editing of data, and error messages.

The technique for converting programs to synthetic speech output was developed essentially to give access to existing software rather than producing specialist software which, from previous)erience, is only produced at a slow rate.

The dictionary/conversion program has been implemented on a TRS-80 microcomputer (disk-based). The object programs are created automatically from the source program; the only exception is when a word in a string statement is not available in the dictionary, at which point the user intervenes to provide phonetic commands for that word. If present, graphics features of the program are removed. Finally, the object program is copied to a cassette tape for subsequent use by a blind student on a limited configuration microcomputer.

The microcomputer being used for the developmental testing of object programs is a TRS-80 which consists of a keyboard (16K CPU), cassette recorder and voice synthesizer e.g. no VDU. Blind students are now assisting with the evaluation/testing with the objective of improving the facilities that are built into the programs by the dictionary/conversion program.

Call for programs

The current need is for a range of programs (any subject or level) that could be accessed by blind students after conversion to synthetic speech output. If you have any suitable programs that are either written in BASIC for a TRS-80 or could be readily modified to be compatible, then I would be very pleased to receive them (disk or cassette which would be returned, or listings). Any programs translated would include an acknowledgement of the author of the original, and they would only be used for the purpose of the project. Two of the limited configuration microcomputers described above

have been made available for the developmental testing in conjunction with blind students.

For sending programs or for further information contact:

Dr. A.T. Vincent
The Open University
Chorlton House
70 Manchester Road
Chorlton-cum-Hardy
MANCHESTER M21 1PQ

(061-861-9823)

VIDEO GENIE MEMORY EXPANSION

Addition of 16K Memory to EG3003 16K

1. Remove top cover and keyboard
2. Piggyback 8 4116 IC's on top of existing memory leaving pin 15 on each IC open. ($\overline{CAS}$)
3. Join together all open $\overline{CAS}$ pins and connect to 5V (Z20 pin 16) via a 330 ohm pull up resistor
4. Break the track between pins 4 & 5 of Z21, break track to pin 5 of Z21
5. Connect pin 4 of Z21 to Z25 pin 11
6. Connect pin 5 of Z21 to Z25 pin 10
7. Connect Z25 pin 10 to Z8 pin 15
8. Join pins 13 and 12 of Z8
9. Connect Z8 pin 11 to $\overline{CAS}$ line of extra RAMs
10. Join Z37 pin 14 to Z8 pin 14

1102

Components required
8 x 4116 (better than 450nS)
1 x 330 ohm ¼ resistor
50cm connecting wire

From an engineering point of view, this method of memory expansion is quite diabolical. Piggybacking static RAMs isn't too bad, but dynamic RAMs are another matter. It seems to work, however! I would not advise anyone to try this with the TRS-80.

Leon Heller

REMOTE CONTROL OF YOUR COMPUTER!

As part of their RS-232 communications software package (about £25.00) Tandy supply a program called Host. Host configures a Model I TRS-80 (disk or cassette) fitted with a serial interface as a slave system controlled by a remote TRS-80 or terminal (with RS-232 capability, of course).

You merely run Host (a machine language program) and a user at the remote system can operate your machine in exactly the same way you do. In fact, you are both able to use the system simultaneously. Not time-sharing, of course, you both see exactly the same display. The host system can be accessed via a modem, and Frederick Brown was controlling my system from Hull the other day! I did not even have to be present, as it answered his call automatically via the M 103A modem. A similar experiment with me using my completely unattended system from Brian's office also proved very successful.

Many applications for this technique spring to mind. How about accountants accessing clients' records directly, with each client having his own system? Interactive games? Inventory control with several branches having their files accessed by a central system? The only problem is the slow data rate (300 bits/sec) and the possibility of data corruption. The latter could be dealt with by appropriate error checking/correction techniques, and these are provided in the software package. They are not accessible via Host, unfortunately, you have to use a separate communications program.

Leon Heller

(* I forgot to turn off 'centring' ! LFH *)

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

For sale: Tandy Quick Printer II
£80.00 o.n.o. Three months use only.

The Reverend Michael C.E. Bootes OGS,
11 The Spinney,
Hassocks,
West Sussex BN6 8EJ

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

FORTH INTEREST GROUP (FIG)

Any members interested in FORTH, I know of at least three including myself, might wish to join the FORTH Interest Group. A bi-monthly newsletter (FORTH Dimensions) is published and they have over 2500 members. Contact:-

FORTH Interest Group,
PO Box 1105,
San Carlos CA 94070,
USA.

The annual subscription is $24.00 outside the USA.

Leon Heller

SAVING MICROMUSIC ON DISK

Many thanks for the Jan.issue of the newsletter which has just arrived. Mr.Martin's letter raises the problem of saving Micro Music on disk. I can offer the following solution.

Micro Music (MM) executes from 4300H so DOS requires that it is first moved to 7000H or higher; a specially appended loader is then attached to move the file back to its execution address after DOS has quickly deposited it and invoked the loader. Also,if the DOS has a debounce routine,it will be necessary to restore the L2 keyboard driver ; this,too, can be accomplished by the loader.

This task is quite easy with the help of a good monitor. MON3 is ideal.For example, it could be relocated to execute at 6000H (with a few simple modifications, MON3 if fully self-relocating) from where it can be used to read the MM system tape,edit in the required loader and move the lot to 7000H before rebooting to DOS to do a DUMP to disk. RSM2D (using the AC00H or EC00H versions) should work equally well. I have the 16k version which executes at 6C00H only so it is unsuitable for this purpose unless it is O.K.to create a disk file at 8000H or above. Clearly Mr. Martin's copy is a dud - mine works perfectly and the 12-page documentation is thorough and clear,a piece of cake compared to the Newdos documentation, for example.

However, it is fairly easy to make a disk-file of MM <u>without</u> a monitor. Here's one possible procedure :-

1. Having powered up the system,including the disk,enter the following Basic program in L2

```
10 POKE  16553, 255  (I'm afraid I need this for data reads)
20 FOR I   18801 TO  18836
25   READ  A  : POKE  I,A
30 NexT
40 DATA  33, 227, 3, 34, 22, 64,
         33,   0,112,17,  0, 67,
          1, 113,  6,243,237,176,
        195,   0, 67, 33,  0, 67,
         17,   0,112,  1,134,  6,
        243, 237,176,195,  0,  0
```

2. Run this program, then prepare the MM cassette file and load it in the usual way under SYSTEM .

3. After a successful load type< /18822>,and after checking the drive for a system diskette,hit ENTER. MM will now be moved to 7000H and the DOS booted in.

4. Instal the host diskette and type

```
DUMP MUSIC/CMD (START=X'7000',END=X'7685',TRA=X'7671')
```

And that's it . Of course any suitable filename can be used. The 'CMD' extension enables the disk file to be executed from DOS simply by typing the command 'MUSIC' .

The procedure works as follows. MM loads into 4300H - 4970H. The Basic program in step 1 writes the following loader to memory starting at 4971H=18801D

```
4971  21E303    LD  HL, 3E3H      ;restore L2 keyb.driver
      221640    LD  (4016H),HL

4977  210070    LD  HL,7000H      ;move MM to 4300H
      110043    LD  DE,4300H
      017106    LD  BC, 671H
      F3        DI
      EDB0      LDIR
      C30043    JP  4300H         ;execute MM

4986  210043    LD  HL,4300H      ;move MM to 7000H before DUMP
      110070    LD  DE,7000H
      018606    LD  BC, 686H
      F3        DI
      EDB0      LDIR
      C30000    JP  0000H         ;boot in DOS for DUMP
```

It was necessary to run the Basic program before loading MM since the latter lies close to the start of Basic's text buffer at 42E9H.

If Mr.Martin can get his RSM monitor to function then there is an alternative to the usual disk-file he might consider. RSM has the ability to write directly to disk,sector by sector; you only need a formatted diskette - no system is required.Consequently,it is theoretically possible to store 100k on a 40-track diskette; RSM was written with a 35-track system in mind and only allows you to write to sectors 0 to 349.I'm sure this can be altered to 399 by modifying the relevant byte in RSM's disk loader routine. To save MM in this way you could, for example, use RSM to read the tape file using the command <R0> ;the tape loader will even supply the filename and all the relevant addresses. Next you enter the command

$ddd,4300,7

and, with a formatted diskette in the drive,hit ENTER. 'ddd' is a decimal sector number from 0 to 349. The '7' specifies the number of sectors (256-byte blocks) to be written. As MM is 671H bytes long,it requires 7 sectors.

This command works very fast and has proved to be an invaluable asset to me in several ML applications e.g. a temporary save of the EDTASM buffer. RSM has a few other things going for it ,notably a breakpoint routine, and a user utility which allows to write your own routine and integrate it with RSM itself. However the problem of relocation makes RSM rather inflexible so I still prefer MON3. The ideal monitor would be MON3 modified to include those valuable RSM routines just described .... I'm working on it !

John Phelan,
56 Ashby Avenue,
Chessington, Surrey.
01-397-2482

(* Nigel Dibben Modified MON3 in the way you describe some time ago. I am he will let you have the details. LFH *)

TRS-80
SOFTWARE REVIEW

A SERIES OF MATHS GAMES

by Dave Futcher

ADDICTIVE
SADISTIC
MURDEROUS
AND
DIABOLICAL

This review of four mathematical games will hopefully appeal to both our educational users, particularly to Primary and Middle Schools, but also to National TRS-80 users who want to offer some educational usage of their machines to their children, or for just keeping their children amused.

Very little educational software is to be found on offer from the major TRS-80 software houses in the U.K. so it is very pleasing to find

PREMIER PUBLICATIONS of
12 Kingscote Road,
Addiscombe, Croydon

offering a set of four mathematical games entitled

ADDICTIVE ADDITION
SADISTIC SUBTRACTION
MURDEROUS MULTIPLICATION
DIABOLICAL DIVISION

Having seen much of the material that is available at the moment this suite of programmes has much to recommend them. Having used them extensively in recent weeks, with children who are now very critical of what is on offer, the children and the teachers reaction was quite different. These programmes held the children's attention more than some, and offered that little bit extra. They were riveting and stimulating.

The programmes all written by John Hooker, a teacher, have very good clear screen layout with an uncluttered display. Instructions are included within the programme and keys for controlling the computer are well documented, I particularly liked the excellent scoreboard facilities. The children did too, they liked to see an update picture of their results rather than wait till the end of their turn. Another nice touch is the offer of different levels of difficulty and the option of being able to move up and down between these within the programme by keying in symbols. I did sometimes find that children were automatically moved up and down levels when they should have stayed for more experience in that level.

Let's have a look at what each game offers.

SADISTIC SUBTRACTION

This game stands out from the rest of the pack. It adds a number of twists to an important basic skill and keeps you thinking. You are shown a number from which you have to subtract a string of numbers. These appear in turn in the MINUS BOX. The COUNT BOX tells you how many to expect. But the twist comes with the NO NO BOX! For if the number appearing here is the same as in the MINUS BOX you leave it alone. The children really have to concentrate and watch the screen display carefully to ensure the computer doesn't catch them. It kept a group's attention for a considerable period and I felt the drill that the programme provided within the game to be well reinforced.

ADDICTIVE ADDITION

This programme has two modes of operation. In Game A the number you have to add appears in a sequence on the screen altogether. In Game B the numbers are flashed on one at a time. Your ability to add numbers together quickly is certainly tested!! Particularly as, if you get them right, the number series grows. Again it was a winner with the children both 8-10 year olds and the 10-12's. Great competition started to see who could build up to the longest sequence. It could become addictive, and could improve number bonds.

MURDEROUS MULTIPLICATION

There are many tables testers available, this is that and a bit more. First you have to add up the squares in each of two boxes on the screen, before they disappear. When the counter reaches zero, you then multiply the numbers in the two boxes together. A good variation on this basic game is two children working together and each counting one of the two boxes and then jointly working out the multiplication.

DIABOLICAL DIVISION

In this game you are given a division sum and a series of answers and have to choose the nearest right answer. You are once again working against the count. A pleasing programme but not as popular as the other two.

To sum up PREMIER have come up with 4 maths games very different to many I have seen before.

Staff and children at the school I teach at in West London gained much from using them. They were fun for the children to use, across the whole Junior School age range and certainly made children think and work out traditional four rules mathematics in a new way.

These programmes ran easily on a TRS-80 16K Level 2 machine. They loaded well at a low volume and after a week of children trying all sorts of right and wrong answers they seemed bug free, crash proof and kid proof!

The four programmes come as a pack with good clear teaching notes and cost £9.95 (including V.A.T.) which is good value.

PREMIER also offer

MATHEMATICS EXERCISER
NUMBER MATCHER
SPELLING TEST
CHALLENGE! ODD MAN OUT

these will be the subject of a review next month.

RENUMBER PROGRAM

I enclose a program which I found operates satisfactorily on my system, which is a 48 K with two double disc systems.

For use with other systems it may be necessary to change AD in line 60350 and 63100.

The program is a modification of one which originally appeared in Practical Computing and it is also modified in one other respect which is, that,as I have a printer,lines 63190 and 63220 print out any overwritten lines or unlabelled lines on the printer, thus making it much easier to sort them out. If this is not required it simply means altering ill-print to print.

I should perhaps mention that if the printer is not switched on then the program will, of course, hang up if it gets to one of these lines, but I have not bothered to insert a check on whether the printer is switched on.

RENUMBER FOR TRS-80 DISK BASIC Page 1

```
63000 INPUT"RENUMBER LINES FROM ";S1
63010 INPUT"                 TO ";S2
63020 INPUT"WHAT IS THE FIRST NEW LINE NUMBER? ";P
63030 INPUT"             WHAT STEP (1 TO 10)? ";P1
63040 P=P-P1:T=0:P$=STR$(P):IFVAL(RIGHT$(P$,2))=0THENT=1
63050 DIMA(300),B(300):AD=27174:FORI=TTO300
63060 GOSUB63270:IFLN>62999THEN63100
63070 N=P+I*P1:NH=INT(N/256):NL=N-NH*256
63080 POKEAD,NL:POKEAD+1,NH:A(I)=LN:B(I)=N:PRINTLN,N
63090 AD=NA:NEXTI:PRINT"OVER 300 LINES":END
63100 AD=27174:FORB=TTO300:GOSUB63270
63110 PRINTLN:IFLN>62999THENPRINT"COMPLETE":END
63120 FORJ=AD+2TONA-3:C=PEEK(J)
63130 IFC<>141ANDC<>145ANDC<>149ANDC<>202THEN63260
63140 L=PEEK(J+1):IFL=32THENJ=J+1:GOTO63140
63145 IFL<48ORL>57THEN63260
63150 C$="":FORK=J+1TOJ+8:C=PEEK(K)
63160 IFC<48ORC>57THEN63180
63170 C$=C$+CHR$(C):NEXTK
63180 L=VAL(C$):FORH=1TOI:IFA(H)=LTHEN63200
63190 NEITH:LPRINT"LINE ";LN;"LABEL ";A(H);"NEW ";B(H):GOTO63250
63200 N$=STR$(B(H)):R=LEN(N$):FORI=2TOR
63210 POKEK+I-R-1,ASC(MID$(N$,I,1)):NEXTI
63220 IFK-R<JTHENLPRINT"OVERWRITTEN LINE ";B(H)
63230 IFK-J-R<=06OTO63250
63240 J=J+1:POKEJ,32:GOTO63230
63250 IFC=44THENJ=K:GOTO63150
63260 NEITJ:AD=NA:NEXTB:PRINT"INCOMPLETE"
63270 NA=PEEK(AD-1)*256+PEEK(AD-2)+2
63280 LN=PEEK(AD+1)*256+PEEK(AD):RETURN
```

NOTE:- The character -^- denotes an imbedded line feed

M.C. Matthews

PROGRAM SAVE ROUTINE

Do you ever get bored typing file names or saving programs to disk ?.No!! Well don't bother to read this article.For those of you who are still reading this here is a simple idea following on from that of Bill Cowhig in the February issue of the newsletter.

The idea of the program/sub-routine below was Put forward whilst developing an accounting program for Brian Pain This program is menu driven making the sub-routine ideal because of the high volume of work processed through this program which has to be saved under different files for several clients.

PROGRAM NOTES

Definition of Variables

FL$ = File name
EX$ = File extension
DR$ = Drive number
FS$ = Final file specification
Q$ = Input value
N = Variable used for verifying input

Lines 20 - 40 These set the default values of the file specification which may be changed as required.
Lines 500 - 530 Displays the default values set in lines 20 - 40.
Lines 540 - 550 Resets file specification.Enters file name.
Lines 560 - 570 Checks the length of input string and that the first character is alpha.
Line 575 Sets file specification to file name.
Line 580 Enters file extension.
Lines 590 - 600 Check routine similar to that used in lines 560 -570.
Line 605 Sets file specification to file name and extension.
Line 610 Enters drive number.
Lines 620 - 630 Check routine for valid drive number.
Line 640 Sets file specification to name,extension and drive.Displays the file specification.
Line 650 - 660 Checks with user if file specification displayed is as required.
Line 670 Saves program under the above file specification.
Line 680 Returns user to menu.

This save routine can be modified in line 670 to open files just as easily as saving the whole program,
i.e 670 OPEN "I",1,FS$

The sub-routine may be more complex than Bill Cowhig's idea but in situations where a program is used for different clients/applications we have found that this is the ideal solution

CLIVE KEECH TREVOR GROVER

```
10 CLEAR 1000
20 FL$="SAVE"
30 EX$="BAS"
40 DR$="0"
500 CLS:PRINT:PRINT
510 PRINT"DEFAULT FILE IS";TAB(22)":- ";FL$
520 PRINT"DEFAULT EXTENSION IS";TAB(22)":- ";EX$
530 PRINT"DEFAULT DRIVE IS";TAB(22)":- ";DR$
540 PRINT:FS$=""
550 Q$=FL$:INPUT"FILE NAME           :- ";Q$
560 IF LEN(Q$)<1 OR LEN(Q$)>8 THEN 550
570 N=ASC(Q$):IF N<65 OR N>90 THEN 550
575 FS$=Q$+"/"
580 Q$=EX$:INPUT"EXTENSION NAME      :- ";Q$
590 IF LEN(Q$)<1 OR LEN(Q$)>3 THEN 580
600 N=ASC(Q$):IF N<65 OR N>90 THEN 580
605 FS$=FS$+Q$+":"
610 Q$=DR$:INPUT"DRIVE (0,1,2 OR 3) :- ";Q$
620 IF LEN(Q$)<>1 THEN 610
630 N=ASC(Q$):IF N<48 OR N>51 THEN 610
640 PRINT:PRINT:FS$=FS$+Q$:PRINTTAB(10)"FILE SPEC IS :- ";FS$
650 PRINT:PRINT:PRINTTAB(10)"IS THIS CORRECT (Y OR N)";:Q$="":INPUT Q$
660 IF Q$="N" THEN 500 ELSE IF Q$<>"Y" THEN 650
670 SAVE FS$
680 ' RETURN TO MENU
```

EXAMPLE 1: USING DEFAULT VALUES

```
DEFAULT FILE IS        :- SAVE
DEFAULT EXTENSION IS   :- BAS
DEFAULT DRIVE IS       :- 0

FILE NAME           :- ?
EXTENSION NAME      :- ?
DRIVE (0,1,2 OR 3) :- ?


          FILE SPEC IS :- SAVE/BAS:0


          IS THIS CORRECT (Y OR N)? _
```

EXAMPLE 2: USING INPUTTED VALUES

```
DEFAULT FILE IS        :- SAVE
DEFAULT EXTENSION IS   :- BAS
DEFAULT DRIVE IS       :- 0

FILE NAME           :- ? ABC
EXTENSION NAME      :- ? DEF
DRIVE (0,1,2 OR 3) :- ? 3


          FILE SPEC IS :- ABC/DEF:3


          IS THIS CORRECT (Y OR N)? _
```

GAMES BY JOHN ELLIOT

for TRS-80 LEVEL I 4K

Individual Demonstration

Inputs a person's first name and sex and demonstrates the Computers learning that some names are male and others female. This is follwed by a graphic demonstration using a 'snake', the calculation of the date of Easter Sunday for any year this century, and finally a game of 'Hot and Cold', guessing a random number in the range 1 to 100. (This program can be used on its own but also it is being used as the first of 12 learning situations, the other being in typed form, which together from a basic introduction to usng computers, for an individual looking at a micro.)

Concentration

A game involving recall of digits starting from 4 and stepping up gradually to 9. (This can be used on its own but also it is being used as the first of 12 situations which build on the basic introduction above.)

Divsion

This has been developed to provide an open-ended situation. For the division of 2 whole numbers it provides up to 311 decimal places to cover the pattern and one repeat. Finally it finds the length of the pattern and encourages further investigation. (This program can be used on its own but is also being used to extend the above course.)

Group Demonstration

Designed to give a group of pupils an experience with the machine.
Each pupil enters names, sex, age, month in which birthday falls, and the day in the month.
Date of birth is calculated and displayed, and day of week on which born.
Information can be saved on cassette, reloaded, additions made, and corrected if necessary.
File can be displayed showing alphabetic sort has taken place, and display can be boys only, girls only, or both sexes.
Bar Chart of Day of birth for group can be displayed. The machine is locked in the section of the program which inputs details until the teacher intervenes, then it can be locked in display section for group members to use.
Used with mixed ability classes of 12 year olds, and older pupils.

John Elliott,

TEACHERS NEEDS FROM THE TRS-80 USERS GROUP

Many schools now have one or more Level 2 16K machine and self taught teachers like myself whose knowledge of programming is limited to Basic. Therefore the majority of the articles in the newsletter are above my comprehension. My needs are for help in introducing Educational Computing into the curriculum.

I had hoped that the groups library of software would be able to help with suitable programs but there is nearly a complete lack of this.

Many teachers like myself must have spent a great deal of time producing suitable programs ourselves. Why can the newsletter not print at least one good educational program in each issue? This would at least be a start. The next step needs to be encourage our experienced colleagues to contribute educational software to the library.

I expect where teachers have a chance to attend a local TRS-80 Users Group a great deal of program swapping is done. Unfortunately I am not in such a privileged position and should appreciate to hear from any school interested in doing some program exchanging.

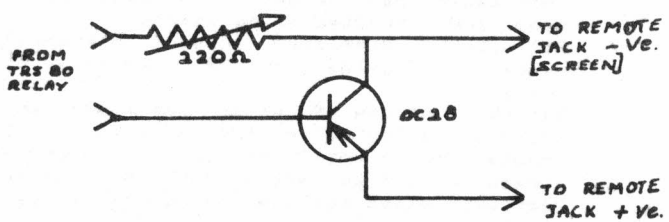
H.J.Walsh
Riddlesdown High Shool
Honister Heights, Purley, Surrey

AVOIDING CASSETTE RELAY PROBLEMS

After discussions with other members I became concerned regarding the possibility of the cassette relay contacts becoming welded. With the help of other members I was able to come up with the circuit below, which may be of interest to others.
The polarity of the jack connections should be checked as my recorder is not a Tandy and may not have the same polarity as they do. A SPST between the collector and the emitter will, of course, allow the recorder to be used to fast wind without having to unplug the remote jack.
The following readings were obtained with the maximum resistance in circuit :-

switched current	220mA	voltage	9.3V
switching current	3.5mA		

a reduction from 2W to 32mW



It may be of interest to Video Genie owners that I fitted a DPDT switch to cross one end of R34 and R35. This allows cassette #1 and cassette #2 to be interchanged. I found this an advantage in that I can now load SYSTEM tapes using variable volume. Also some TRS 80 sound programs will output sound through the cassette lead to an external sound box. Some other programs require OUT 255,0 and OUT 255,1 changing to ,4 and ,5.

K. W. Robinson

HARDWARE REVIEW - MODTECH MODEM M103A

Frederick Brown of 3-Line Computing, Hull, has very kindly loaned us one of the auto-answer/originate modems he is importing from the States. Members might be interested in my impressions after a few days use.

The M103A is a modem (European frequencies) intended for direct connection to the line, and comes complete with a lead fitted with four terminals for connection to the telephone outlet. It merely connects across the two terminals going to the handset, which stays connected to the same points. The other two leads are not connected (I just left them dangling, it might be better to cut them off). The other end of the lead terminates in a miniature jack which plugs into the "Line" socket on the rear of the modem. There is a mains lead, and a female receptacle for connection to the computer/terminal via the RS-232 interface. It took me about five minutes to get it working and most of that time was taken up with the wiring of the mains plug!

On the front of the unit are two LEDs, one is a mains indicator, the other shows if the carrier is present. There is also a centre-biased switch enabling the line to be disconnected, or the modem to be set to originate mode. With the switch in the central position the unit is in auto-answer mode. It is very compact, about the size of a large book, and the telephone can be placed on top of it, minimising the space required.

OPerationally, the unit works extremely well, and seems to be more reliable than my acoustic coupler on bad lines. I still get some data corruption at times - Frederick down-loaded a program to my system which will not run properly - but generally it is excellent. The auto-answer is almost instantaneous. It also works very well in originate mode, for communication with Frederick's and Leon Jay's FORUM-80s, and with a mainframe.

I can thoroughly recommend this unit to anyone who wants a modem for setting up a FORUM-80, or for business communications. I am not just saying that to please Frederick, of course! I have not tried the originate-only version that most of you will be interested in, but it should prove equally satisfactory.

Leon Heller

MODEL II SECTION

Version 2.0 of the DOS for the Model II has now been released. Whilst I understand that it is generally satisfactory provided one is using Tandy software, although the process of transferring files from the original DOS is slightly involved, some problems are arising with programs like Electric Pencil, due to the modified keyboard input routines. Apparently it is the "type ahead" buffer that is causing the problems. Has anyone come across a solution?

Derrick Rowe has been using the Tandy BASIC compiler for the Model II, and tells me that it is very much better than the Microsoft compiler, in that it can be used interactively in "Run" mode for debugging. The source code can then be compiled without leaving the system. Very much less run-time support is needed than for the Microsoft package, leaving much more space for programs. Machine language calls are much easier and it seems to have far fewer bugs.

Os House has volunteered to run a Model II software library. Contributions (non-copyright material only, please) should be sent to Os at:-

Blandford Computers,
Higher Shaftesbury Road,
Blandford Forum,
Dorset DT11 8SS

Please use re-usable packing and ensure that adequate return postage is included.

Can Model II users let me have some written material for this section please. Not having a Model II I have to accept on trust what people tell me, and I can easily get things wrong when information is given to me over the telephone.

Leon Heller

MODEL III IMPRESSIONS

John Gardener has imported a couple (!) of Model IIIs from the States, and brought one of them along to a recent Sunday morning session at Brian's office. We were all very impressed.
John had the 32K version with twin drives and the serial interface. Due to the 110 volts power requirement it was running off a step-down transformer. I was quite surprised at the steadiness of the display, compared to the early Model I, which was designed for the US market.

The nicest features of the system are the double-density disk drives, the very extensive character set (Greek, Kana, mathematical symbols, little men and women (!), etc.) and the excellent keyboard. The expansion connector, printer cable, RS-232 cable and external disk cable come out of the bottom of the case; I would have preferred to see them come out of the back, like the Model II.

The DOS is excellent, with most of the features of Newdos-80 or VTOS, and some similarities to the Model II DOS.

John gave me one of his sets of manuals, and it is one of the best examples of computer documentation I have ever seen, although the DOS section is still in draft form. Tandy seem to have learned their lesson and provide details of the more useful of the ROM routines - very helpful of them - and plenty of information on the DOS. Random file buffers are not restricted to 255 bytes, you can have any value less than that, but this feature is not covered adequately in the documentation. This is about the only thing I could find wrong with it.

Whilst BASIC programs generally run "as is", machine language programs like Pencil do not work properly. The main problem area appears to be the print routine.

All in all, a very impressive little machine!

John will, I hope, be writing an account of his experiences with the Model III for the Newsletter. Some information on the actual importation procedures would also be of great interest.

Leon Heller

IBM COMPOSER 72. - WANTED INFORMATION

I have recently purchased an I.B.M. Composer 72; The machine is basically a mechanical typesetter with interchangeable sizes and styles of typefaces.

I have long had the idea of linking the same into the computer, so it is possible to feed in, through a keyboard, the copy required and save the copy on disk for later use or modification, i.e. alter line length, line spacing, type style etc.

The 'New'72 has already some fixtures mounted within the frame, i.e. rotary magnets, star wheel with what I assume is some sort of photo cell and also a series of wire hooks mounted below the keyboard, which when pulled activate a particular key.

There is also a multi-edge socket outlet underneath the keyboard for attaching to another piece of equipment, (possibly an interface).

What I want to know is, has any member had any experience on this type of IBM, if so, is it possible to interface the TRS-80 to it, and what does this socket fit to, what equipment am I missing?

If you feel you could shed any light on the situation and help me out at all, please give me a ring on Leicester 884474 (STD CODE 0533)

David Hedges

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

PROGRAMMABLE SOUND GENERATOR BOARD

I am now taking orders for the programmable sound generator board based on the G.I. AY-3-8910 chip and described recently in the Newsletter. Assembled and tested units complete with connector are available for $35.00 (no VAT). You only need to provide a 5V power supply (available on the video socket) and speaker. A manual will be supplied and some sample programs on cassette (Tune Player, Random Notes, Whistling Bomb, Gunshot, Laser and Keyboard Organ).

Give me a ring on (0908) 613004 if you would like to hear it in action. A Video Genie version will be available shortly.

EPROM PROGRAMMER

I have also developed an EPROM programmer board suitable for 2716 (single rail) EPROMs. Assembled and tested, together with manual and software, the price will be $45.00. A power supply delivering 5V and 25V will be needed. This is only suitable for disk-based systems. If there is sufficient demand I will produce a Video Genie version.

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks, MK16 8QD.

Please make cheques payable to LFH Associates !

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

REPORT ON STOKE 14/3/1981

A local member Paul Storbirski arranged excellent rooms at the Staffs Polytechnic which is just five minutes from the M6 Junction 15. Just over 30 members gathered at the Plow, and as usual arranged themselves for a full day of Personal Computing.

10.30am Leon Heller - Communication

This session aroused considerable interest as Leon went through the various points. Of main interest was the offer of Alan Fortunes to make a 16K interface Modem for those who cannot afford the interface and disks. Personally the prospect of transmission of data via CB/FM was really tantalising, and apparantly this is feasible. Either Leon or Alan Fortune can help on this proposition.

12.00am Laurie Sheilds - Zen - Machine Code

Laurie kindly stepped in and did a session on the above, after doing an doing an ' interest count '. Several notes were taken when he outlined some basic techniques. The session was useful as Infinite Basic on floppy tape was the closing topic, and almost certainly cracked the problem of saving a module on F/T, which has baffled us all at Milton Keynes.

2.00pm Os House - Double Density - Double Sided

As Os is a Dealer with some useful experience of drives, his session brought members up to date on the Shugart 400 and 450. Pehaps members would like to Know that they can always call Os and discuss these points before making up thier minds whch drive to buy.

2.45pm Leon Heller - Database Manager

As Leon has recently been commissioned to investigate this area for a major body, he considered his progress made so far might be of interest. The main point of the presentation was that although the package is being used for one application, it has been written to be as flexiible as possible. The writers provide an example using Doctors and Patients.

3.45pm Laurie Shields - Protecting Software

Using ideas and experiences from the last few months members were treated to a variety of techniques to baffle software pirates. Several were in the dirty tricks category and notes were made, to take home and try out. My own favourite is the dongle.

5.00pm, members felt the day was done, and rigs were put away and carried to the cars. The main point about this workshop was that, from the floor there came ideas which together with the speaker's will provide material for future projects.

Brian Pain

REPORT ON BIRMINGHAM 28/2/1981

This was held at the Teachers Training College Birmingham Polytechnic just north of Birmingham Town Centre, in rooms with every facility that we could asked for. So a special thanks to the local member Mike Gibbons, for setting up the rooms and assisting at lunch time. For new members the arrangement is that one room is for systems and the other is for lectures, and at Birmingham there were over 40 members with at least 15 systems.

10.30 Brian Pain Sorting & Searching - Infinite Basic
This session with handouts, covered how my office is currently using the above.The main point was the reliability and flexibility of SRTV in a working environment, where it is used daily on a variety of clients records. For those having trouble transferring the cassettes to disk one of our members sent the cassettes back and had the transfer done for them. If anybody wants my notes they are available -sae or disk-please.

10.45 and 2.00 Laurie Shields ZEN EDT/ASM-Scripsit- E/Pencil
The two sessions were quite full from where I sat, with Laurie running through the above and some ideas on software protection. He has now shown Zen several times and it certainly looks easier to use than Tandy's, and members are always welcome to give him a ring at home. From members comments these dems are most certainly appreciated - with questions and answers occuring during his talk.

Laurie has now developed several patches for Scripsit and E/Pencil users who are plagued with Lower case mod incompatibilty. While these patches were being written other areas were developed eg HELP.What I enjoy are the mechanics of a popular program being explained, and how a patch is then written.

3.30 Charles Davies 2 Years with Model 1
Charles is an import/export agent, with lengthy multi-part documents and uses an IBM to successfully punch through them. His software is self-written and will drive a paper punch,for later use on telex. At the present time he uses 77 track drives with a 35 unit kept for compatibility purposes, when interchanging disks. On new equipment, I gathered that at the moment he is quite happy with with his present system and did not see any major reason for chasing after the proverbial rainbow.

Brian Pain

xxxxxxxxxxx STOP PRESS xxxxxxxxx

John Mortlock on 01-769-1639 has Fortran/CBASIC-COMPILER and is interested in swopping for COBOL
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Under the name xxxxMKSSxxxx I will be marketing various items of interest to TRS-80 users, and invite any design ideas which others have, which can be sold on a royalty basis
B. C. PAIN. 0905 - 566660 - 564271.
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

BARROW IN FURNESS

Contact Jack Lowther
131 South Row
Roose, Barrow in Furness,
Cumbria.

Tel: 0229-34953 (Home)
-26214 (Business)

BIRMINGHAM GROUP

Contact Mike Gibbons
1 New Street,
Castle Bromwich,
Birmingham, B36)aP

Tel: 021-747-2260

BLANDFORD FORUM

Contact Os House
Higher Shaftesbury Road,
Blandford Forum,
Dorset, DT11 8SS

Tel: 0258-53737

Meetings

BRIDGEND AREA

Contact Peter Chapman
36 Park Court Road
Bridgend, Mid-Glam.

Tel: 0656-3484

CHELMSFORD

Contact Antoinette Dean,
22 Roughtons Galleywood,
Chelmsford, Essex.

Meetings

LONDON (WEST)

John Carne
14 Lyncroft Gardens,
Ealing W13.9PO

Tel: 01- 567 - 7873 (Home)
01- 993 - 1462 (Work)

LONDON (SOUTH WEST)

Contact Ron Everitt
2A Lonsdown Lane North,
Ewell, Surrey.

Tel: 01-394-2123

MEDICAL SUB-GROUP

Contact Nick Robinson,
The Residences,
Northwick Pack Hospital,
Watford Rd., Harrow,
Middlesex HA1 3UJ.

MERSEYSIDE MICROCOMPUTER GROUP

TRS-80/VIDEO-GENIE SPECIAL
INTEREST GROUP
Contact Peter Tootill

Tel: 051-9227260 ext. 250 or 211 (Work
-2209733 (Home)

START YOUR OWN SUB-GROUP
*
SEND US DETAILS

COLCHESTER

Contact Roy Smith
8 Mallard close,
Layer-De-La-Haye,
Colchester, Essex.

Tel: Layer 442

Meetings

EDINBURGH GROUP

Contact J.Johnson
6 Allen Park, Kirkliston,
Edinburgh, EH29 9HA.

Tel: 031-3332411

EDUCATIONAL SUB-GROUP

Contact Dave Futcher
Beaconsfield First & Middle School,
Beaconsfield Road
Southall, Middlesex.

Tel: 01-574-3506 (School)
01-743-5310 (Home)

GLASGOW AREA

Contact Jim McPherson

Tel: Uddingston 4813717
or 4812797

GLOUCESTER

THREE COUNTIES TRS80-USERS GROUP
Contact John Christie,
23 The Crofts,
Newent,
Gloucester, GL18 1SQ

Tel: 0531-820996 (Home)

MIDLANDS (EAST)

Contact Mike Costello
17 Lansbank Avenue,
Rise Park,
Nottingham, NG5 5BU

Newsletter

NORTH WEST GROUP

Contact Melvyn Franklin
40 Comlees, Westhoughton,
Bolton, BL5 3EG

Tel: 0942-812843

Meetings - Newsletter

NUNEATON

Contact Fred Challenor
40 Whoberley Ave.,
Coventry CV5 8EP.
or
Contact Alan Fortune
47 Northumberland Avenue,
Stockingford, Nuneaton,
CV10 8ER

Tel: 0682 348972

HULL

Contact Frederick Brown,
421 Endike Lane, Hull.

Tel: 0482-859169

Meetings - Newsletter

IPSWICH

Contact Geoff Jackson
40 Westgate, Ipswich.

Tel 0473-218855

Meetings

ISLE OF WIGHT

Contact M.Collins,
3 Altofts Gardens,
Ventnor 85 2008

Meetings - Newsletter

LEEDS

TRS-80 GROUP
Contact John Jowitt
Kings Edward Crescent, Horsforth,
Leeds. Tel: 0532-581734
or
Contact Evan Jones
Braside, Newlaywood Ave.,
Horsforth. Tel: 0532-586314

Meetings

LONDON (NORTH)

Contact John Wellsman
292 Caledonian Road,
London N1.

Tel: 01-607-0157

Meetings - Newsletter

OXFORDSHIRE

Contact Steve Bird
139 The Moors,
Kidlington,
Oxford, OX5 2AF

Tel: 08675-6703

Meetings - Newsletter

SWINDON GROUP

Contact Bob Sparling
The Ridgeway,
51 Station Road, Chiseldon,
Nr Swindon, Wilts, SN4 0FW

YORK GROUP

YORK COMPUTER CLUB
Contact G.Wilson
1 Grangle Close,
Skelton,
York, YO3 6YR

Meetings - Mondays (Holgate
WMC,New Lane, Acomb, York)

BUY AND SELL - ADVERTISE HERE
0908 * 566660
RING US ANYWAY - TODAY!

GAMES

18 HOLE GOLF	4.7K	P.A.R.RADAR	6.1K	
SINK'EM	5.0K	HANGMAN	2.8K	
DRAUGHTS	2.5K	CAMEL	5.1K	
HORSE RACE	2.7K	AWARI	3.4K	
SPLATT	4.9K	DUCK SHOOT	5.0K	NEWDOS(+)
MOON LANDER	2.3K	3D OXO	4.7K	
SHOOT IT	0.8K	MAZERUN	2.5K	
BOUNCING DOT	1.9K	RANDOM LINES	0.6K	
SUB CHASE	3.6K	TIDDLEY WINK	0.9K	
BRANDS HATCH	4.4K	TANK BATTLE	4.4K	
MONZA	2.6K	GALLERY SHOOT	4.1K	
MONACO	2.4K	SHEEP DOG	4.4K	
DRAG RACE	4.2K	SAFARI	11.0K	
FRUIT MA CHINE	2.5K	PORKBARREL	10.6K	
4 REEL SLOT	3.5K	NINE-TAC-TOE	4.2K	
3 REEL SLOT	2.4K	TIC-TAC-TOE	4.3K	
WUMPUS	1.9K	CLIPPER	11.2K	
SNARK	0.7K	U.K.BUDGET	6.3K	
CRAPS	1.6K	SLALOM	1.8K	
ZOMBIE	3.1K	EVEREST	12.8K	
RANDOM DRAWER	3.1K	TOWERS	3.2K	
JIGSAW	5.7K	WINNER	4.1K	
HAMMURABI	3.4K	STAR TRADER	6.2K	+ 15K
WAVY MESSAGE	0.5K	BALLOON	13.5K	
FIELD GUNNER	1.9K	BATTLE OF BRITAIN	4.4K	
10 PIN BOWLING	2.2K	HEXAPAWN	3.8K	
		CARTOON	9.3K	
CHOMP	2.9K	STUPID STORIES	2.6K	
MINE FIELD	3.3K	BATTLE SHIP	4.1K	
FROGGIE	2.4K	OTHELLO 2	5.1K	
STOCK CAR	2.2K	GALAXY FIGHTER	9.8K	+ 11.7K LEVEL II
SOLITARE	2.9K	MAZE RUNNER 2	2.8K	
CHECKER SWIPE	2.4K	STAR SEARCH	13.2K	
OTHELLO	3.3K	HEXAPAWN 2	5.6K	
SURROUND 1	1.5K	SWORDS & SORCERY	14.3K	LEVEL II
SURROUND 2	1.4K			
BACKGAMMON	3.2K			
BLACKJACK	2.8K			
ENTRAP	1.5K			
ENGINEER	3.0K			
COLLISION	2.6K			
SCI-FI STORE	4.1K			
AMAZING	5.9K			
DEMO80 - DEMS TESSO	5.1K			
AC/DEUCE - GUESS WITH CARDS	2.0K			
GUESS - GUESS A NUMBER	3.8K			
REVERSE - PLAY WITH NOS	2.2K			

STATISTICAL SECTION

CORRELATION COEFFICIENT	0.7K
UNCORRELATED 'T' TEST	0.8K
STUDENT'S UNCORRELATED 'T' TEST	0.3K
CORRELATED 'T' TEST	0.8K
MANN WHITNEY 'U' TEST	1.2K
ONE SAMPLE CHI SQUARED TEST	0.5K
ANOVA	1.2K
PERMUTATE	0.8K
ATOMIC DECAY	0.6K
LEAST SQUARES STRAIGHT LINE	0.8K

BUSINESS SECTION

BANK	32.0K	DISK
MAIL LIST		DISK
MORTGAGE ANALYSIS	4.2K	
MAGAZINE INDEX	1.5K	
PAYROLL		DISK

EDUCATIONAL SECTION

MATHS QUIZ	1.8K
MATHS TEST	
GEOGRAPHY QUIZ	4.0K
ATOMIC PLOTTER	3.4K
SINE WAVE ADDER	2.5K
BOUNCE PLOTTER	1.0K
GRAPH	3.1K
PI	0.6K
BIORHYTHM PLOTTER	2.4K
PHANTOM	1.8K
TRIANGLE MATHS	

MISCELLANEOUS SECTION

NUMBER SORT	0.5K
QUEER	
DELAY	
UP/LOWER CONVERTER	0.7K
GRAPHICS EDITOR	1.2K
CALENDAR	1.3K
DATE FINDER	0.6K
PRIME FINDER	0.4K
MAGIC NUMBERS	1.0K
ANAGRAM	1.4K
HEX DEC HEX	1.3K
BASE CONVERTER	2.7K
PENLOAD	0.8K
DISKCOPY	2.4K
SARAH	15.0K
BANNER	3.5K
ENERGY BILL	1.0K
LIFE EXPECTANCY	4.6K
DECIMAL TO BINARY CONV.	1.4K
BINARY TO DECIMAL CONV.	0.9K
CASSETTE INDEXER	2.6K
PHONE DIALLER	0.6K
MSF	1.3K
STOP CLOCK	2.9K
SNOOPY	1.8K
ROTA	

LEVEL II

NEWDOS

Librarian:- L.H.Davies
Glanmor
Brynna Road
Bridgend
Mid-Glamorgan

Telephone:- (0656) 860398

RADIO SECTION

RADIO MATHS	2.7K
QUAD DESIGN	2.4K
V.S.W.R.CALCULATIONS	2.5K
BEAM HEADING	2.6K
QUA-LAT	2.5K
LAT-QUA	1.5K
OHMS CONVERTER	1.0K

MACHINE CODE SECTION

LIFE	TAPE OR DISK
COPY	TAPE OR DISK
RENUM	TAPE
LOWER CASE DRIVERS 16K,32K OR 48K.	TAPE OR DISK
SYSTEM TO BASIC CONVERTER	

INNOVATIVE
TRS-80 SOFTWARE
FROM THE PROFESSIONALS

INSTANT SORT/SEARCH DATABASE

Everything in electronics takes a finite time, consequently nothing can be instantaneous. However a database that will search 500 records and sort the names into alphabetical order in 1½ seconds, that will go on to do the same thing with 1,000 names in only 2½ seconds, is fast. If you add that ability to search 500 or 1,000 records for a specific range of names or ages or sexes or whatever, in such a small amount of time that it is not worth timing it, then the program deserves to be described as instantaneous. Especially as these times are attained on a standard Level II TRS-80.

These results are achieved, obviously, by some very clever machine language coding. This however is not enough. After all GSF from Racet will sort 1,000 arrays in about 11 seconds and that is indeed a clever program. No, in order to achieve the results required from this program it is necessary to change one's entire overview of database.

There are many databases available for the TRS-80 now. All of them have been designed to store as much data as possible, as easily as possible. Not as an afterthought, but nor as a prime design requirement, they have also incorporated as fast a sort as was practicable. This program was designed from the outset to achieve unbelievably fast sort and search times. Indeed we do not recommend this database for application in which fast searching or sorting is not a prime requirement. And what are the applications? It's a hackneyed phrase to say that they are limited only by the user's imagination, but that's about it. Let's take an example. Suppose you are running a marriage or data bureau. An ordinary database will file all the names and addresses away together with the necessary information as to sex, age and so on and with some you would be able to sort the list, so that only people with similar characteristics were eventually obtained. With this database you could, for instance, file the name, sex, age, category of hobby, category of chief interest, vital statistics and other data so that at the touch of a button you could instantaneously display on the screen all women of a certain age with certain vital statistics, living in a certain area. You could also display men with similar (excluding the vital statistics!) data that fall into similar categories. And all of this almost instantaneously. Not everybody runs a marriage bureau, but other applications are not hard to think of. Estate agents can file details of property away so that they can instantaneously obtain data on houses in a certain area or of a certain size. Doctors can reach information as to patients with similar diseases, ages or whatever immediately. In the home, a record library can be stored and every record by a certain composer written in a certain year can be accessed without delay. The list of applications is endless. For any use where it is important to extract information within a certain range or it is important to sort information, this database will find a use.

The prime commands and features of this program are as follows:

Datafile creation

1. Create a file.
2. Add a record.
3. Delete a record.
4. Display a record.
5. Tape a file.
6. Amend a record.
7. Display the file data.
8. Load a tape.

Sort/Search

1. Sort up or down.
2. Page forward or backward.
3. Select a range for search.
4. Select or exclude a category.
5. Select or exclude on initial letter.
6. Resort records in a sort.
7. New sort all records.
8. Extended sort.
9. Arithmetic.
10. Display file data.
11. Load a tape.
12. Printout sorted data.

The data is displayed in columnar form and the data may be alphabetical, alphanumeric, integer or decimal. The number of columns is from 2 to 10 and the records may contain a maximum 44 - 80 characters depending upon the number of columns used. Columns may be of any width within the screen capacity but integer or decimal columns more than five and six characters wide respectively will not have the option of searching within a range.

The program consists of two parts. The first is used for entering the data and the second for the sort or search. The second part overlays the first when it is loaded so only 4K of memory is used by the entire program. The remainder of your memory space is available for data. The amount of data that can be contained will of course depend upon the amount of memory available, but as a rough guide a 16K user will be able to manipulate at one time 250 records of 39 characters each or 514 records of 17 characters each. As a further rough guide on sorting speed, the time to sort 1,000 records on fields of random strings of random length, or of random number between 1 and 99,999, averages under 2½ seconds.

Numeric columns either integer or decimal may be arithmetically manipulated almost instantaneously. A total may be cast or an average taken for any numeric column up to five digits. This is so fast that when adding 1,000 numbers totalling over 50 million, only a slight hesitation can be noticed before the total is given.

In summary therefore this program is ideal for any application concerning the manipulation of information whether it be business, personal or hobby which can be comfortably displayed as one record per line upon the screen and in respect of which it is required that super fast searches or sorts be carried out. The program is supplied on cassette. At this time it is not compatible with disk systems. A disk version is in the course of preparation. The cassette includes a set of data randomly generated which can be fed into part 2 of the program to demonstrate the fantastically fast sort and search features.

Tape for 16K TRS-80 or video genie £19.50

All prices exclusive of VAT which should be added at the prevailing rate. Postage and packing including VAT 75p regardless of the number of programs ordered.

Send large SAE (44p) for our current Catalogue of TRS-80 software. Add £1.85 for a binder.



A.J.HARDING (MOLIMERX)

MOLIMERX LTD.

28 COLLINGTON AVENUE, BEXHILL-ON-SEA. E.SUSSEX.

TEL: (0424) 220391

TELEX [illegible] SOTEX G

MAGNUS MICROCOMPUTERS
CONSULTANCY SALES
INSTALLATION TUTORING
PROGRAMMING

[illegible] THE MOORS.
KIDLINGTON.
OXFORD OX5 2AF
Telephone 08675 6703

Visitors By Appointment Only
Please Phone First
Mon - Fri 7 A.M. to 7 P.M.
Sat 8 A.M. to Noon
Sun 2 P.M. to 6 P.M.

Special Offer Bare TEAC 40 Track Drives £140 + VAT = £161.00

Description	RRP	Retail	Mail Order	NOTES:-
Video Genie 16K Ram 12K Rom	£373.75	£320.00	£345.00	
4116 250ns 16K Dynamic Ram Qty 8	£ 70.00	£ 19.00	£ 20.00	New Low Price
Centronics 737-2 Parallel Printer	£488.75	£430.00	£450.00	
Single Boxed 40 Track TEAC Grey	£271.40	£240.00	£255.00	
Dual Boxed 40 Track TEAC Grey	£506.00	£450.00	£475.00	
MX-80 Bi-Directional Printer	£460.00	£430.00	£450.00	

Disk & Printer Cables at Cost.
Unless Stated All Prices On the RIGHTHAND Column of the last list now stand.

ALL PRICES UNLESS STATED INCLUDE VAT }- M/O	INCLUDES P&P.			
Model III S-80 Level III 16K	£700.00	£645.00	£680.00	C.W.O. Only
Model III S-80, Level III 48K	£790.00	£670.00	£710.00	C.W.O. Only

MODEL III C.W.O. Only & 6 WEEKS Delivery FROM DATE OF ORDER Rcvd.
DOUBLE DENSITY DISKS & CONTROLLER DUE SOON !!!!!
Orders Under £50.00 C.W.O.
All Others - Unless Advised are Cash Before Delivery.
C.W.O. (Not MODEL III or Under £50) less 2½%
Sales By ACCESS or BARCLAYCARD Incur 3½% Handling Charge.
You May Use Your ACCESS card For Any Retail Purchase OR Any Mail Order Purchase Over £50.00 - (C.W.O. Discount Does Not Apply).
All Mail Order Purchases Should Be Ready For Mailing Within One Week (Unless Stated) & Then It is Up to the carrier !

BUSINESS SYSTEMS FROM £1700.00 :-
Includes;-(48K Video Genie , Dual Disks & Printer)
Software Extra - But Does Include Newdos80 & Visicalc
Business software from £100.00 per Program

FARMING & INDUSTRIAL CONTROL PACKAGES ALSO AVAILABLE

ALL CHEQUES TO :- MAGNUS MICROCOMPUTERS
OTHER ITEMS INCLUDE :-
Other Micros - Answering Machines - Prestel Adapters - Blank Video Cassettes - Chips - Components - Boxes - Interfaces - Books - etc.



PHONE OR WRITE FOR PRICES

Business Regn. No. 2611081
V.A.T. Regn. No. 348 3299 26
Stephen C. Bird Proprietor
Girobank Account No. 29 344 4005

NOTES :-
BARCLAYCARD — SOON !

National TRS-80 Users Group

Newsletter

VOLUME 2 ISSUE 10 APRIL 1981

CONTENTS

2. Editorial
3. Members' letters
4. Running TRS-80 at low voltage
4. Video Genie tips
6. Keyboard codes
7. Madleine font for the Daisy Wheel printer
8. Toolkit review
10. Save/Restore screen contents and data in strings
11. Disk handling tips
11. Micropolis special offer
12. Modifications to Newdos80's Debug monitor
14. Accessing data lines
15. Structured programming in Level II BASIC
19. An odd effect with TRS-80?
20. Firmware for the TRS-80/Video Genie
20. Low-cost memory
21. Software for education
22. Experiments with Scripsit
23. Conversion of education programs for TRS-80
24. Data acquisition system for the TRS-80
25. Floppy Tape corner
27. Saving the Aculab directory in case of disaster
28. Machine Language course
29. Gloucester Workshop
30. Sub-groups

LAURIE SHIELDS SOFTWARE

The superb ZEN Editor/Assembler/Debugger is now available for Disc, Cassette or Aculab operating systems.
All versions have been enhanced with a wide range of extra commands to provide the user with facilities not available on any other assembler.

Aculab version #19.50
Cassette version #19.50
Disc version #29.50

HELP/CMD will recover Scripsit or Pencil text from memory lost through re-boots, disc crashes or other acts of the devil.

Disc only #14.50

BACKUP Total security now for the Aculab.
Any data, including the directory, can be read from a floppy, stored on another floppy or cassette and transferred back again.
Recover unlistable tapes if you have previously saved a copy of the directory.
Numeric printouts of the directory and re-entry from the keyboard also allowed.

Aculab only #12.50

Electric Pencil is the word processor for the Aculab.
Your cassette version modified and upgraded to give the full power of a disc based system.

Aculab only #19.50

Electric Pencil does work with the Tandy lower-case but you will have to send your copy to me first for the modification.

Disc or cassette #9.50

Laurie Shields Software, 151 Longedge Lane, Wingerworth, CHESTERFIELD.
Tel 0246 75568 Evenings or weekend.

EDITORIAL

Tandy delivered a replacement printer as promised. This one seems quite satisfactory. However, it should not have taken about three months and four (or was it five?) returns to Tandy for repair to resolve matters.

We omitted an important part of Leighton's address in the Library list included in the last issue. It should have read:-

L.H. Davies,
Glanmor,
Brynna Road,
Pencoed,
Bridgend,
Mid-Glamorgan.

We also omitted to mention how to use the facility. Send your request to Leighton with a suitable cassette or disk in some form of re-usable packaging like a Jiffy bag, with a self-addressed label and sufficient return postage included.

Leon Heller

Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.
Tel: (0908) 613004

Publisher:-

Brian Pain,
40a High Street,
Stony Stratford,
Milton Keynes.
Tel: (0908) 566660/
564271

MEMBERS' LETTERS

From J.T. Lowther

I would like to take this opportunity to inform you of our local "TRS 80 Usar Group (Furness)". This was formed three months ago and with ten members, seems to be going well. We meet on the second Wednesday and fouth Thursday of each month. The meetings are from 7.30 to 10.00p.m. at one of our local hostelries, 'phne no. 0229 - 41258. Most of the members are newcpmers to computing as a hobby but we are lucky to have at least two members who use larger systems at their place of work. I would also like to thank B. Pain for giving his advice and giving me confidence to form our local club.

I have been unlucky enough to have the relay pack up, that controls the tape recorder and I was wondering if any member of the group could advise me what relay to purchase and where. Is it possible to remove and install a new relay oneself, or must a qualified electronics expert undertake the work.

J. T. Lowther,
131 South Row,
Roose,
Barrow-in-Furness,
Cumbria.

Tel: 0229 - 26214 Bus.
34953 Home.

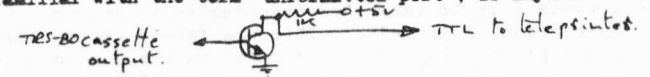
(* Installing a replacement relay is quite straightforward. It is best to clip the leads of the faulty unit, and attach the replacement to the ends of the leads, rather than try to unsolder the faulty relay. Suitable replacements are difficult to find. You could try a 2-pole sub-min relay 6V from Maplin Electronic Supplies Ltd., P.O. Box 3, Rayleigh, Essex SS6 8LR. You will need to attach it via flying leads to the original relay leads. Does anyone know of a more suitable device? LFH *)

From C.T. Marks

As a beginner to the world of computing I am unable to offer much knowledge but my need for knowledge is great. From my little experience I have come to realise that a printer is a necessary partner to a micro if it is going to be used for anything other than games and I have resolved to buy one. Unfortunately my knowledge does not match my resolve and I cannot afford a straight shop buy. Ideally I would like to be able to do some word-processing and therefore would like a hard copy with a full alpha numeric set with upper and lower case that gives a typewritten quality output. Do you know any way of acheiving this within a budget limit of two hundred pounds?

In reply to a small advert in Personal Computer world advertising for sale ex GPO teleprinters, I was told that these machines would be suitable for a Tandy but the vendor did not know if the TRS 80 had a'suitable unformatted port'. I enclose this reply and ask does the TRS 80 have a suitable unformatted port and for future reference what is an unformatted ? (* They were fitted with a TTL interface LFH *)

(* You could drive one of those teleprinters from the cassette output via a TTL conversion circuit consisting of a BC108 transistor and a 1K resistor. Appropriate software to convert from ASCII to serial Murray code would be needed of course. I am not familiar with the term "unformatted port"; is anyone else? LFH *)



RUNNING TRS-80 at LOW VOLTAGE

In the last issue, Nigel Dibben confirms the advantage of operating the Computor and Expansion Interface at 160 volts in place of the normal 230 mains voltage, as was suggested ealier by member. In my case, the lowest voltage I could obtain with the transformers I managed to find was 170 volts. However, at this voltage the system re-booted repetitively every few seconds. At 180 volts, it did the same but more randomly and at less frequent intervals. At 190 volts, the behaviour was still more random but re-boots occurred perhaps every minute or so. Stable performance was only obtained when the voltage was 200 volts and this is the voltage I have settled down to. I wonder if any other member has had this experience?

It has to be admitted that I have had trouble with my disk drives, and this was only removed first of all by using a small blower applied to the front grill of the Expansion Interface. I have since removed both transformers from the Expansion Interface, and this appears to have dispensed with the need of the blower and the system now appears to be stable. I would be glad to know if anyone has found this necessary.

Bill Cowhig

VIDEO GENIE TIPS

The following comments may be of interest to other members concerning the Video Genie.

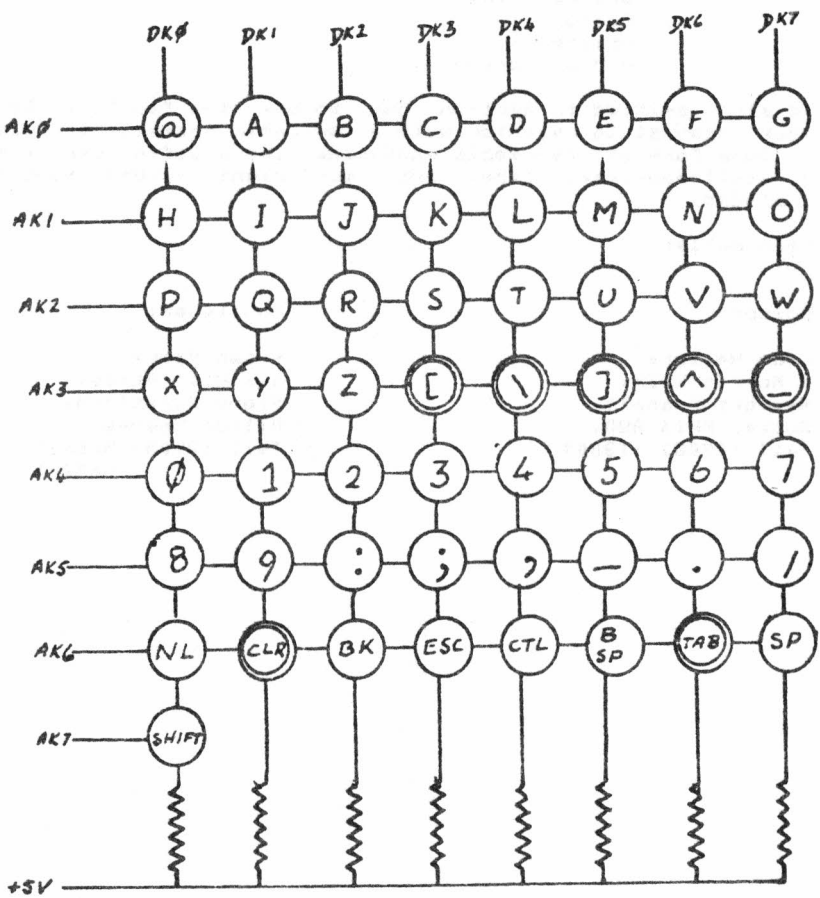
To fit a sound box :-

Some instructions suggest taking the sound o/p from pin15 of Z6. This won't work with all programs . Duel n' Droids for instance, pin 15 outputs 0 and pin 11 o/ps 1. Therefor connect the sound box to the junction of R30 & R31 On the interface board this is the end of R30 nearest to Z8.

To use an external cassette as Cass.#1, fit a change over switch to swop over one end of R34 & R35 . This will allow Duplitape to run if 2 cassettes are connected, one to the o/p line and one to the i/p line. It also allows a printer to run on the cassette o/p with a suitable interface (my present problem)

Has anyone got the manuals for or any other information on the Teletype Model 33 KSR?

Following on from Nick Robinson's 12Break method of obtaining clear on the old Genie five additional characters can be displayed to the VDU by typing T,U, V,W, and S whilst holding down RZ. This doesn't work with Pencil nor I suspect any program with an Auto-repeat facility. In order to acess these characters directly put extra keyswitches on the AR3 line on the Keyboard. The diagram indicates the interconnections.


DKØ
DK1
DK2
DK3
DK4
DK5
DK6
DK7
AKØ
AK1
AK2
AK3
AK4
AK5
AK6
AK7
+5V
@
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z
[
\
]
^
_
Ø
1
2
3
4
5
6
7
8
9
:
;
,
—
.
/
NL
CLR
BK
ESC
CTL
B SP
TAB
SP
SHIFT

Popular Electronics for Feb,80 published a circuit for a Peak Level Meter which fits between the cassette player and any Micro. It should be of more use than a VU Meter. PCW for March '81 also gave a circuit for an Auto-level Control which may be of interest if you have not seen it. A NE571 is a cheaper, wider spec'd version of the NE570 and should be suitable for our use.

I understand that a listing of the VG edge connector pins in relation to those of the TRS80 has been submitted from somebody else. However it may be of use to point out that $\overline{\text{MUX}}$, $\overline{\text{CAS}}$, $\overline{\text{IN}}$, & $\overline{\text{OUT}}$, have not been brought out to the connector on the Genie. MUX comes from Z37 pin 5 to pin 25 of the connector, $\overline{\text{CAS}}$ from Z39 pin6 to pin 13, $\overline{\text{IN}}$ from Z15 pin 6 to pin 23, $\overline{\text{OUT}}$ from Z15 pin 8 to pin 32 on the edge connector. These edge connector pins seem to be becoming standard for this use.

I trust that these notes will be of use, and that anyone carrying out these mod's will of course check out the information I've given against the circuit diagrams in the Service Manual, which can be obtained from Lowes. These notes have been distilled from experimentation on the part of Eric Hartley and myself.

Ken Robinson
65 School Dr.,
Newton Longville.
MILTON KEYNES,
MK17 ODD
(0908) 75479

KEYBOARD CODES

This program shows the relationship between the physical keys and how they are interpreted in the 8 X 8 matrix. It includes the actual decimal weight that the computer uses to change to an ASCII value.

```
5 'COPYRIGHT PAT MCMAHON, PUBLIC DOMAIN FOR NON-COMMERCIAL USE
10 REM KEYBOARD/BAS, BY PAT MCMAHON 415-883-6893, 02/27/81
20 CLS:GOSUB260:GOTO50
30 IF PEEK(&H38FF)=0 THEN 30 ' CHECK TO SEE IF 'ANY' KEY DOWN
40 GOSUB 150
50 K=K1:KX=84:GOSUB160:PRINTÆKX+20,"3801H    ";K1;"  ";
60 K=K2:KX=KX+64:GOSUB160:PRINTÆKX+20,"3802H    ";K2;"  ";
70 K=K3:KX=KX+64:GOSUB160:PRINTÆKX+20,"3804H    ";K3;"  ";
80 K=K4:KX=KX+64:GOSUB160:PRINTÆKX+20,"3808H    ";K4;"  ";
90 K=K5:KX=KX+64:GOSUB160:PRINTÆKX+20,"3810H    ";K5;"  ";
100 K=K6:KX=KX+64:GOSUB160:PRINTÆKX+20,"3820H    ";K6;"  ";
110 K=K7:KX=KX+64:GOSUB160:PRINTÆKX+20,"3840H    ";K7;"  ";
120 K=K8:KX=KX+64:GOSUB160:PRINTÆKX+20,"3880H    ";K8;"  ";
130 GOTO30
140 STOP
150 K1=PEEK(&H3801):K2=PEEK(&H3802):K3=PEEK(&H3804): K4=PEEK(&H3808)
152 K5=PEEK(&H3810):K6=PEEK(&H3820):K7=PEEK(&H3840): K8=PEEK(&H3880)
160 IF K=0 PRINTÆKX,"0 0 0 0 0 0 0 0";:GOTO 250
170 IF K=1 PRINTÆKX,"0 0 0 0 0 0 0 1";:GOTO 250
180 IF K=2 PRINTÆKX,"0 0 0 0 0 0 1 0";:GOTO 250
190 IF K=4 PRINTÆKX,"0 0 0 0 0 1 0 1";:GOTO 250
200 IF K=8 PRINTÆKX,"0 0 0 0 1 0 0 0";:GOTO 250
210 IF K=16 PRINTÆKX,"0 0 0 1 0 0 0 0";:GOTO 250
220 IF K=32 PRINTÆKX,"0 0 1 0 0 0 0 0";:GOTO 250
230 IF K=64 PRINTÆKX,"0 1 0 0 0 0 0 0";:GOTO 250
240 IF K=128 PRINTÆKX,"1 0 0 0 0 0 0 0";:GOTO 250
250 RETURN
260 ?"      PUSH ANY KEY   7 6 5 4 3 2 1 0   MEM ADDRESS/DEC. BYTE"
262 ?"G F E D C B A "CHR$(64):?"O N M L K J I
264 ?"W V U T S R Q P":? CHR$(127)" "CHR$(127    "CHR$(127)" ";
266 ? CHR$(127)" "CHR$(127)" ";"X Y Z"
```

```
270 ?"7 6 5 4 3 2 1 0":?/ . , ; : 9 8"
280  ?"S"CHR$(112)CHR$(126)"  "CHR$(125)"  "CHR$(124)"  ";  CHR$(127)"
BKCLEN"
290 ? CHR$(127)" "CHR$(127)" "CHR$(127)" EP"" "CHR$(127)"  "CHR$(127)"
"CHR$(127)" SH"
300 ?:?"BK = BREAK KEY",,;:?"CL = CLEAR KEY",,;:?"EN = ENTER KEY",,;
302  ?"SH  =  SHIFT  KEY":?"SP  =  SPACE  KEY",,;:?" "CHR$(127)" = NOT
USED",,;
304 ?"EP = ELECTRIC PENCIL CONTROL KEY":RETURN
```

Contributed by Frederick Brown.

Madeleine Font for the Daisy Wheel Printer

I have now switched to the Madeleine Daisy Wheel, which gives a very elegant and 'fine' font, which should be used with proportional spacing. I have also switched over to my special programmes BSCRIP/L and MSCRIP/L (i.e. not Superscript) which enables all the characters on the wheel to be printed. It proved quite difficult to span them all, since they cover from CHR$(91) right up to CHR$(254). It was made possible by using the Tandy patch giving the pound sign but inserting various alternative jumps. Thus I had to use two jumps, and I used to new control codes (which I call JAY and KAY) so that particular characters are obtained by using PJ=X PK=Y. (Normally, one uses PT=X in Scripsit). Thus, if one uses PJ=J PK=I one gets the pound sign whenever one types @ in any subsequent line. PJ=J PK=R gives a quarter, PJ=J PK=S gives three quarters, PJ=t PK=w gives the a with the German umlaut on it. Further actual examples are:

†††
§§§
Le deuxiéme soir, aprés une journée éreintante, j'étais découragé.

I should add that by using PJ=0 PK=0, it is possible to use @, which in all other cases is transmuted into the special character. I give below the full coding in a two Tables, which show the differences between Courier and Madeleine. The snag is that at in any one line or succession of lines (without using tricks) one can only use one special character, since one has to enter the control code for the particular character involved in the preceding line. . Hence the title of this Note -- EXPERIMENTS with Scripsit! I shall continue my experiments, but I rather guess that I shall have to wait upon Mr Wilkes (or is it too much to hope that Tandy themselves will remove the deficiency ?) to provide a more comprehensive programme, which makes all characters available simultaneously in any line.

It would be rather lengthy to give a print-out in machine code of my programmes (BSCRIP/L and MSCRIP/L) but if anyone is interested, I would be pleased to copy them on to a disk if I am sent a disk (suitably packed and with return postage). Even more so, if the sender puts his favourite programme on the disk by way of exchange!

Bill Cowhig

T O O L K I T

A review by Dave Futcher

Recently released by PREMIER PUBLICATIONS of Croydon is a product called TOOLKIT for the TRS-80 and the VIDEO GENIE. The program contains many useful routines collected together in a package.It has great potential to the programmer.

Toolkit is supplied on cassette tape and is designed for use on cassette and disc systems. The program occupies 2K of user RAM and loads after specification of memory size. Versions are available for 16,32,and 48K.

RENUMBER
A renumbering routine is always one of the most used utilities that programmers have and it is good to see one here in this package. Unfortunately renumbering has to start from the beginning of the program. But the routine does allow the specification of the start line and the size of the line steps. The routine of course automatically updates all the references following GOTO, GOSUB, THEN, ELSE, etc. Of course the routine will not overcome faulty programming and invalid line numbers are replaced by !!!!!! and listed on completion of the routine.

DEF KEYS
This is a really useful routine which gives you a kind of shorthand. After defining your basic key words -- you can have 12 in total. They are called by a letter and a stop. For example you could use
D. for DATA
I. for INPUT
R. for RETURN
I found this an extremely useful routine especially if you are entering lots of DATA lines or writing subroutines

TRACE
I rate this to be the best facility within TOOLKIT The routine is a great aid to debugging and is certainly a vast improvement on the TRON from Level 2. The program line numbers are shown just before execution and the whole line is displayed at the bottom of the screen. Careful selection of the TRACE speed is necessary otherwise the routine takes 'for ever' or switches before you have finished figuring out what the code is doing. It is important to remember to run the program or else the TRACE function does not operate.

BLANK
This is an ideal routine for removing all the redundant spaces from program lines and thus saving valuable memory and leading to greater speed of running. Of course the routine does not remove the spaces in PRINT and DATA

statements. An additional routine is at present being written for inclusion in the package, this will be KILL.This will take out all REM lines.An excellent idea if you believe in having two copies of your programs --- one a well structured and formated source version with lots of comments and a compressed version that is compact and fast to run.

VARIABLES
Again an excellent idea, which lists off every variable used in the program and the relevant line number. However due to the structure of the routine and BASIC itself the list of variables gives no indication of the variable type - A,A$,A%.It is worth noteing that the list of variables are listed in alphabetical order

FIND
This allows you find any variable, string or BASIC word, any word within the resident program. Thus the command GOSUB 5000 will display each line that contains the word.The routine worked well but it ran rather fast and you have to be pretty nimble with the shifted @ to halt the video scroll.It would be very useful to have output to the printer for the VARIABLES and the FIND routines.

APPEND
We are all aware of the fact that loading a program from cassette erases the resident program. Now with APPEND you can load a new program from cassette and retain the resident program.Of course the incoming program must have higher line numbers than the resident one.We found this very useful for amalgamating several subroutines into one program. Do remember that it works without any flashing asterisks.

SYSTEM MONITOR
This facility will be a boon to all those without an Assembler/Monitor.You can now delve into machine code.The facility has a very good clear display listing addresses in hexadecimal notation which is accessed after a hex prompt symbol asking for a 4 digit hex address.Sixteen addresses are shown on the screen at once - the preceeding one,the one being addressed and the next thirteen.Within the MONITOR you can take single steps backwards and forward through memory

SAVE
This enables you to prepare reliable copies of your machine code programs.The routine relies on the specification of start and end addresses.It is not necessary to have TOOLKIT resident to load the program later.It is also possible to modify start and entry addresses of programs with this facility.

It is PREMIER'S intention to upgrade the program with further facilities within the future. Such an upgrade is REMKILLER this has been already mentioned. Also planned are

VISIONLOAD which will show a program loading to the screen as it loads from cassette, and SEARCH AND REPLACE which will search out basic words or variables and change them as desired

PREMIER PUBLICATIONS have thus produced a product that will be of great interest to programmers. Within TOOLKIT you are provided with many facilities that are available elsewhere but they have been assembled together within a 2K program.It is being sold at present for $29.95 which represents good value, especially when you consider the separate cost of the routines within TOOLKIT.

SAVE/RESTORE SCREEN CONTENTS AND DATA IN STRINGS

Attached are some short routines for TRS-80 which may be of interest. The first allows the screen contents to be saved and restored, useful for creating graphical overlays or anywhere that a picture is created bit by bit and interlaced with keyboard interaction.

The other example is for storing small quantities of data wthout using a seperate data file. In the example, the date is stored within an ASCII string embedded in the program.

```
10        CLEAR 1200:DIM PI$(16),PJ$(16)
20        REM MAIN PROGRAM
'         '
'         '
'         '
64000     REM SAVE SCREEN
64010     '
64020     FOR IA%=0 TO 15:I%=VARPTR(PI%(IA%))
64030     POKE I%,IA% = 15 AND 63 OR IA% < 15 AND 64
64040     POKE I%+1,IA% * 64 AND 255:POKE I%+2,IA% / 4+60
64050     PJ$(IA$)=PI$(IA%):NEXT:RETURN
64060     '
64100     REM RESTORE DISPLAY
64110     FOR I%=0 TO 15:PRINT@I%*64,PJ$(I%); :NEXT:RETURN
```

```
10        REM STORE DATE STRING EXAMPLE
20        DT$="(NONE ENTERED)"
30        PRINT"LAST RUN WAS ON ";DT$:INPUT"DATE";K$:%=LEN(K$)
40        IFI%>14THENPRINT"TOO MANY CHARS. (MAX 14)":GOTO30
50        IB=0:AL=0:K$=K$+STRING$(14-%,32)
60        IA%=VARPTR(DT$)+1:IB=PEEK(IA%)+256*PEEK(IA%+1)
70        IA%=VARPTR(K$)+1:AL=PEEK(IA%)+256*PEEK(IA%+1)
80        FOR IA%=1TO14:POKE IB,PEEK(AL):AL=AL+1:IB=IB+1:NEXT
90        @SAVE"PROGRAM/BAS"
100       REM CONTINUATION OF PROGRAM
```

J. R. Keneally

DISK HANDLING TIPS

Here are a few useful lines to include in disk file handling routines:

```
100   ON ERROR GOTO 60000
60000 CLS:PRINT:PRINT"ERROR TYPE ";ERR/2+1;" OCURRED
      AT LINE ";ERL:RESUME 60010
60010 CLOSE:PRINT:PRINT"ALL FILES CLOSED":PRINT:END
```

Line 100 should be placed before the point at which errors may be expected. However, it must be placed after any <CLEAR> statement, otherwise it will have no effect. (there is no reference to this limitation in the user manuals.)

This routine is particularly useful when developing programs as it automatically closes all open files before any further action is undertaken. (and remember the havoc unclosed files can play with the directory!)

In closing let me again commend Tandy Coventry for an exceptionally high standard of customer service, courtesy and helpful advice.

Alan Farr,
42 Gresory Avenue,
Green Lane,
Coventry.

MICROPOLIS SPECIAL OFFER

As you are probably aware Sintrom Electronics are the main distributors for Micropolis 5¼" disc drives suitable for a wide range of microcomputers.

Due to a bulk purchase of Micropolis 143K formatted storage units we can offer them to dealers and clubs like yourselves at only £160.00 + VAT each or £135.00 + VAT each in quantities of 10. These units are configured either for S100 systems (including Sorcerer) or Tandy Systems and are complete with internal 240v PSU.

This offer is restricted to our present stock level, therefore we suggest that if you would like to take advantage of this low cost offer that you contact the undersigned as soon as possible.

Sintrom Electronics Ltd.,
Arkwright Road,
Reading, Berks.
Tel: (0734) 85464

Contact- Martin Whitaker

MODIFICATIONS TO NEWDOS 80'S DEBUG MONITOR

Having read Jerry Ozaniec's comments on Newdos 80, I was confirmed in my view that a serious limitation of the DEBUG monitor is its inability to copy blocks of code from one location to another. A fundamental requirement for any machine code programmer.
This article describes modifications I have made to the monitor to provide this facility.

Investigation of SYS5/SYS, the DEBUG module, shows it to have no spare room for extra functions; probably the reason no copy function was included.
Although it is possible to add the function externally to the module, it makes for a neater arrangement if it can be included. I decided that the 'mini-zap' functions L and W were expendable. These are convenient to use but do nothing which cannot be done by SUPERZAP. Copying is essential.
In the available space I wrote a Transfer (copy) function and had sufficient spare space to include a Block fill function. There are still seven bytes free. Any ideas?

The syntax of the transfer function is,

Tssss,eeee,dddd where ssss is the source start address
eeee is the source end address
dddd is the destination start addr.
all addresses are hex.

This copies the source block to the destination address forward or back in memory and will overwrite the source if this is required. It errors normally on incorrect syntax and will also error if ssss > eeee.

The syntax of the block fill function is,

Bssss,eeee,bb where ssss and eeee are as before
bb is the hex code of the fill byte

This fills the block ssss to eeee with the byte bb. Errors as before.
This function is useful for zeroing out unwanted blocks of code. (After having been Transferred perhaps).

The alteration requires zapping SYS5/SYS, sector 1, byte 8A onwards.
The undoctored module reads,

```
80  FF19 2263 403E 5818 59FE 4C20 0ECD A94E
90  AFCC 0D46 C8FE 06C8 C3B6 50FE 5720 2DCD
A0  A94E CD19 46CC 2346 2805 FE06 CC1F 4618
B0  E03A 6C43 0738 E1CD A850 7BCD 0D47 20D8
C0  CDA8 5043 CDAF 5050 2100 42C9 FE44 200A
```

This must be changed to,

```
80  FF19 2263 403E 5818 59FE 4320 13CD AB4E
90  DF38 0503 EDB0 1807 09EB 09EB 03ED B8C9
A0  FE46 2028 CDA8 4E03 7323 0B78 B120 F9C9
B0  0603 CD7A 50D5 10FA D1E1 C1C5 ED42 E5C1
C0  E1DA B650 C900 0000 0000 0000 FE44 200A
```

The extra functions will now be available whenever DEBUG is operating.

If you are reluctant to make these fairly extensive changes to NEWDOS 80, and wish to retain the "mini-zap" functions the code can be placed elsewhere in memory (where, is your problem) and patched in to DEBUG with a simple zap. This arrangement is probably suitable for those people who always use a lowercase driver. When the driver is loaded, ensure the following routine goes in with it. Just remember the code must be there whenever DEBUG is invoked.

The routine is located at F000 simply because that is where I wrote it. It may be relocated if the calls to the "parameters in" routine at F009 and F021 are changed.
Also ensure that the zap on SYS5 points at the start of the code.

Copy		Fill		Parameters in	
F000	FE52	F01C	FE42	F02D	0603
F002	CAF94D	F01E	C22B4E	F02F	CD7A50
F005	FE54	F021	CD2DF0	F032	D5
F007	2013	F024	03	F033	10FA
F009	CD2DF0	F025	73	F035	D1
F00C	DF	F026	23	F036	E1
F00D	3805	F027	0B	F037	C1
F00F	03	F028	78	F038	C5
F010	EDB0	F029	B1	F039	ED42
F012	1807	F02A	20F9	F03B	E5
F014	09	F02C	C9	F03C	C1
F015	EB			F03D	E1
F016	09			F03E	DAB650
F017	EB			F041	C9
F018	03				
F019	EDB8				
F01B	C9				

The patch required to ensure this code operates when DEBUG is in memory is,

SYS5/SYS, Sector 0, Byte F9
Change the FE 52 20 32
to C3 00 F0 00

The centre two bytes are of course, the code start address.

Finally I must just emphasise that this routine is suitable only for NEWDOS 80 DEBUG. The functions use subroutines from that programme.

One other point which may be of interest to someone. If you wish to change the rather stately memory mod. cursor, the cursor character byte can be found at 4F41 (BF, try 8F) and the flashing rate is at 4FBF (00, try 12).

Andrew Donald
6 St. Georges Road
Ilford
Essex

ACCESSING DATA LINES

I have written a program for "The estimating of installation of industrial pipework", which I have submitted to your library. Being a beginner at computer programming I sat and gave the problem much thought and after reading chapter after chapterfrom book after book it looked as if the best method would be to use arrays. On investigation I found that I would have to enter many lines of data statements just to build up my arrays. I thought that a much simpler way would to be able to access any given line of data at will, after a lot of experiment and failure I have finally managed to do so. This method might not be new to the experienced but as a beginner I had not come across it in my many hours of burning midnight oil. So for what its worth here is an extract from my program, just to demonstrate how I managed to access data statements:

```
90  CLS
200 Input "enter size of pipework you are estimating, in words"; B$
210 Data "point five inch", .8, .4, .3, .6, .9, 1, 1.2, 3, 4
220 Dta  "point seven five inch", 1.2, 3.4, 6.1, 2.9, 1, 3.2, 2, .4, .1
230 Data "one inch",   2, 1.9,1.2, .9, .6, .3, 2.3, 6.1, 4
240 Data "two inch",   .8, .4, .3, 1.4, 6.5, 9.4, 3, 1.1, .2
250 Restore
260 Read  "A$, A, B, C, D, E, F, G, H, I,
270 If A$ <> B$ go to 260
280 A1  =  A x 2
290 A2  =  B x .9
300 A3  =  C x .4
310 A4  =  D x 2.1
320 A5  =  E x 3
340 A6  =  F x 1
350 A7  =  G x 2.5
360 A8  =  H x 1.3
370 A9  =  I x 2.6
380 Z   =  A1 + A2 + A3 + A4 + A5 + A6 + A7 + A8 + A9
390 Print Z
```

I must say yet again that this is just a simple example of how I accessed the data. To fully understand why I used this method and not arrays, you will need to examine the original program.

J.T. Lowther

STRUCTURED PROGRAMMING IN LEVEL II BASIC

The statement

```
10 PRINT "Now is the time for all good TRS-80 users
         to come to the aid of BASIC."
```

is a complete Level II program. BASIC is undoubtedly the simplest and easiest-to-use programming language, yet it seems to be regarded by experts as primitive and quite unsuitable for 'structured programming'.

In the following program I have tried to show that Level II BASIC is surprisingly well suited to structured programming because (a) it allows long 'compound' statements, (b) the IF statement can have an ELSE clause, (c) multi-character variable names are allowed and (d) free use can be made of spaces and the line-feed character for program format:

```
10 'Program TAX CALCULATOR.
20 'This program calculates the tax due
30 'on a given taxable income.
40 '
50 DEFDBL A-Z
60 INPUT "TAXABLE INCOME"; INCOME
70 IF INCOME<11250 THEN
    TAX=INCOME*0.3
   ELSE
    IF INCOME<13250 GOSUB 1010
    ELSE
     IF INCOME<16750 GOSUB 1110
     ELSE
      IF INCOME<22250 GOSUB 1210
      ELSE
       IF INCOME<27750 GOSUB 1310
       ELSE
        GOSUB 1410
80 PRINT USING "TAX DUE: ##,###.##"; TAX
90 END
1000 '
1005 'Income band: 11,250-13,250 (2,000).
1010 TAX=3375+(INCOME-11250)*0.4
1020 RETURN
1100 '
1105 'Income band: 13,250-16,750 (3,500).
1110 TAX=4175+(INCOME-13250)*0.45
1120 RETURN
1200 '
1205 'Income band: 16,750-22,250 (5,500).
1210 TAX=5750+(INCOME-16750)*0.5
1220 RETURN
1300 '
1305 'Income band: 22,250-27,750 (5,500).
```

```
1310 TAX=8500+(INCOME-22250)*0.55
1320 RETURN
1400 '
1405 'Income band: 27,750-.
1410 TAX=11525+(INCOME-27750)*0.6
1420 RETURN
```

WHAT IS STRUCTURED PROGRAMMING?

Structured programming is a technique designed to make computer programs easy to write, easy to correct and easy to understand. This 'systematic' approach has three aspects:

1. PROGRAM DESIGN. The 'top-down' approach is now recognised as the best way to design a program. The program is divided into logically related sections or modules that can be dealt with independently. The essence of the top-down method is that the details of the modules are ignored until the entire design is completed.

2. PROGRAM STRUCTURE. Three essential elements are required to construct a program:

(i) Simple 'processing' statements such as assignment, input or output statements and calls to subroutines.

(ii) Decision structures, either the binary choice IF-THEN-ELSE statement of the form

```
100 IF condition THEN
      statement sequence
    ELSE
      statement sequence
```

or the multiple choice 'CASE' structure, which has the general form

```
CASE selector
  value: statement sequence
  value: statement sequence
  value: statement sequence
```

An example of the best method of coding this structure in Level II BASIC is

```
100 ON selector GOSUB
      1000,
      2000,
      3000
```

with 'selector' being restricted to an expression evaluating to an integer.

(iii) Loops. There are three types: the familiar FOR-NEXT loop

```
100 FOR index=initial TO final STEP increment
110   statement sequence
120 NEXT index
```

the WHILE loop and the REPEAT-UNTIL loop. The WHILE loop has the general form

```
WHILE condition
  statement sequence
```

The simplest way of coding this in Level II is

```
100 IF condition THEN
      statement sequence:
    GOTO 100
```

The REPEAT-UNTIL loop has the general form

```
REPEAT
  statement sequence
UNTIL condition
```

which can be coded in Level II as

```
100 statement sequence
110 IF NOT condition GOTO 100
```

The following subroutine includes an example of a WHILE loop (line 1100) which is part of a decision structure in a FOR-NEXT loop:

```
1000 '
1001 'INSERTION SORT routine.  The values
1002 'in array A are sorted into ascending
1003 'order from A(1) to A(N).
1004 '
1005 'Variable types.
1006 'A,T: integer, single precision,
1007 '     double precision or string.
1008 'J,K,N: integer.
1009 '
1010 FOR J=1 TO N-1
1020   IF A(J)>A(J+1) THEN
         T=A(J+1):K=J:
         GOSUB 1100:
         A(K+1)=T
1030 NEXT
1040 RETURN
1100 IF K>=1 AND A(K)>T THEN
       A(K+1)=A(K):
       K=K-1:
     GOTO 1100
```

```
1110 RETURN
```

The GOTO statement is a non-essential element in program structure (except when it is used to implement the WHILE loop and REPEAT-UNTIL loop in BASIC). The excessive use of the GOTO makes programs very difficult to understand. However, it can be used occasionally when the GOTO is the simplest method of branching to a section of nearby code within a module.

3. PROGRAM FORMAT. The program listing is made easy to read and understand if it is well formatted. The layout of a program can be a matter of individual taste but the following guidelines may be found useful:

(i) Use a space to separate BASIC key-words, variables and constants not otherwise separated. Use a blank REMark statement as a spacer between modules.

(ii) Indent the statements in a decision structure or loop, and use the line-feed character (down arrow key) to format long compound statements.

(iii) Use meaningful variable names. Only the first two characters are recognised by Level II BASIC but this is no reason to restrict the length of names.

(iv) Assign program line numbers in a systematic way. For example, reserve line numbers less than 1000 for the main program and start subroutines using line numbers that are multiples of 1000.

(v) Include REMark statements where appropriate; particularly at the beginning of logically releated sections of the program.

CONCLUSION

Writers like Graham Beech in 'Successful Software for Small Computers' (Sigma Technical Press) have suggested that programs should be developed using a structured 'pseudo code' which is then translated into a subset of Level II which conforms to the proposed ANSI standard for minimal BASIC.

I believe that well structured programs can be written in Level II BASIC directly. For example, here is the Level II coding of the program from Beech's book which solves quadratic equations. The minimal BASIC version in the book has no less than 12 GOTO's. This version has none!

```
10 CLS
20 PRINT "** PROGRAM TO SOLVE QUADRATIC EQUATIONS **"
30 PRINT
```

```
40 PRINT "  THIS PROGRAM CALCULATES THE REAL ROOTS"
50 PRINT "  OF:  AX[2+BX+C=0"
60 PRINT
70 INPUT "VALUES OF A,B,C"; A,B,C
80 IF A=0 THEN
     IF B<>0 THEN
       PRINT "LINEAR EQUATION: X="; -C/B
     ELSE
       PRINT "SINGLE, INFINITE ROOT."
   ELSE
     IF B*B>4*A*C THEN
       GOSUB 1010
     ELSE
       PRINT "NO REAL SOLUTIONS."
90 END
1000 '
1010 S=SQRT(B*B-4*A*C)
1020 IF B>=0 THEN
       X1=(-B+S)/(2*A)
     ELSE
       X1=(-B-S)/(2*A)
1030 IF X1=0 THEN
       PRINT "X1 IS 0 AND X2 IS INFINITE."
     ELSE
       X2=C/(A*X1):
       PRINT "ROOTS ARE: "; X1; " AND "; X2
1040 RETURN  .
```

Users prepared to accept the increased machine dependence may like to consider abandoning minimal BASIC and writing code which exploits the many powerful features of Level II.

John Couch

An ODD EFFECT with TRS-80 ?

On two occasions (and two only), I have experienced a bizarre effect which may interest members. On printing out an article, I found that one word had a missing letter, although quite clearly it was present on the VDU. On the second occasion, it was "The" which printed out (annoyingly) as "Te" (with no gap between the "T" and the "e". I over-typed it, repeating the "The": no effect on the print-out. I moved the word a few spaces to the right, thinking that it might be a dud spot in RAM. The same occurred. I then interposed a full line, hoping to shift it well away from the particular area of RAM. Again, no remedy. This seemed interesting, so I looked up the programme on the disc using "ZAP" in NEWDOS and found that in place of 54 68 65 (corresponding to "The") there was 54 E8 65. I altered the E8 to 68 and returned to SCRIPT and found that it now printed out correctly.

Why was there no gap between the "T" and the "e" in the print-out corresponding to the E8 ? And why did not my over-typing with "The" replace the E8 by 68 ? And why, if there was E8 present did the "The" appear correctly on the VDU ? Puzzling !

Bill Cowhig

FIRMWARE FOR THE TRS-80/VIDEO GENIE

A couple of Video Genie users recently asked me to put one of the monitor programs into EPROM (eraseable programmable read-only memory) for them.

They supplied me with the program on cassette. Using MON3 I read their program into RAM, relocated it to the location where they wanted it to reside, and burned it into two pairs of 2716 EPROMs. They had mounted a small adaptor board inside their systems, carrying a couple of 24 pin sockets and some address decoding circuitry. The EPROMs merely plugged into the two sockets. They then had merely to JUMP to the address of the first EPROM using SYSTEM to be instantly into the monitor program.

Unfortunately, our first try was not too successful, as the monitor appeared to need to run in RAM and not all the functions would work properly when in EPROM. What we did was to attach a small block move program to the start of the monitor, which moved it back into RAM when it was activated using SYSTEM, from where it executed. All the functions then worked satisfactorily.

2716 EPROMs have just dropped again in price - I can now get them for £2.67 each - so this approach to instant program loading might be of interest to other members.

Leon Heller

LOW-COST MEMORY

Midwich Computer Company are currently selling 4116 16K dynamic RAMs suitable for TRS-80/Genie use at $1.20 each (plus VAT). In fact, at the recent Computer Faire at the North London Poly. they were doing a special offer at .99p each. That might be their normal price by the time you read this!

They also sell 2716 and 2732 EPROMs very much cheaper than anyone else. I picked up some 2716s for £2.67 each.

The address is:-

Midwich Computer Co. Ltd.,
Hewitt House,
Northgate Street,
Bury St. Edmunds,
Suffolk IP33 1HQ
Tel: (0284) 701321

You can pay by Access/Barclaycard.

Leon Heller

SOFTWARE FOR EDUCATION

An educational users group.
A call for action.

In view of recent correspondence in one Newsletter it seems that some action in certain areas is necessary if we are to make progress.

A. A register of all TRS users in Education, to include schools and colleges.

B. A register of all TRS users who use their computers at home with their children for educational activities.

C. The production of a catalogue of "home designed" software. This would be a compiled listing of all programs designed by schools, members, and their friends.

D. Establishment of an Educational Software Library.

E. A group of members willing to recommend good commercial software.

I am more than willing to co-ordinate all the above activities as part of an Educational Users Group within the National TRS-80 Users Group.

Do write to me if you are interested or come within the brief of A to E.

Already under way is the establishment of a small group of TRS-80 users who are busy adapting programs from PET, Apple or RM380Z for one TRS-80. Do offer to join this group if you have any skills to offer.

I look forward to hearing from you.

At present I have contact with schools using TRS-80s in London and Bristol, so you could join this group.

David J. Futcher,
Head Teacher,
Beaconsfield Combined First and Middle School,
Southall,
Middx.
Tel: 01-574 3506 (school)
01-743 5310 (home)

EXPERIMENTS with SCRIPSIT

To continue with my comments upon the use of the Daisy II line-printer, I have found the Superscript addition supplied by Harding to be very valuable and I am using it for this Note. The Daisy Wheel used now is the 'Courier' supplied with the machine. It can underline in the middle of a line, it can enter a special bracket [bracket] and also what is termed a 'brace' {brace}. It can also insert a caret ^, but I cannot imagine using this often!. These are all done with the use of the control key @ followed by a letter. A useful feature is that one can use Break followed by ?D0 or ?D1 or ?D2 to give the Directory of the disks in the various drives. It can also KILL any desired file, so making Scripsit more independant without having to go back to DOS. Boldface works reasonably well although it is commented that it is not so effective with the DAISY II as it is with some other printers. The superscript enable formula to be printed:

$$x^2 + y^2 = \log_e z$$

There are various other features, as well as some which are not described in the Manual! For example, if one uses Control C (Control or the key marked @) plus A, one gets a carriage return, C plus H gives a one-space left shift, C plus I gives large characters on the screen. The disappointing deficiency if that it will not provide the English pound sign. The patch provided by Tandy (given in the last Bulletin) does not help. I wrote to Wilkes of Acorn Software and had the reply given below - a further addition to Superscript is in the pipeline, and this will have many additions, but it will cost more. I was surprised that Wilkes could not provide a 'patch' to give the pound sign, so indispensible to English users of Superscript.

Bill Cowhig.

Mr. Cowhig:

The current version of SuperScript does not allow access to all the special characters on the Daisy Wheel II. However, the author is working on an expanded version in which he hopes to implement various new features, among them the character access on the Daisy Wheel II that you inquired about. He is also looking into proportional spacing although this is an extremely difficult and complex feature to implement. The

release date for the new version is planned for May. All registered owners of SuperScript will be notified and given the opportunity to update for a reasonable fee, which has not yet been determined. Hope that this is of some help to you. (P.S. There is no way to "zap" the current version.)

BASILDON/SOTON

Contact Head Office!
40A High Street
Stony Stratford
Milton Keynes

Tel: 0908 566660

BIRMINGHAM GROUP

Contact Mike Gibbons
1 New Street,
Castle Bromwich,
Birmingham, B36 0AP

Tel: 021-747-2260

CONVERSION OF EDUCATION PROGRAMME FOR TRS-80

Well, after my appeal in last month's TRS-80 Newsletter, we now appear to have a small group of three ready and willing to start translation.

The translators have been supplied with their first batch of programmes to work on. At the moment we are concentrating on PET and RM 3802 programmes.

Anyone with any listing of APPLE material do ring or write to me.

As soon as we have any conversion available I'll publish a list and set up a library, or send them to the Users Group Library.

If you missed my appeal last month, it is NOT too late to offer to help translate Educational programmes to run on TRS-80.

Do offer support to our machine.

DAVID J. FUTCHER,
HEAD TEACHER,
BEACONSFIELD FIRST AND MIDDLE SCHOOL,
BEACONSFIELD ROAD,
SOUTHALL,
MIDDLESEX.

Telephone No. 01-574-3506

BARROW IN FURNESS

Contact Jack Lowther
131 South Row
Roose, Barrow in Furness,
Cumbria.

Tel: 0229-34953 (Home)
-26214 (Business)

BLANDFORD FORUM

Contact Os House
Higher Shaftesbury Road,
Blandford Forum, Dorset, DT11 8SS

Tel: 0258-53737

BRIGHTON

Contact John Bedford
19B Rose Walk
Goring by Sea
West Sussex

BRIDGEND AREA

Contact Peter Chapman
36 Park Court Road
Bridgend, Mid-Glam.

Tel: 0656-3484

DATA ACQUISITION SYSTEM FOR THE TRS-80

Using the concept of a slave processor mentioned a couple of issues ago, I have developed a prototype SC/MP based data acquisition system that interfaces to the TRS-80 (or any other microcomputer) via a serial interface. The prototype slave can monitor eight channels of analogue information, and four digital inputs. When I install a more sophisticated ADC it will have 16 analogue inputs, and two eight-bit input/output ports which can be used for digital inputs or control purposes. I envisage one slave for every machine (such as a plastics extrusion machine) to be monitored/controlled.

I have decided to use the SC/MP microprocessor rather than the Z-80 because of its unique features such as an on-chip clock, serial ports, and low overall system cost. The prototype slave only uses a total of seven chips, and three of those comprise the ADC (a Ferranti DAC, National Semiconductor comparator and a CMOS analogue multiplexer) which is controlled by the SC/MP.

Any number of slaves can be connected to the master TRS-80 via a serial 'ring main' using tri-state RS-422 line drivers and receivers, although I have yet to work out the communication protocol details.

Since most of the intelligence can be in the master TRS-80, the slaves merely require some simple software for input/output and communications, which I am developing by writing in SC/MP Assembly Language, hand assembling and putting into EPROM using my TRS-80 and EPROM programmer. This approach is quite feasible with the SC/MP as it has a very simple instruction set. It would be easier with a cross-assembler running on the TRS-80, of course; does anyone have one written in BASIC or FORTRAN?

Leon Heller

FOR SALE

Softy intelligent EPROM programmer/development system complete with power supply and documentation (cost around £140 new) with software for downloading from TRS-80 if required. This is now surplus to requirements as I can use my TRS-80 for firmware development.
. . . £90.00 o.n.o.

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.
Tel: (0908) 613004

FLOPPY TAPE CORNER

A recent interchange of information between the Medical Subgroup and the Southall Group with us at Stony Stratford has highlighted a concurrent inherent incompatibility that is to say; the different User Groups are using filename extensions that seem to have no bearing on program type.

Nick Robinson has suggested that we use a moderately standard extension code so that information exchange can be effected without any subsequent misinterpretation. Some of the codes are already standard as a result of recent workshops and thus will not need explaining, the differences have arrisen due to the arrival of X-BAS and @ZEN and a number of command file utilities. It is therefore advisable that such a standard nomenclature be initiated.

The following are suggested formats that might be ddopted:

Basic program	/BAS or /
Basic program >42 secs	/ZAP
X-Basic program	/XBS
M/C object code	/SYS
M/C source code	/SOR
M/C X-BAS utility	/CMD
M/C X-BAS offset module	/LMD
M/C relocated directory	/REL
Pencil file	/TXT
Sequential data file	/SD
Random data file	/RD

N.B. M/C object code is normal M/C programs as loaded by the standard system tape command whilst source code is that produced by EDTASM or @ZEN before assembly.

The above list is the result of consultation with the other Floppy user groups and hopefully it will be used as such. If new extensions arise please notify us and we will put them in the newsletter and simillarly any alternative extensions are welcome but we are aiming for some degree of uniformity comparable to that of the disc users.

Microtek

It is becoming increasingly apparrent that the Microtek is suffering from a lack of input buferring on the address lines. This is making it very susceptible to distance from the CPU. If when using it in conjunction with the Aculab the unit is placed on the first tee-piece of the extension bus and the Aculab taken away from the second the system

should work. I have been using my 16K Microtek for at least 3 months now with no problems although initially problems had arisen due to the unit being incorrectly connected to a Video Genie. The resultant damage was to chips U23,U28 (LS14's) and to chip U27 (LS10's) and also to the output buffers U1 and U2 (LS125's). These chips were replaced at a total cost of $2.56 and since then no problems have arisen except that the Tandy microtest does not like the RAM being added in the opposite order to the expansion interface and comes up with memory faults on non-existant memory! At present the Aculab is running on an additional 18" extension in addition to the bus without any problems. One other minor modification was that the RAM from the Tandy was exchanged with that in the Microtek.

So bearing this information in mind the faults that have occurred may be due to any of these factors and thus can be checked out for little cost. One other area of contention is that the U.K. Tandy PSU gives a higher voltage output than the U.S. standard and this may be a contributory factor, however as my system is running on a U.K. PSU without trouble it does not seem likely.

Program hint.

Try running this program:

```
10 INPUT "A";A$
20 IF A$="A" THEN 50 ELSE 100
30 PRINT "LINE 30": END
50 PRINT "LINE 50": END
100 PRINT "LINE 100": END
```

Now remove the word THEN from line 20 but leaving a space and run again. Observe the result.

Now remove the space from line 20 and run again, observe the result.

You will find that in order for an IF THEN ELSE loop to work with an implied THEN a space must follow the closed quotes of the literal in question. This is a requirement of the Basic interpreter. So when you come to crush programs with X-BAS or another squash program make sure that you put your THENs in, you know it makes sense!

Patch for X-BAS CMD modules that won't fit into the 1K area.

POKE &4900, &C3 : POKE &4901, LSB : POKE &4902, MSB

LSB, MSB are the HEX address of the M/C routine to be patched. The CMD call will now call the routine as per X-BAS but remember you still have to memory protect the utility.

Bob James
Adrian Hancock

SAVING THE ACULAB DIRECTORY IN CASE OF DISASTER

ACULAB owners may find that if the the 3 sector directory at the front of each wafer is lost or will not load then normally the wafer contents will be unusable.

Alan Pound of Aculab Ltd. has pointed out that the Directory itself can be saved as an area of memory. This allows recovery of the wafer even with a corrupted front 3 sectors which will not @LIST or which is incorrect.

Immediately after a new wafer is formatted by @NEW proceed as follows:-

```
@LIST:@SAVE"DIR",3,17408
```

This sets a file named DIR as the first file on the wafer after the normal directory. It will therefore always start in the same place (relative sector No. 4).

Each Time another program is @SAVED on a wafer repeat the line

```
@LIST;@SAVE"DIR",3,17408
```

This will save the updated directory in DIR.

Should this wafer at any time not list then load another different wafer which also has a similar "DIR" file at the beginning an @LIST it. Now replace the faulty wafer in the drive but do NOT type @LIST, instead

```
@LOAD"DIR"
```

This will load the directory as saved in the DIR file into the normal directory location area. (4300h to 4800H). At this point the original normal wafer directory should be renewed.

Type:- `10 REM DUMMY LINE` ENTER

Then `@SAVE"DUMMY":@KILL"DUMMY"`

This will rewrite the front three wafer sectors which contain the normal directory as used in @LIST.

It is important that all the DIR files are in the same place on a wafer and have the same filenames. This is why I have standardised on having them first.

John Newgas.
1, Philip Court,
89, Hornsey Lane,
London, N.6.

MACHINE LANGUAGE COURSE

Dacorum College, Hemel Hempstead, want to run a Z-80 machine language programming course in the evening. Please contact the undersigned on Hemel Hempstead (0442) 52001 for further details.

John Gardener

PROGRAMMABLE SOUND GENERATOR BOARD

Assembled and tested Programmable Sound Generator boards using the G.I. AY-3-8910 chip are now available at £35.00 pounds for the TRS-80 and Video Genie. You only need to provide a suitable loudspeaker, and 5 volt power supply (not required for the Genie version) to be able to generate a wide range of fascinating sound effects under program control. A manual will be provided with details of some simple programs - Tune Player, Random Notes, Whistling Bomb, Gunshot, Laser, and Keyboard Organ.

EPROM PROGRAMMER

EPROM programmer boards suitable for programming single rail 2716 EPROMs are also available for the TRS-80 at £45.00 including comprehensive software allowing programming from an object code file prepared with the Editor/Assembler or an ASCII Hex file prepared with Scripsit or the Electric Pencil. A power supply delivering 5 volts and 25 volts is required. The board includes a Zero Insertion Force socket. Cassette-based software can be provided. If there is sufficient demand I will produce a Video Genie version.

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.

Please make cheques payable to LFH Associates Ltd.

REPORT ON WORKSHOP HELD AT GLOUCESTER 11TH APRIL 1981

10.30 John Christie - Add-ons.

Many members have now met John, Dale Jefferies and Eric Atkinson, the three high-resolution men who can do wonderful things with Dale's modification. Over the 45 minutes John took members through various experiences since starting wth his TRS-80. Essentially, the main modification John is concerned with is the high-resolution add-on which always attracts attention, especially when demonstrating graphs and diagrams. The display of the workings of an internal combustion engine was excellent and most certainly takes graphics away from games into the educational area - machine use - program use - lecture highlight - warning signals - remote VDU messages etc.

11.15 Leon Heller - Add-ons.

Leon went through a demonstration of:-
Programmable sound generator, slave low-cost micro for data acquisition and transmission to and from a remote master computer (TRS-80) and EPROM programming using the TRS-80. For those so inclined, why not a switchable Level II/III on existing Model I to extend the useful lives of Model I? This whole area is alive with possibilities and there is every chance of a low cost mother board for hobbyists to build from. eg RAM expansion, disk controller, printer/communications interface.

11.45 Jim Norris - Writing Files to disk

Jim is a local member and very competently covered all the essential features of this area of Basic. Many members have said " you cannot ask a manual a question ". The solution is simple :- give us a ring, come to a workshop or form your own subgroup. The essential feature of Jim's session was the in-depth knowledge brought to the attention of the members and especially during questions. Often questions can be awkward, but it was quite obvious Jim had the subject fully covered and would recall points to clarify an answer.

Lunch.

Much to the organiser's relief, this was sumptuous and not ruinous to the finances. We will return!!.

14:00 hrs Jim Norris.

Jim felt this session would be better with an actual problem, viz - how to write previously entered data lines into disc files to be read later for another purpose. This session generated a great deal of interest with most members contributing something, with Jim guiding all the time.

16:00 hrs Leon Heller.

Communications.

Leon introduced members to the hardware and software required plus ideas on designs by other members under development. The ST80 III (smart terminal) package was shown, using the groups large monitor with video only. Once explained the Hotel's room telephone was connected to the accoustic coupler and immediately we were connected to my system in Milton Keynes. Once members had seen this hook-up work, the questions flowed and the imaginations fired. The developments are going to be in lower cost modems 48K/16K and interfaces. The software available seems quite excellent with ST80 III highly thought of. However Term from Tandy does work to encourage newcomers, and apparently the communications package is excellent value.

Once again there was no panel, as everybody was quite shattered from their day - glued to systems or concentrating on lectures. As the hotel was quite superb, we will return in September again next year.

BRIAN MAY.

HULL

Contact Frederick Brown,
421 Endike Lane, Hull.

Tel: 0482-859169

Meetings - Newsletter

GLOUCESTER

THREE COUNTIES TRS80-USERS GROUP
Contact John Christie,
10 The Pramleys
Long Hope
Gloucester, GL17 9QP

ISLE OF WIGHT

Contact M. Collins,
3 Altofts Gardens,
Ventnor 85 2008

Meetings - Newsletter

EDUCATIONAL SUB-GROUP

Contact Dave Futcher
Beaconsfield First & Middle School,
Beaconsfield Road
Southall, Middlesex.

Tel: 01-574-3506 (School)
01-743-5310 (Home)

IPSWICH

Contact Geoff Jackson
40 Westgate, Ipswich.

Tel 0473-218855

COLCHESTER

Contact Roy Smith
8 Mallard close,
Layer-De-La-Haye,
Colchester, Essex.

Tel: Layer 442

EDINBURGH GROUP

Contact J. Johnson

6 Allen Park, Kirkliston,
Edinburgh, EH29 9HA.

Tel: 031-3332411

GLASGOW AREA

Contact Jim McPherson

Tel: Uddingston 4813717
or 4812797

MORE ON 23

CHELMSFORD

Contact Antoinette Dean,
22 Roughtons Galleywood,
Chelmsford, Essex.

BRISTOL

Contact Roger Bamkin
19 Wood Street
Eastville
Bristol

APPLICATIONS SOFTWARE
for
TRS-80 MODEL 11

The real value of any Microcomputer System lies in its ability to perform novel and useful functions, and the TRS-80 MODEL 11 is an ideal machine for a wide range of business and professional applications.

THE MODEL 11 CAN PERFORM AS WELL AS A MINI-COMPUTER AT 5 TIMES THE PRICE - WITH PROFESSIONAL APPLICATIONS SOFTWARE

OUR APPLICATIONS SYSTEMS HAVE THE FOLLOWING FEATURES:-

DESIGNED FOR YOUR SPECIFIC NEEDS
USER FRIENDLY PRESENTATION FOR USE BY NON-SPECIALIST STAFF
FULL SUPPORT AFTER INSTALLATION
FULL STAFF TRAINING AND DOCUMENTATION
FIXED PRICE PROJECTS
NO CHARGE FOR INITIAL PROJECT ASESSMENTS

If you have a MODEL 11 or are thinking of purchasing one then why not contact us for further details.....

P.J.NORRIS COMPUTER APPLICATIONS
ROCHESTER HOUSE,
CANON FROME,
LEDBURY,
HEREFORD.

PHONE: TRUMPET (053-183)428

NORTH EAST LONDON '80' USERS GROUP,
P.O. BOX 71,
Chingford,
London E4 7QX.

Contact Alan Greenhalgh

LONDON (SOUTH WEST)

Contact Ron Everitt
2A Longdown Lane North,
Ewell, Surrey.

Tel: 01-394-2123

YORK GROUP

YORK COMPUTER CLUB
Contact G. Wilson
1 Grangle Close,
Skelton,
York, YO3 6YR

Meetings - Mondays (Holgate WMC, New Lane, Acomb, York)

MERSEYDIDE MICROCOMPUTER GROUP

TRS-80/VIDEO-GENIE SPECIAL INTEREST GROUP
Contact Peter Tootill

Tel: 051-9227260 ext. 250 or 211 (Work)
-2209733 (Home)

SWINDON GROUP

Contact Bob Sparling
The Ridgeway,
51 Station Road, Chiseldon,
Nr Swindon, Wilts, SN4 0FW

MEDICAL SUB-GROUP

Contact Nick Robinson,
The Residences,
Northwick Park Hospital,
Watford Rd., Harrow,
Middlesex HA1 3UJ.

OXFORDSHIRE

Contact Steve Bird
139 The Moors,
Kidlington,
Oxford, OX5 2AF

Tel: 08675-6703

Meetings - Newsletter

LONDON (WEST)

John Carne
14 Lyncroft Gardens,
Ealing W13 9PO

Tel: 01- 567 - 7873 (Home)
01- 993 - 1462 (Work)

NUNEATON

Contact Fred Challenor
40 Whoberley Ave.,
Coventry CV5 8EP.

LONDON (NORTH)

Contact John Wellsman
292 Caledonian Road,
London N1.

Tel: 01-607-0157

Meetings - Newsletter

NORTH WEST GROUP

Contact Melvyn Franklin
40 Comlees, Westhoughton,
Bolton, BL5 3EG

Tel: 0942-812843

Meetings - Newsletter

LEEDS

TRS-80 GROUP
Contact John Jowitt
Kings Edward Crescent, Horsforth,
Leeds. Tel: 0532-581734
or
Contact Evan Jones
Braside, Newlaywood Ave.,
Horsforth
Tel: 0532-586314

Meetings

MIDLANDS (EAST)

Contact Mike Costello
17 Langbank Avenue
Rise Park,
Nottingham, NG5 5BU

Newsletter

ALBION SOFTWARE

LAMMAS ROAD,
LONDON, E10 7QT.

Telephone 01-539-7071/2/3/4

Telex 27950 Quote Ref 3635 Dly
Answerback: MONREF G

DUPLITAPE

A copy program which can copy any length program or data-file from tape to tape. Duplitape will run on a computer with 4K of RA.M. , but will copy any length of program including Adventures, Machine Code & Protected Tapes. Duplitape is not a simple copy program but is designed to alter and reposition tape pulses so that difficult tapes will load easily. It requires two cassette recorders.

CHAIN-LINK

This program allows long BASIC programs to be split up so that they will run in a small memory machine. It allows variables including strings to be passed from one program to another. It has a built in MERGE for BASIC programs, and allows two BASIC programs to be kept separate in memory if needed. (16K L II)

THE WIZARD'S CASTLE.

A fantasy adventure with graphic maps. The objective is to find treasures in a 500 room castle. The castle has monsters which have to be fought together with other hazards. Every time the program is run the castle will be different. Magic spells can also be used by some characters. Suitable for all Dwarves, Elves, Hobbits and Humans . (16K L II)

ACULAB DATA-BASE

A general purpose data base to run with an Aculab Floppy Tape under Extended BASIC (which must be obtained from Aculab Ltd.) The use of the P.I.M.S. manual by SCELBI Publications is reccomended. Functions supported include Help Command; Arithmetic; Searching; Sorting; Listing; Printer output if required; Printing of 5-line address labels; Commas are allowed in the text lines. As this is intended for present owners of PIMS the instructions are only briefly summarised except for new commands and general operating procedures.(16+ K L II)

PROFESSIONALS HELP-MATE

This will be available in late May. This program will take a number of time sheets from clerks showing the time spent for each client, and produce sheets for each client showing what work has been done for them. HELP-MATE will also be able to price the hourly rates for each clerk. No serial numbers are used, all input being done by name of the client or clerk.
No price has been fixed for this yet.

ALL THESE PROGRAMS ARE SUPPLIED ON CASSETTE AT £9-50 EACH. THEY ARE NOT DISK COMPATIBLE AND WILL ONLY RUN FROM CASSETTE,

PLEASE STATE WHETHER YOU REQUIRE TRS-80 OR VIDEO-GENIE VERSIONS FOR DUPLITAPE.

INNOVATIVE
TRS-80 SOFTWARE
FROM THE PROFESSIONALS



We are pleased to be able to announce the commencement of a new series of Adventure games. The series named "Mysterious Adventures" is written in machine language by B. Howarth, an English author. The first episode is entitled "The Golden Baton". The scenario is that you have been sent by the ruler of your own land to a strange province with the mission of discovering the whereabouts of the legendary Golden Baton of Ferrenuil, King of the Ancient Elf Kingdom. The baton mysteriously disappeared several years ago and whilst others have ventured to the land in an attempt to discover it, none have returned to tell their tale!

The program follows what has become the normal structure for Adventure programs. Like the original main frame Adventure, directions can be designated by just the first letter of the compass point and commands may be optionally entered with just the first three letters of the appropriate word. As usual provision is made for saving the game at any stage and such standard commands as Help, Inventory, Score and Quit are all available. Experienced adventurers will inevitably draw comparisons between this series and that of Scott Adams, so we will leave it to them to make their judgements! The only comment that we will make at this time is that we find it quite invigorating to play an Adventure game by a different author as obviously they construct their stories slightly differently. Mysterious Adventure 1, "The Golden Baton" is available on cassette for TRS-80 or Video Genie machines of 16K or more and on disk for 32K up machines. It occupies a full 16K. The tape versions save their game to tape and the disk to disk.

Tape version .....£8.75 **Disk version** £11.00

Both prices **plus** VAT and 75p P. & P.

TRS-80 & VIDEO GENIE SOFTWARE CATALOGUE £1.00 [**refundable**] plus 50p postage.

A.J.HARDING (MOLIMERX)

MOLIMERX LTD.

1 BUCKHURST ROAD & 28 COLLINGTON AVENUE,

BEXHILL-ON-SEA, EAST SUSSEX.

TEL: [0424] 220391 **TELEX 86736 SOTEX G**

LATE copy.

Quickprinter II for sale, almost new, complete with cables to interface to keyboard directly or to expansion interface. £100.00 ono.

ICL Termiprinter for sale, full width sprocket feed 119 characters per line, to interface to serial port on expansion interface, with necessary software if required to allow LLIST and LPRINT functions. Includes own keyboard allowing use as terminal. Offers invited.

For either of the above items Telephone Tenbury Wells (Worcs) 0584 810015.

Yours sincerely,

Brian J. Tongue.

RE MEMBERS ETC - FROM JOHN WELLSMAN - LONDON

Thank you for sending me the membership forms. I am sure you agree that in order that the information that they contain should be of use, the enquiries should be of a standard form which makes sure that we get exactly the information that is required, no more and no less. Too much information simply makes the overall picture difficult to assimilate. I therefore suggest that members are asked whether they have:-

1. A Model II,III, or I
2. Whether they use for storage, disks, floppy tape, or standard cassettes.
3. Whether they have a letter quality printer, a dot-matrix printer or a thermal printer.
4. Whether they are professionals, business users or amateurs.
5. What their special interests (if any) are. For example, Medical, Games, Statistical, Accounts & Finance, Mathematical Problems, Hardware, and so on.

Members should be asked to mark only one item in each of the first four groups which would "force" them to indicate their highest level. With regard to the fifth group, it would probably be better to include a number of likely "prompts", as I have done above again to enforce ease of collation and possibly to promote groups of like interest.

In the address-file that I have made, I have allowed for four integers, to provide for the inclusion of as much information about members' interests as we are ever likely to want. Very few of the membership forms that you sent me give the right information, but the data can be added later. I would be most interested in your comments.

The medical sub-group has its own library, ring Nick Robinson for info.

MAGNUS MICROCOMPUTORS
CONSULTANCY SALES
INSTALLATION TUTORING
PROGRAMMING

139 THE MOORS,
KIDLINGTON,
OXFORD. OX5 2AF
Telephone: 08675 6703

Please Phone First
Mon - Fri 7 A.M. to 7 P.M.*
Sat 8 A.M. to Noon
Sun 2 P.M. to 6 P.M.

*5PM TUES

Description	RRP Excl. V.A.T.	Retail Excl. V.A.T.	Mail Order Excl. V.A.T.	Retail Includes V.A.T.	Mail Order Includes V.A.T.	NOTES:-
Video Genie 16K RAM	£325.00	£275.00	£285.00	£316.25	£327.75	DOWN +
Expansion For V.G. W/O	£195.00	£160.00	£165.00	£184.00	£189.75	DOWN
16K Ram Board for V.G.	£100.00	£ 87.00	£ 90.00	£100.05	£103.50	
EG 100 Monitor	£ 70.00	£ 61.00	£ 70.00	£ 70.15	£ 80.50	DOWN
9" B&W Monitor(Metal)	£ 85.00	£ 77.00	£ 85.00	£ 88.55	£ 97.75	DOWN
9" GREEN	£ 95.00	£ 85.00	£ 93.00	£ 97.75	£106.95	DOWN
C12 Cassettes QTY Each	£ 0.50	£ 0.42	£ N.A.	£ 0.48	£ N.A.	DOWN +
QTY 10	£ 5.00	£ 3.75	£ 5.50	£ 4.31	£ 6.33	DOWN +
QTY 50	£ 25.00	£ 18.00	£ 25.00	£ 20.70	£ 28.75	DOWN +
4116 Dynamic RAM QTY 8	£ 70.00	£ 12.50	£ 13.00	£ 14.38	£ 14.95	DOWN
Single 40 Track Drive	£236.00	£217.39	£227.83	£250.00	£262.00	
DUAL 40	£440.00	£391.30	£413.04	£450.00	£475.00	
Single 80	£315.00	£286.96	£297.39	£330.00	£342.00	
DUAL 80	£595.00	£539.13	£560.87	£620.00	£645.00	
Percom Data Seperator	£ 20.00	£ 19.13	£ 20.87	£ 22.00	£ 24.00	NEW
PRINTERS - PRINTERS - PRINTERS - PRINTERS - PRINTERS - PRINTERS - PRINTERS						
Microline 80	£325.00	£299.00	£310.00	£343.85	£356.50	DOWN
Microline 83	£900.00	£749.00	£780.00	£861.35	£897.00	NEW
Centronics 737-2	£425.00	£345.00	£365.00	£396.75	£419.75	DOWN
Epson MX-80	£395.00	£340.00	£360.00	£391.00	£414.00	DOWN
Epson MX-80 FT	£450.00	£391.30	£430.00	£450.00	£494.50	NEW
NEC Spinwriter	£????.??	£1380.00	£1450.00	£1587.00	£1667.50	
MODEL III Level III 16K	£608.70	£559.00	£590.00	£642.85	£678.50	
MODEL III Level III 48K	£686.96	£589.00	£620.00	£677.35	£713.00	DOWN

Delivery 4to6 WEEKS From Date of Order -

WE ARE NOW DEALERS FOR TANTEL - The Only P.O. Approved Prestel Adapter - The Price Is £165.00 + V.A.T. =£189.75 - Order Now - DUE to high demand the adapter is in short supply, and we will be only receiving a small quantity every month! (IN STOCK NOW)

WE Sell GMTC & PHONE-MATE P.O. Approved ANSWERING MACHINES - Phone or Write for latest prices.....

we welcome Barclaycard

VISA

ALL CHEQUES TO :- MAGNUS MICROCOMPUTERS

For CHIPS , COMPONENTS , INTERFACES , BOOKS & C.B. Accessories Contact :-
MAGNUS ELECTRONICS , 139 The Moors, Kidlington, Oxford, OX5 2AF.

Business systems FROM £1700.00 + V.A.T.
(48K Computer , Dual Disk Drives , Printer, NEWDOS 80 & VisiCalc)
Business Software EXTRA (From £100 per program)

Business Regn. No. 2611081 Stephen C. Bird Proprietor
V.A.T. Regn. No. 348 3299 26 Girobank Account No. 29 344 4005

TERMS :-
NOTES :- ALL [illegible] H WITH ORDER (C.W.O.)
+ = IN STOCK
VISA
+ ACCESS TREATED AS CASH ON RECEIPT THEREFORE ADD 4%
[illegible] RECEIPT CAN BE [illegible] GED@4% EXTRA

Access

National TRS-80 Users Group

Newsletter

VOLUME 2 ISSUE 11 MAY 1981

CONTENTS

2. Editorial
3. Members' letters
8. Fast conversion of text files to lower case
11. Modifying Scripsit for the Epson MX-80 printer
15. Testing a "home-brew" modem
15. PCR-81 patch and Genie sound box
16. An easy way to do those NEWDOS/80 zaps
18. Probability function
19. Software review - more programs for primary schools
20. News from Nottingham
22. Saving the video display to Floppy Tape
24. Amendment to renumbering program
25. The MX-80 printer
26. Checking the speed of an Aculab Floppy Tape
27. Initialising print parameters with the MX-80
28. Software review - BMON
30. The ultimate (?) low-cost serial interface
31. Storage for Floppy Tape wafers
32. SPACEV/CMD
36. More NEWDOS/80 DEBUG mods
38. Manchester Workshop - 2nd May 1981
39. Sub-Groups

EDITORIAL

I have had so many contributions to the Newsletter in the last couple of weeks that several have had to be held over until the next issue. My thanks to everyone for the excellent standard of the articles and letters you have been sending me recently.

I think that Howard Wright's suggestion that we have a specific section devoted to Members' queries is a good one. One problem as far as I am concerned is that queries are often 'buried' in a long article or letter and I just do not have the time to extract and publish them in a separate section. If items for the 'problem corner' are sent in separately I will publish such a section.

I also like the idea of a panel of experts to answer questions on specific problems. Would anyone willing to serve in such a capacity please let me know, together with their area(s) of expertise.

It seems to be ages since I prepared a cumulative index of articles in the Newsletter. I do not really have the time to do another one myself, but will of course publish such an index if anyone else would care to do it!

Leon Heller

Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.

Tel: (0908) 613004

Publisher:-

Brian Pain,
40A High Street,
Stony Stratford,
Milton Keynes.

Tel: (0908) 566660/
564271

MEMBERS' LETTERS

From I. Howard Wright

One theme which crops up regularly in the Newsletter is the moan from beginners that it is slanted too much towards the expert, and that their problems are not dealt with adequately - without actually indicating what their problem is.

Contributors obviously write about what interests them, and so 'experts' tend to write about fairly high level problems, and we beginners, on the other hand feel we are so inexperienced that we cannot contribute anything, although we may well have tips that other beginners would find useful. You, as Editor, obviously have a very busy job just editing, and cannot be expected to answer all kinds of assorted questions, even though your knowledge seems to be encyclopaedic.

I suppose that almost all new members join because they think that membership will help them to improve their knowledge or technique in computing and, whatever their level of proficiency they expect to learn all sorts of tips,so, it seems to me, that one answer to the problem would be to start publishing, as regular features:-

1. Answers to specific questions. The Group has now reached such a size, I would imagine, that there must be quite a few members who are expert in a variety of aspects of systems and languages, and would be willing to help if approached directly. With a little prodding from yourself and Brian Pain it should be possible to set up a panel of experts who are prepared to answer problems in their own field. Special subjects could be BASIC, machine code, peeking and poking, printers, Floppy Tapes, disks, educational programs, etc., and you would just need to pass the query on to the right expert and then slot the reply into the next Newsletter. In fact, it might even be possible to persuade someone to act as a clearing house for queries. It is surprising how good a response the personal approach often gets, even when a call for volunteers falls on stony ground.

2. A list of topics on which members would like information. A regular list is quite likely to prod someone into writing the article he has been thinking about for a while, or, if the topic has been in the list for a few months, a direct request to someone may produce the desired result. Every edition of the Newsletter has a sprinkling of requests, but they just get left behind if no-one answers them at once.

The 80-US magazine is now available
From MKSS on an individual basis,
or subscription. Ring 0908-566660
or Contact Head Office.
40A [illegible] Street, Stony Stratford,
Milt[illegible]eynes, Bucks.

One thing which would help beginners of all stages (an expert in BASIC may be just a beginner in machine code or in using disks) would be for people who contribute a hint to say why it is useful. The reason may be self-evident to the author and other experienced people, but not necessarily clear to everyone. For instance, there have been several contributions describing how to disable the break key, but I just cannot imagine why anyone would want to do that. Perhaps if I understood that then a whole new range of possibilities would open up!

I would like to make one request, and that is for a guide to using PEEK and POKE which tells me what to do without going into technicalities of machine language. What I am really looking for, I suppose, is an idiot's guide to PEEK and POKE.

I have recently seen a couple of things in program which I cannot see in the manual and which seem to be quite useful in saving time and bytes:-

1. in an IF statement 'not equal to zero' can be implied. For instance, 'IF X GOTO 50' means 'go to line 50 if X is not equal to zero'. 'IF B THEN A=5' sets A to 5 if B is not equal to zero.

2. THEN can be replaced by a comma as shown in the following lines:-

```
10 M=12 : Y=12
20 IF Y=M,M=5
30 PRINT M
```

This produces the answer '5', but if Y is changed to any other number the answer is '12'. Does this actually save any bytes, or does it just save keying-in time?
I use a method of causing a program to pause which is simpler to programme than using INKEY$, and probably uses fewer bytes, but it does have the disadvantage of displaying the cursor. I write 'INPUT X' or 'INPUT X$'. Pressing 'enter' starts things going again.

I. Howard Wright,
17 Greygoran,
Sauchie,
Clackmannanshire,
FK10 3ET.

(* The reason why it sometimes desirable to disable the break key is to prevent an inexperienced user from dropping out of the program if the break key is accidentally pressed. He/she might then key in a number and delete or corrupt part of the program, with disastrous consequences. It can also make a program difficult to list or copy, if some other POKes are done. LFH *)

From Serge Six

I have recently been told of the User's Club's existence and its activities through a friend. He also lent me all the previous newsletters.

I found quite a few good tips.
I now have my TRS-80 16K L II for 9 months. Despite the fact that I don't have much free time and often weeks pass without having time at all to use my micro, I managed to convert some ideas in practical programs.

I would not like to use the 'Newsletter' free for ever and you will find enclosed my Access N° to join the group, and hopefully quite quickly one of the workshops as well.

I would like to make one suggestion.
I do agree that there is a lot of stuff for the mainly more experienced users (he, don't get all uptight again, I know your feelings, just let me finish !). I feel that this gets even worse in recent numbers.
I haven't yet got a printer or disk, neither do I like doing my own writing (don't have any experience). I do believe that writing problems for the beginners mainly rest in the fact that beginners don't know what and how to write (I would love to do so, but don't really know where to start), and that the experienced users don't really understand(any more)what the needs are.
Can I therefor suggest a practical solution ?
Would it be possible to open a real question/ answer section, in the Newsletter. Readers letters often have questions related to all of us, but printed answers only occasionally appear. Would people like Brian Pain, Nigel Dibben, Laurie Shields, yourself and the many other regulars feel they could answer some more of these questions ?
I think it would help us all a lot. I am sure that many of those questions are answered at the workshop but as said, I have never attended one yet and an answer in the 'Newsletter' would find a wider public.

To finish I give some details of today's main experience. In one of the very first letters, Nigel Dibben gives a list of Level II Basic Locations. I don't understand them all yet, but one particular item held my attention.
Loc 16548-59 = first program location and the comment was : changing this value will 'protect' the resident Basic programme.
Now, nearly 4 hours later, I have finally managed to work out in a simple way how to 'merge' two or more different programs or subroutines.

For any beginner interested :
"CLOAD" first program (with lowest linenumbers)
Then type (without line number)

```
POKE 16548,PEEK(16633)-2:POKE 16548,PEEK(16634)
```

and enter.

Now CLOAD next program (linenumbers have to be higher than previous programs). You can now repeat previous line if you want more programs to be merged.
Once they all are in memory, type :

```
POKE 16548,233 : POKE 16549,66
```

and you have your merged program.

Serge SIX
11 Allcroft Road
Reading RG1 5HJ

From John Miller

Here is a further (happier) chapter in the Microtek Memory/Printer saga which has been continuing over the last few months.

Being attracted by the price and not wanting all the Tandy Interface hardware since I have an Aculab, I commissioned a friend to buy one for me while he was in the States in Feb. Like most of the others, when it arrived, it didn't work properly. It would load and execute programs from tape well, but input from the keyboard gave missing characters and spurious SN errors together with reboots, just as others experienced. Being in the University, and wanting to use the device for teaching, I telexed Microtek about the problem, bearing in mind their unconditional year's warranty. I was given a return number for repair and "upgrade".

Weeks went by and still no sign of the unit. My Epson MX-80 printer had arrived and the time when I was due to use the whole system for teaching was getting close. I telexed them with a deadline, beyond which they were to keep the MT-32B and send me a refund.

As the deadline passed, assuming they would keep the unit, I was forced to buy a Tandy 16K interface. That took some time to arrive. Naturally, on the same day, the Microtek turned up!

Interestingly enough, the problem was mainly buffering as mentioned in the May Newsletter. Microtek have now provided a substantial PCB in a flat grey box which is an active buffered interface. A ribbon cable attaches this to the MT32B and another to the TRS-80. There is a small trailing lead with a socket for powering the buffer from the Microtek. The buffer also now has an edgecard bus expansion for a peripheral such as an Aculab, which saves the expense of a (noise-prone) interface expander. The upgrade also includes a modification to the power system, and in my case, two weak RAM chips were replaced. Incidentally, in my peek inside the malfunctioning unit, I noticed that the chips originated in El Salvador, which may say something about American foreign policy...

The good news is that the Microtek now works perfectly; I have tried it with the Aculab and it performs as well as the Tandy Interface - with the added bonus that you don't loose your BASIC program if you have to reset.

So, I now have one redundant but upgraded and brand-new 16K printer memory module on my hands. If any member is interested and would like to contact me in the evenings on 031-228-6823, I'd be happy to discuss advantageous terms!

Having mentioned the Epson printer, I must say how very pleased I am with it and with all its functions. It is very quiet in operation and is simple and easy to use. I understand from contacts who are also fans of this machine that there is an updated, large-format instruction book available to replace the one normally shipped. I have asked Epson UK for a copy. The existing manual is not bad, but it took some considerable time to work out all the decimal values of the codes to send the printer for all the different print settings. If anyone is interested in the Epson and wants to know more, then give me a ring.

Finally, not being able to get to the meetings, being up in the "nether regions", I'd like to give a hearty pat on the back to Alan Pound of Aculab and to Laurie Shields for two superb pieces of software, namely Aculab Extended Basic and Laurie's adaptation of Electric Pencil for the floppy tape. More than any other programs, these two have turned my TRS-80 into a real workhorse and realised the dreams I had when I launched out on the computer trail a few months ago.

43 Marchmont Crescent,
EDINBURGH EH9 1HF.

From Bertil Hagnell

I connected my TRS-80 to Forum-80 today. It worked very well. However I, and perhaps other members too, need more information about how to use Forum-80, 80-NET and other networks. I hope someone will write about it in the newsletter.

Is it possible to leave a message without a password? Is it possible to transfer programs? Odd/even parity, one/two stop bits, etc.?

I have just started The Swedish TRS-80 Club. We have 22 members at the moment. I hope we some day will have as good newsletter as yours. Any English member is of course wellcome to contact me. However our newsletter will be in Swedish.

Bertil Hagnell,
Tönsbergsgatan 3,
S-163 34 Spånga,
Sweden.

From H. Vizard

AS A NEW MEMBER (AND A BEGINNER) I WOULD BE GRATEFUL IF YOU OR ANOTHER MEMBER COULD COMMENT ON WHAT APPEARS TO BE A HARDWARE PROBLEM.
ABOUT SIX MONTHS AGO I BOUGHT A 16K LEVEL II MACHINE WITH CASSETTE AND VDU. I HAVE SUBSEQUENTLY HAD THE TANDY LOWER CASE MODIFICATION AND NOW HAVE AN EXPANSION INTERFACE (48K) AND AN OKI MATRIX PRINTER — DISCS TO FOLLOW ?
FROM TIME TO TIME THE MACHINE LOCKED UP WHILST PROCESSING DATA AND RUNNING A BASIC PROGRAM. ALSO EDITING IS NOT EFFECTED SOMETIMES. THE MOST RECENT EXAMPLE IS THAT THE " COULD NOT BE REPLACED WITH A 2.
THE LOCAL TANDY DEALER THOUGHT THAT THERE COULD BE SPIKES ON THE MAINS CAUSING SOME OR ALL OF THE PROBLEMS AND SUBSEQUENT TO HIM ROM TESTING THE CPU AND INTERFACE IN THE SHOP I ACQUIRED ON HIS ADVICE A MAINS SUPPRESSOR. THE RECENT EDITING PROBLEM OCCURED WHILST THIS WAS IN THE SYSTEM. DOES THIS INDICATE A HARDWARE OR OTHER TYPE PROBLEM?

H. Vizard,
14 Benbow Close,
Malvern Wells,
Worcestershire,
Tel: Malvern 5263

(* This looks to me like the dreaded contact problem with the expansion interface edge connector. Try cleaning the conductors with some contact cleaner like Electrolube, by rubbing hard with a tissue. It helps if you leave power on to the keybord andinterface at all times. Just turn off the video display. Has anyone else got any ideas? LFH *)

FAST CONVERSION OF TEXT FILES TO LOWER CASE

Some time ago I published a BASIC program of mine to convert upper-case text files to lower-case. Whilst this program worked quite satisfactorily (when a small bug had been corrected) it was extremely slow, taking several minutes to convert the average article submitted for inclusion in the Newsletter. I have therefore written a file conversion program in assembly language, which might be of interest to members, as it illustrates the ease with which you can make use of DOS routines for your own programs. This program runs extremely fast, in fact it takes longer to write the converted file to disk then it does to convert it! Since I wrote it in rather a hurry, it can no doubt be improved. For instance, no check is made as to whether the file is too large for available memory, and there is no provision for meaningful error messages.

The program is written for the Macro-80 Assembler, hence the ASEG pseudo op. at the beginning (which sets the location counter to an absolute memory segment). Macro-80 also likes colons after labels.

I have found from bitter experience that the best way to write assembly language programs is to write the whole program in modular form as a series of sub-routines. Each module can then be written and debugged independently of the other modules. Each module should only have one entry point and one exit point. Structured programming techniques like this are even more essential when using assembly language then when using one of the high-level languages, if only to preserve one's sanity.

```
;                    * * * CONVERT * * *
;
;A PROGRAM TO READ A  TEXT FILE INTO A RAM BUFFER, CONVERT
;IT TO LOWER CASE, AND WRITE IT BACK TO DISK
;
        ASEG
;
;ALL EQUATES HERE
;
START   EQU     7000H
CLS     EQU     1C9H
DSPLY   EQU     33H
KBRD    EQU     49H
LINPUT  EQU     40H
INIT    EQU     4420H
OPEN    EQU     4424H
CLOSE   EQU     4428H
READ    EQU     4436H
WRITE   EQU     4439H
```

```
DOS     EQU     402DH
LRL     EQU     1
;
        ORG     START
        LD      SP,START  ;INIT STACK POINTER
        CALL    CLS       ;CLEAR SCREEN
        LD      A,0EH     ;DISPLAY CURSOR
        CALL    DSPLY
        CALL    GETNAM    ;GET FILENAME INTO DCB
        CALL    RFILE     ;GET FILE INTO BUFFER
        CALL    CNVRT     ;CONVERT TO LOWER CASE
        CALL    GETNAM    ;GET NAME OF NEW FILE INTO DCB
        CALL    WFILE     ;WRITE FILE TO DISK
        CALL    DOS       ;RETURN TO DOS
;
;SUBROUTINES FROM NOW ON
;
;
;               * * * GETNAM * * *
;
;SUBROUTINE TO GET FILENAME AND PLACE IN DCB
GETNAM  EQU     $
        LD      HL,DCB    ;FILL DCB WITH SPACES (20H)
        LD      B,32
LOOP1:  LD      A,20H
        LD      (HL),A
        INC     HL
        DJNZ    LOOP1
        LD      HL,MSG1   ;DISPLAY MESSAGE
        CALL    PRINT
        LD      HL,DCB    ;GET FILENAME AND PLACE IN DCB
        LD      B,32
        CALL    LINPUT
        RET
;
;               * * * RFILE * * *
;
;READ FILE AND PLACE IN BUFFER
;
RFILE   EQU     $
        LD      HL,TEMP   ;OPEN FILE
        LD      DE,DCB
        LD      B,LRL
        CALL    OPEN
        JR      Z,OK1     ;CHECK FOR OPEN ERROR
        CALL    ERROR     ;
OK1:    LD      HL,BUFFER ;LOAD POINTER STORAGE
        LD      (PNTR),HL ;WITH START OF BUFFER
LOOP2:  LD      HL,UREC   ;READ LOGICAL RECORD - 1 BYTE
        LD      DE,DCB
        CALL    READ
        JR      Z,OK2     ;CHECK FOR READ ERROR
        CALL    ERROR     ;
OK2:    LD      A,(UREC)  ;GET BYTE INTO ACCUMULATOR
        LD      HL,(PNTR) ;GET CURRENT POINTER VALUE
```

```
        LD      (HL),A      ;STORE BYTE
        INC     HL          ;BUMP POINTER
        LD      (PNTR),HL   ;SAVE CURRENT POINTER
        OR      A           ;TEST FOR EOF (00)
        JR      Z,FIN1      ;
        JR      LOOP2       ;GET NEXT BYTE.
FIN1:   LD      DE,DCB
        CALL    CLOSE       ;CLOSE FILE
        RET
;
;               * * * CNVRT * * *
;
;ROUTINE TO CONVERT CONTENTS OF BUFFER
;
CNVRT   EQU     $
        LD      HL,BUFFER   ;POINT TO START OF BUFFER
LOOP3:  LD      A,(HL)      ;GET CHARACTER
        OR      A
        JR      Z,FIN2      ;FINISH IF EOF - 00 BYTE
        CP      'A'         ;CHECK FOR UC ALPHA - A-Z
        JP      M,CONT
        CP      'Z'+1
        JP      P,CONT
        ADD     A,20H       ;IF A-Z, THEN CONVERT
CONT:   LD      (HL),A      ;STORE CHARACTER
        CALL    DSPLY       ;DISPLAY IT
        INC     HL          ;BUMP POINTER
        JR      LOOP3       ;NEXT CHARACTER
FIN2:   RET
;
;               * * * WFILE * * *
;
;WRITE BUFFER CONTENTS TO DISK
;
WFILE   EQU     $
        LD      HL,TEMP     ;CREATE/OPEN FILE
        LD      DE,DCB
        LD      B,LRL
        CALL    INIT
        JR      Z,OK3       ;CREATE/OPEN OK?
        CALL    ERROR       ;NO, ERROR FOUND
OK3:    LD      HL,BUFFER   ;LOAD POINTER STORAGE WITH
        LD      (PNTR),HL   ;START OF BUFFER
LOOP4:  LD      HL,(PNTR)   ;POINT TO START OF BUFFER
        LD      A,(HL)      ;GET BYTE
        OR      A
        JR      Z,FIN3      ;FINISH IF EOF
        LD      (UREC),A    ;BYTE TO UREC
        INC     HL          ;BUMP POINTER
        LD      (PNTR),HL   ;SAVE POINTER
        LD      HL,UREC     ;WRITE BYTE TO DISK
        LD      DE,DCB
        CALL    WRITE
        JR      Z,OK4       ;CHECK FOR WRITE ERROR
        CALL    ERROR
```

```
OK4:    JR      LOOP4       ;GET NEXT BYTE IF OK
FIN3:   LD      DE,DCB      ;CLOSE FILE
        CALL    CLOSE
        RET
;
;               * * * ERROR * * *
;
;ERROR HANDLING ROUTINE
;
ERROR   EQU     $
        LD      HL,MSG2
        CALL    PRINT
        CALL    DOS
;
;               * * * PRINT * * *
;
PRINT   EQU     $
        LD      A,(HL)
        CP      '$'
        RET     Z
        CALL    DSPLY
        INC     HL
        JR      PRINT
;
;MESSAGE STORAGE
;
MSG1:   DB      0DH,'INPUT FILENAME: $'
MSG2:   DB      0DH,'DISK IO ERROR$'
;
;BUFFER AND TEMPORARY STORAGE
;
DCB:    DS    32
UREC:   DS    1
TEMP:   DS    256
PNTR:   DS    2
BUFFER  EQU   $
;
;
        END     START
```

Leon Heller

MODIFYING SCRIPSIT FOR THE EPSON MX-80 PRINTER

I AM SORRY THAT THIS HAS TAKEN ME SO LONG TO SEND BUT I HAVE BEEN IN THE THROES OF CHANGING JOBS AND THEREFORE A BIT DISORGANISED. YOU WILL ALSO FIND MY NEW ADDRESS ON THE FORM. AS YOU CAN SEE I HAVE RECENTLY GOT A PRINTER. IT IS AN EPSON MX-80 AND COST £295.00 PLUS VAT. IT IS STRICTLY PLUG IN AND GO WITH THE EXPANSION INTERFACE AND HAS THE OPTION OF A STANDARD SET OF CHARACTERS OR A SPECIAL SET USING TRS-80 GRAPHICS BLOCKS. AS WELL IT PRINTS PROPER POUNDS SIGNS AND WILL PRINT JAPANESE SYLLABARY SCRIPT. THESE VARIOUS OPTIONS ARE SWITCH SELECTABLE FROM INSIDE THE CASE.

IT IS ONLY TRACTOR FEED BUT THAT IS QUITE ADEQUATE FOR ANY APPLICATION WHERE THE PRINT QUALITY NEED NOT BE FANTASTIC. AS ONE OF THE USES THAT I HAVE FOR THE PRINTER WAS TO WRITE ARTICLES FOR PROFESSIONAL JOURNALS I HAVE ALSO BOUGHT SCRIPSIT. THIS SEEMS TO ME TO BE MUCH SUPERIOR TO ELECTRIC PENCIL BOTH IN OPERATION AND DOCUMENTATION.

HOWEVER I FOUND IT IRKSOME THAT THE PRINTER WAS CAPABLE OF DOING A VARIETY OF THINGS, SUCH AS DOUBLE SIZE AND CONDENSED PRINTING, WHICH I WAS UNABLE TO USE FROM SCRIPSIT. THIS PROMPTED ME TO DISASSEMBLE SCRIPSIT TO ADD SOME EXTRA COMMANDS.

I FOUND THIS A VERY USEFUL EXPERIENCE AS THIS IS THE FIRST BIT OF ASSEMBLY PROGRAMMING I HAVE DONE THAT IS OF ANY MORE THAN TRIVIAL INTEREST.POTENTIAL USERS NOTE:-
THE PATCH HAS BEEN ADDED TO WORK WHEN THE PRINTER IS SELECTED TO USE THE STANDARD CHARACTER SET, NOT THE SPECIAL TRS-80 SET. TO USE WITH TRS-80 SET YOU WILL HAVE TO REWRITE THE SECOND PART OF THE PATCH. ALSO THE NEW FORMAT INSTRUCTIONS ONLY WORK WHEN THEY ARE THE SOLE CONTENTS OF THE FORMAT LINE.
THE NEW FORMAT COMMANDS THAT I HAVE ADDED ARE:

PD : THIS CAUSES THE FOLLOWING LINE TO BE PRINTED IN DOUBLE SIZE CHARACTERS. IT IS CANCELLED BY THE PRINTING OPERATION AND THE SUBSEQUENT LINES ARE IN STANDARD SIZE PRINT UNLESS SET OTHERWISE. IT OPERATES AS 40 COLS PER LINE AND YOU NEED TO ADJUST YOUR MARGINS APPROPRIATELY BEFORE AND AFTER USING IT. I FIND IT BEST FOR HEADINGS.IT MUST IMMEDIATELY PRECEDE THE LINE WHERE IT IS TO WORK, NO BLANK LINES BETWEEN THE COMMAND AND THE TEXT.

THIS IS A HEADING

PC : THIS OPERATES UNTIL CANCELLED AND CAUSES CONDENSED PRINT. THIS IS IN 132 CHARS PER LINE MODE, SO THAT YOU WILL AGAIN NEED TO ADJUST MARGINS BEFORE AND AFTER USE. PC=Y TURNS IT ON AND PC=N TURNS IT OFF

IT PRODUCES PRINT WHICH LOOKS LIKE THIS. AS YOU CAN SEE THIS IS USEFUL WHEN YOU WISH TO FIT A LOT INTO THE PAGE AND ARE NOT TOO CONCERNED ABOUT HOW GOOD IT LOOKS AT THE END.

PE :THIS PRODUCES EMPHASISED PRINT AND ALSO OPERATES UNTIL CANCELLED. IT WORKS AT 80 CHARS PER LINE BUT AT ONLY 40 CHARS PER SECOND. THIS IS BECAUSE IT CAUSES THE CHARACTER TO BE STRUCK TWICE. IN COMBINATION WITH DOUBLE WIDTH IT GIVES NICE HEADINGS. PE=Y TURNS IT ON AND PE=N TURNS IT OFF.

THE PRINT LOOKS LIKE THIS AND IS, I THINK, OF QUITE GOOD QUALITY FOR MOST ORDINARY WORD PROCESSING APPLICATIONS.

PB : THIS PRODUCES BOLD PRINTING. IT SEEMS MOST USEFUL AS A SUBSTITUTE FOR ITALICS. IT WORKS BY PRINTING A LINE, ADVANCING THE PAPER 1/216 INCH (THAT IS 1/3 THE DISTANCE BETWEEN DOT WIRES) AND THEN PRINTING THE LINE AGAIN. PB=Y TURNS IT ON AND PB OR PB=N TURNS IT OFF

THE PRINT IT PRODUCES LOOKS LIKE THIS

FOR THOSE WHO MIGHT BE INTERESTED IN MODIFYING SCRIPSIT FOR THEIR OWN PRINTERS IT WORKS LIKE THIS. FOR EACH CHARACTER IN THE TEXT BUFFER (WHICH STARTS AT 7F62H) SCRIPSIT FIRST LOOKS TO SEE IF THOSE WHICH FOLLOW A TEXT BOUNDARY MARKER (END OF LINE PARAGRAPH OR PAGE) ARE >. IF IT IS AND IT IS NOT A REMARK LINE THE NEXT CHARACTER IS THEN TESTED BY THE ROUTINE AT 75ABH TO SEE IF IT IS AN ALLOWABLE FORMAT INSTRUCTION AND IF IT IS A JUMP IS CALCULATED BY 58F0H-590DH WHICH GOES TO THE APPROPRIATE PLACE.

I HAVE SHORT CIRCUITED THE ERROR JUMP AT 7771H. THIS IS THE END OF A ROUTINE AT 7761H WHICH TESTS THE SECOND CHARACTER OF FORMAT INSTRUSTIONS WHOSE FIRST CHARACTER IS 'P'. I HAVE THEN APPENDED TO THE MAIN SCRIPSIT PROGRAMME A ROUTINE WHICH TESTS FOR THE NEW CODES AND TAKES APPROPRIATE ACTION WITH THEM.

THE SIMPLEST WAY I FOUND TO DO THIS IS TO WRITE A SHORT ASSEMBLY PROGRAMME WHICH WILL DO BOTH THINGS AND THEN TACK THE OBJECT CODE ONTO SCRIPSIT. THE ENCLOSED IS A PRINTOUT OF THE ASSEMBLED PROGRAMME. I HOPE THAT IT IS SELF EXPLANATORY BUT THERE ARE A FEW POINTS TO NOTE. 'DE' CONTAINS A POINTER TO THE CURRENT CHARACTER IN THE TEXT BUFFER THUS YOU MUST UPDATE IT YOURSELF TO POINT TO THE CHARACTER YOU WANT TO TEST, AND MOST IMPORTANTLY, YOU MUST HAVE IT SET TO THE NEXT CHARACTER AFTER THE INSTRUCTION ON RETURNING TO SCRIPSIT.

THE EASIEST WAY TO ADD THE OBJECT CODE TO SCRIPSIT IS TO USE THE SUPERZAP COMMAND 'CDD'. WRITE THE OBJECT CODE TO DISK USING ANY FILENAME. THEN USE 'DFS' TO FIND THE TRACK AND TRACK RELATIVE SECTOR OF THE FILE RELATIVE SECTOR NO.0.THE OFFSET WITHIN THE SECTOR IS, OF COURSE 0H. NOW USE 'DFS' TO FIND OUT THE SAME INFORMATION FOR SCRIPSIT/UC, FILE RELATIVE SECTOR 29H. THE RELATIVE BYTE WITHIN THIS SECTOR IS 49H. NOW CALL SUPERZAP 'CDD' AND SUPPLY THE APPROPRIATE PARAMETERS. THE NUMBER OF BYTES TO BE COPIED IS 8DH.

FOR THOSE WHO WANT TO USE DEBUG OR THE 'MOD' MODE OF SUPERZAP THERE IS ALSO A PRINT OF THE APPROPRIATE SECTOR WITH THE POINT TO START FROM MARKED. NOTE THAT THE TERMINATING AND STARTING BYTES ARE THE PSEUDO-OPS THAT SET THE ORIGIN AND ENTRY POINTS. EG. 0202 0052 SAYS:02 THE PROGRAMME ENTRY, 02 IS IN THE NEXT TWO BYTES, AT 5200H.

I HOPE THAT THIS MIGHT BE OF USE TO SOME OTHERS. I HAVE NOT YET THOUGHT OF A WAY OF PUTTING THE INSTRUCTIONS IN THE MIDDLE OF A TEXT LINE. I WOULD BE GLAD TO HEAR FROM ANYONE WHO CAN.

```
                00010 ;***** EPSONMOD/V1 25/4/81 N.HENDEL *****
                00020 ; TO ADD FOUR NEW PRINT FORMAT COMMANDS TO
                00030 ;SCRIPSIT/UC. THE FIRST PATCH OVERWRITES THE
                00040 ;ERROR JUMP AT 7771H TO REROUTE THE ERROR TO
                00050 ;SECOND PATCH AT 7AA5H.
                00060 ;
                00070 ;
7771            00080           ORG     7771H
7771 C2A57A     00090           JP      NZ,7AA5H        ;START OF SECOND PATCH
                00100 ;
                00110 ;THIS PATCH TESTS FOR THE ADDED FORMAT
                00120 ;INSTRUCTIONS THAT START WITH A 'P'.
                00130 ;
7AA5            00140           ORG     7AA5H   ;THE END OF SCRIPSIT
7AA5 FE44       00150           CP      'D'     ;FOR DOUBLE SIZED
7AA7 C2B17A     00160           JP      NZ,COND ;IF NOT THEN CONDENSED
7AAA 3E0E       00170           LD      A,0EH   ;0E = SHIFT OUT
7AAC CD1B7B     00180           CALL    PRINT
7AAF 13         00190           INC     DE      ;POINT TO THE NEXT TEXT CHARACTER
7AB0 C9         00200           RET             ;TO SCRIPSIT/UC
                00210 ;
                00220 ;THE DOUBLE SIZE IS CANCELLED WHEN THE FOLLOWING
                00230 ;LINE IS PRINTED FROM THE PRINT BUFFER SO
                00240 ;THERE IS NO NEED FOR A DEFAULT INSTRUCTION.
                00250 ;
7AB1 FE43       00260 COND      CP      'C'     ;IS IT CONDENSED
7AB3 C2CF7A     00270           JP      NZ,EMPH ;IF NOT THEN EMPHASISED
7AB6 CD157B     00280           CALL    EQULS   ;IS THE NEXT CHAR AN =
7AB9 C2C97A     00290           JP      NZ,DEF1 ;DEFAULT IS NO
7ABC 1A         00300           LD      A,(DE)  ;GET NEXT TEXT CHAR
7ABD FE59       00310           CP      'Y'     ;IS IT YES
7ABF 13         00320           INC     DE      ;POINT TO NEXT
7AC0 C2C97A     00330           JP      NZ,DEF1
7AC3 3E0F       00340           LD      A,0FH   ;0F = SHIFT IN
```

```
7AC5 CD1B7B   00350          CALL   PRINT
7AC8 C9       00360          RET
7AC9 3E12     00370 DEF1     LD     A,12H     ;12H = DC2
7ACB CD1B7B   00380          CALL   PRINT
7ACE C9       00390          RET
7ACF FE45     00400 EMPH     CP     'E'       ;IS IT EMPHASISED
7AD1 C2F27A   00410          JP     NZ,BOLD   ;IF NOT THEN BOLD
7AD4 3E1B     00420          LD     A,1BH     ;1B = ESC
7AD6 CD1B7B   00430          CALL   PRINT
7AD9 CD157B   00440          CALL   EQULS
7ADC C2EC7A   00450          JP     NZ,DEF2
7ADF 1A       00460          LD     A,(DE)
7AE0 FE59     00470          CP     'Y'
7AE2 13       00480          INC    DE
7AE3 C2EC7A   00490          JP     NZ,DEF2
7AE6 3E45     00500          LD     A,'E'     ;SEND ESC E
7AE8 CD1B7B   00510          CALL   PRINT     ;TO PRINTER
7AEB C9       00520          RET
7AEC 3E46     00530 DEF2     LD     A,'F'     ;SEND ESC F
7AEE CD1B7B   00540          CALL   PRINT
7AF1 C9       00550          RET
7AF2 FE42     00560 BOLD     CP     'B'       ;IS IT BOLD
7AF4 C2217B   00570          JP     NZ,ERROR  ;IF NOT PRINT ERROR MESSAGE
7AF7 3E1B     00580          LD     A,1BH
7AF9 CD1B7B   00590          CALL   PRINT
7AFC CD157B   00600          CALL   EQULS
7AFF C20F7B   00610          JP     NZ,DEF3
7B02 1A       00620          LD     A,(DE)
7B03 FE59     00630          CP     'Y'
7B05 13       00640          INC    DE
7B06 C20F7B   00650          JP     NZ,DEF3
7B09 3E47     00660          LD     A,'G'     ;SEND ESC G
7B0B CD1B7B   00670          CALL   PRINT
7B0E C9       00680          RET
7B0F 3E48     00690 DEF3     LD     A,'H'
7B11 CD1B7B   00700          CALL   PRINT
7B14 C9       00710          RET
7B15 13       00720 EQULS    INC    DE        ;GET NEXT TEXT BYTE
7B16 1A       00730          LD     A,(DE)    ;INTO A
7B17 13       00740          INC    DE        ;POINT TO NEXT
7B18 FE3D     00750          CP     '='       ;IS IT AN =
7B1A C9       00760          RET              ;GO BACK WITH Z SET IF IT IS
7B1B D5       00770 PRINT    PUSH   DE        ;SAVE TEXT POINTER
7B1C CD3B00   00780          CALL   003BH     ;ROM PRINT ROUTINE
7B1F D1       00790          POP    DE        ;RESTORE TEXT POINTER
7B20 C9       00800          RET
7B21 C3BD75   00810 ERROR    JP     75BDH     ;FORMAT LINE ERROR ROUTINE
1450          00820          END    5200
00000 TOTAL ERRORS
```

```
DRV 00   CD24 6ED1 CDFA 52C3 706E 0000 0000 0000 .$..R.....
0   10   0000 3AB9 7CB7 2801 05C9 EB09 79B7 C825 ..:.(.....%
0H  20   C9FE BCCA B371 FE8D C289 71C3 B371 2812 .....(.
     30  FE0D 280E FE0A 280A 083E 2032 E837 08C3 ..(...(..>.2.7..
TRK 40   745F 32E8 37C3 745F 3E01 0571 77C2 A57A ._2.7._>..qw..z
6   50   0181 A57A FE44 C2B1 7A3E 0ECD 1B7B 13C9 .....D...>.....
6H  60   FE43 C2CF 7ACD 157B C2C9 7A1A FE59 13C2 .C.....Y..
     70  C97A 3E0F CD1B 7BC9 3E12 CD1B 7BC9 FE45 ..>.....>.....E
TRS 80   C2F2 7A3E 1BCD 1B7B CD15 7BC2 EC7A 1AFE ...>.....
1   90   5913 C2EC 7A3E 45CD 1B7B C93E 46CD 1B7B Y....>E....>F...
1H  A0   C9FE 42C2 217B 3E1B CD1B 7BCD 157B C20F ..B.!.>.....
     B0  7B1A FE59 13C2 0F7B 3E47 CD1B 7BC9 3E48 ...Y....>G....>H
FRS C0   CD1B 7BC9 131A 13FE 3DC9 D5CD 3B00 D1C9 .....=...;...
41  D0   C3BD 7502 0200 527B C9C3 BD75 0202 0052 ....R.....R
29H E0   0000 0000 0000 0000 0000 0000 0000 0000 ................
     F0  0000 0000 0000 0000 0000 0000 0000 0000 ................
```

N. Hemdel

TESTING A 'HOME-BREW' MODEM

If you are building your own modem/acoustic coupler and you do not possess much in the way of test equipment, you can use your TRS-80 as a stable tone generator for aligning filters. Merely write a short machine language program to pulse the cassette output at the desired frequency. If you must have a sine wave, you could use a simple LC filter (it does not have to be particularly accurate) to give the desired wave form. To check the technique out I generated one of the standard modem frequencies in this way, recorded it on to a cassette, and played it back at my acoustic coupler. The acoustic coupler responded in the usual way.

A new member told me he had built a very cheap modem using this approach to generate the appropriate tone pair, which worked satisfactorily at 110 baud in the US. Things might be easier here because we use lower frequencies. However, I do not think this approach is feasible at 300 baud, as the TRS-80 CPU is just too slow. One might just get away with it with a 4 Mhz system. Demodulation has to be done with appropriate hardware, of course, like a phase-locked loop.

Leon Heller

FOR SALE

Aculab Floppy Tape for TRS-80. Perfect working order. Reliable, fast storage. Random access files. £30 worth of tapes with £200 worth of programs. Also double bus adaptor. £150 o.n.o.
Tel Andrew Sefton 0759-6224 (near York)

PCR-81 PATCH AND GENIE SOUND BOX

I RECENTLY PURCHASED A 'PCR-81' INTERFACE TO RUN MY TELETYPE KSR 33 FROM THE 'VIDEO GENIE', I THOUGHT IT MAY INTEREST OTHER MEMBERS TO KNOW THAT A PATCH TO RUN 'ELECTRIC PENCIL' ON THIS SYSTEM HAS BEEN WRITTEN FOR ME BY:-

LAURIE SHIELDS
151 LONGEDGE LANE,
WINGERWORTH,
CHESTERFIELD.
TEL. 0246 75568

I AM SURE LAURIE WILL BE WILLING TO SELL COPIES TO ANYONE ELSE WHO WANTS ONE.

CONCERNING A PREVIOUS NOTE ON FITTING THE SOUND BOX TO THE GENIE AT THE JUNCTION OF R30 AND R31. SOME SYSTEMS DON'T LIKE WRITTING TAPES AFTER THIS MOD. I'VE NOT YET DISCOVERED WHY SOME ACCEPT THE MOD AND OTHERS DON'T BUT THE DIFFICULTY CAN BE OVERCOME USING A SWITCHED POT. TO SWITCH THE AMP. OUT WHEN NOT IN USE.

KEN ROBINSON.

AN EASY WAY TO DO THOSE NEWDOS80 ZAPS

The enclosed program is a godsend if you are running Newdos80.

If you are, you will know that having got your master disc updated with the latest zaps, your troubles have only just started - there's now all those discs with whole or part systems on mixed up with all your application software.

The hard way is to buy some more blank discs, copy the full system, kill off the unwanted modules and then transfer all your programs and files.

The easy way is with Update. Just load drive 0 with a fully zapped master disc and Update will firstly check that the disc in drive 1 is a Newdos80 one and then it checks to see which modules are on the disc and updates them.

Your application software is left untouched and in minutes you've accomplished the job you were putting off for weeks.

Other news from the Laplands of Derbyshire (there's a foot of snow outside and getting worse).

By popular demand I've resurrected the bit of code that transforms Microsoft's Level3 into a court case. If anyone has already got Level3, and my bit of program is of no earthly use if you haven't, I can supply a System tape that gives all the extra commands that went into L....4.

These extra features include:
1. Space remover, sometimes known as 'Squash'.
2. Program merge.
3. Program recovery after a re-boot.
4. Variable speed video display.

From the software source that gave you Squash, there now comes son-of-squash. Should there be anyone out there that hasn't got a rip off copy of the few that Harding sold before we fell out, the new Squash is now available.

As well as removing spaces it will also remove all the nasty backspaces etc that H.....g and K....s have been known to put into their programs to hide parts of the code or the copyright. As an added bonus it can change all PRINT commands to LPRINT and vice-versa. Naturally PRINT @ statements are not altered.

```
100 REM ***  IN-SITU UPDATE OF NEWDOS80 MODULES    ***
110 REM ***  MODULES COPIED BY FILE FROM DRVE 0    ***
120 REM ***           TO DRIVE 1.                  ***
130 REM COPYRIGHT LAURIE SHIELDS SOFTWARE (C) 1981
140 CLEAR500
150 CLS
160 PRINTTAB(10)"NEWDOS80  UPDATE  PROGRAM"
170 PRINT
180 PRINT"LOAD  DISC DRIVE 1  WITH  DISCETTE TO BE UPDATED

ALL NEWDOS80 MODULES FROM SYS0 TO SYS13 INCLUDING BASIC,

EDTASM AND DIRCHECK WILL BE UPDATED TO DRIVE 0 STATUS.

     MARK UPDATED DISCETTE ON COMPLETION.    ";
190 INPUTX$:IFX$="@"THENEND
200 CMD"DIR 1"
210 D$="        ":
    POKE VARPTR(D$)+1,&H0B:POKE VARPTR(D$)+2,&H3C
220 FORX=1TO8:X1=ASC(MID$(D$,X,1)):
    IFX1<32THENX1=X1+64:MID$(D$,X,1)=CHR$(X1)
230 NEXTX
240 IFD$<>"NEWDOS80"THENPRINT:PRINT"WRONG DOS DISC":END
250 A$="SYS0/SYS":GOSUB430
260 A$="SYS1/SYS":GOSUB430
270 A$="SYS2/SYS":GOSUB430
280 A$="SYS3/SYS":GOSUB430
290 A$="SYS4/SYS":GOSUB430
300 A$="SYS5/SYS":GOSUB430
310 A$="SYS6/SYS":GOSUB430
320 A$="SYS7/SYS":GOSUB430
330 A$="SYS8/SYS":GOSUB430
340 A$="SYS9/SYS":GOSUB430
350 A$="SYS10/SYS":GOSUB430
360 A$="SYS11/SYS":GOSUB430
370 A$="SYS12/SYS":GOSUB430
380 A$="SYS13/SYS":GOSUB430
390 A$="BASIC/CMD":GOSUB430
400 A$="EDTASM/CMD":GOSUB430
410 A$="DIRCHECK/CMD":GOSUB430
420 LINEINPUTX$:GOTO150
430 ONERRORGOTO480
440 OPEN "I",1,A$+":1":CLOSE
450 PRINT"COPYING FILE "A$
460 CMD"COPY "+A$+":0 TO "+A$+":1"
470 RETURN
480 RESUME490
490 PRINTA$"  ";:CMD"E":RETURN


NOTE:  VARIABLE D$ IS 8 SPACES
```

Nigel Hyde was showing me a Mailing List package he got from the states. It is very powerful, very fast and very impressive.

He is using it mainly as a Database for product codes, descriptions, customer names etc. and its big advantage is that the files can be instantly sorted and searched on any field and selected extract files set up. This is combined with a document writing program that uses a Pencil or Scripsit text with special markers in it for the program to insert names, addresses, or any of the details from the Mailist file.

It has enabled him to completely automate, via the TRS80, the process of issuing Works orders in his foundry with the confidence that the various product details such as weight, drawing reference etc are correct.

When last seen his wife was entering all the names and addresses of the local W I.

If anybody is inter ested, in the program not the W I, give me a ring and I could order a copy on their behalf from the States.

Laurie Shields 0246 75568

PROBABILITY FUNCTION

In statistical work, it is sometimes useful to be able to calculate the function (1-erf(x)), or the probability of a deviation of (x) or more when (x) has a normal distribution. The routine below acheives this using a modified series expansion of the function.

Yours sincerely

J.R. KENDALLY

```
10  Z = ABS((X-M)/SQR(2 * V)):T = 1/(1 + 0.327591 * Z)
20  P = 0
30  FOR I% = 1 TO 5:READ Y:P = (P + Y) * T:NEXT
40  P = P * EXP(-Z↑2)
50  READ Y
60  RETURN
70  DATA 1.061405,-1.453152,1.421413
80  DATA -0.284497,0.254829
90  REM (M) IS MEAN OF DISTRIBUTION (V) IS VARIANCE
100 REM (X) IS DEVIATION VALUE.
110 X,M,V ARE INPUT PARAMETERS
120 REM (.) IS DOUBLE WITH PROD. VALUE
```

A SOFTWARE REVIEW

MORE PROGRAMS FOR PRIMARY SCHOOLS

This is a further review of Educational software which hopefully will appeal to both our educational users particularly in Primary and Middle schools, but it may appeal to users who want to offer some educational use of their machine to their children. It will cover a further batch of Educational programs from

PREMIER PUBLICATIONS
12 Kingscote Road
Addiscombe
CROYDON

These programs are available for a number of different computers including
TANDY TRS-80
VIDEO GENIE

NUMBER MATCHER

A real favourite of mine and the staff has been NUMBER MATCHER. Children in the primary school need plenty of practise in converting numbers to words, and in converting words into numbers. This program gives plenty of that, and the children thoroughly enjoyed the experience too.

A nice feature is found in the numbers to words game, where all the words that the child needs are shown on the screen. Because of program design it will not accept incorrectly spelt answers. This program had excellent clear screen layout and an updated score routine that was always on screen.

Although a good program that I would recommend; I would like to see some improvements. These concern different levels of play within the game e.g.

- up to hundreds
- up to thousands
- up to ten thousand

MATHS EXERCISER

There are quite a few Maths Drill type programs available now-a-days, but MATHS EXERCISER from Premier offers a number of additional features which make it well worth adding to a schools collection of computer programs.

The program provides practice in addition, subtraction, multiplication and division. The numbers shown on the screen have been built up from graphic blocks thus giving nice bold figures.

The best feature was the facility that allowed you to set the level of difficulty desired for the work. This is set at the start of the session and the difficulty desired is determined by choosing the largest number that may appear in the question. In division the difficulty is set by the largest answer. Problems up to 100 can be set.

The screen layout is clear and thus enables the child to see exactly what is expected of him. Children particularly liked the on screen up dated score routine. You always know which question number it is and how many right or wrong you have got.

SPELLING TEST

This program provides graded exercise in the spelling of a wide variety of English words. The program has a number of levels - 5 in all, giving graded practise at varying levels of ability. We found level one suitable for 8 - 9 year olds and levels two and three suitable for average ability at the top end of the Middle School.

Within the structure of the program it would be possible to set up your own data base with words appropriate to your own situation.

I liked very much the idea behind the program. You are tested 20 times in a session and each time you are given four spellings for each word and asked which one is spelt correctly. You then have to type in the spelling of the one you think to be correct. The author has choosen his words well and his 'mistakes' or wrongly spelt words reflect common errors of children.

The program had some useful features worthy of note. To let you know when an input is expected you are told by a flashing cursor, and a nice flashing sequence is used to tell you if you are right or wrong. I do like programs that sumarize at the end of the session the things you have done wrong. This program does this too.

These programs came with clear instructions both on screen and good printed instructions too.

After a months' use in school across the Middle School age range they seemed bug free, crash-proof and kid-proof even when all sorts of answers and attempts to make illegal entries were tried.

I would recommend them, the children enjoyed working with them and gained much additional practise.

The programs are reasonably priced as follows

i) Number Matcher 5.45

ii) Maths Exerciser 5.45

iii) Spelling Test 5.45

The last two are available as a pack for 7.95. All prices including V.A.T.

My next review will look at some logic and strategy programs for use within an Educational setting.

Dave Futcher
Head Teacher
Beaconsfield First and Middle School
Southall
Middlesex.

NEWS FROM NOTTINGHAM

News from the Nottingham TRS-80 User Groups. EMITUG recently combined with the other TRS-80 based group, and the combined organisation is now called the TRS-80/Video Genie Users' Group of Nottingham, under the Chairmanship of Marc Leduc.

With around 150 members, a monthly Newsletter, tape and disc libraries, a regular meeting place at Basford College of Education, and various discount arrangements for members, the group is very active. Membership enquiries should be addressed to Chris Ryan, c/o me at the address below, or just phone him on Nottingham 223513.

Chris Dempsey was asking in a recent issue for reviews of new software, especially the very complex games now coming on to the market. I am likely to start up a Newsletter consisting mainly of reviews of such games, and will pay for any review of a game on the list I have compiled, if the review follows the format I have worked out. Anyone interested in subscribing or, better still, writing reviews, should contact me for further details. Even if you were disappointed with the game you bought, you can write a review and get back most of the money you paid for it, not to mention preventing others from making the same mistake. There is no need to worry about developing a perfect literary style - contributions will be edited where necessary. Write to:-

Mike Costello
17 Langbank Avenue
Rise Park
Nottingham NG5 5BU

SAVING THE VIDEO DISPLAY TO FLOPPY TAPE

This program enables the contents of the video screen to be saved on Aculab 'Floppy Tape' in one pass of the tape. As written it saves the contents of the memory map in 4 sectors of 256 bytes to drive number 0, under the filename "SCRNSAVE", the 3 character extension being used to take a page number. The program also enables the tape to be read back to the screen, and with minor adaptations could be used for many different purposes. To illustrate it's use, I include the 'patch' amendments to include it into the BASIC 'Text Editor/Word Processor' supplied by Messrs A.J.Harding (Molimerx).

Program listing 1 - assembly & machine language (@ZEN format)

```
                        ORG  7FD0H
                        LOAD 7FD0H
7FD0 C3E47F   START:    JP   RGSTRS ;LEAPFROG DATA STORE
7FD3 5343524E FLNM:     DB   "SCRNSAVE" ;PRESET FILENAME
7FD7 53415645
7FDB 000000   EXT:      DS   3      ;TEXT TO BE POKED FROM
                                    ;BASIC
7FDE 00       DRV:      DB   00H    ;DRIVE 0 SELECTED
7FDF 003C     LDADDR:   DW   3C00H  ;FIRST SCREEN ADDRESS
7FE1 0000     ENTADDR:  DW   0000H  ;NO ENTRY ADDRESS
              NRC:      EQU  04H    ;4 SECTORS PER SCREEN
              NRN:      EQU  00H    ;RECORD NUMBER 0
7FE3 00       FLG:      DS   1      ;FLAG 0=PUT 1=GET
7FE4 11D37F   RGSTRS:   LD   DE,7FD3H ;START OF FILENAME
7FE7 0604               LD   B,NRC  ;NUMBER OF SECTORS
7FE9 0E00               LD   C,NRN  ;OPERATIVE RECORD NO.
7FEB 2AE37F   CHOOSE:   LD   HL,(FLG) ;LOAD FLAG
7FEE 3E00               LD   A,0000H ; ZERO ACCUMULATOR
7FF0 B5                 OR   L      ;CHECK FLAG
7FF1 C2FA7F             JP   NZ,@GET ;IF 1 GOTO @GET
7FF4 CDD737   @PUT:     CALL 37D7H  ;CALL PUT ROUTINE
7FF7 C3FD7F             JP   BACK   ;GOTO RETURN
7FFA CDDD37   @GET:     CALL 37DDH  ;GET ROUTINE
7FFD C9       BACK:     RET         ;RETURN TO BASIC PROGRAM
                        END
```

The listing above is assembled for 16k, but can be relocated to any other desired position by re-assembly. The following steps are necessary to use it from a BASIC program:-

1 - set memory size to 32719
2 - POKE page number in ASCII into locations 32730-32733
3 - POKE ORG address into locations 16526-16527 (LSB first)
4 - routine to SAVE :

a - POKE 0 flag into location 32739
b - call routine by X=USR(0)

5 - routine to GET :
a - check correct page number
b - POKE 1 flag into location 32739
c - call routine by X=USR(0)

n.b. Note that with this simple routine no error checking is carried out, because firstly an error is not likely to be disastrous with only one screenful of data, secondly an error should be a rare occurence, and thirdly the author is a bit lazy that way!

Program listing 2 - Patching the routine into Messrs Harding's BASIC 'Text Editor/Word Processor'.

Remember to enter memory size 32719.
Only the affected lines are listed below (the full program is copyright and must be obtained from Messrs Harding).

```
110 POKE 16526,208: POKE 16527,127
125 CLS:GOSUB2000:A$="X":A=VARPTR(A$)
1000 CLS:GOSUB2000:POKE32739,1:X=USR(0):
     S=PEEK(15360):N=G:M=16384:GOSUB1310
1240 GOSUB1500:POKE32739,0:X=USR(0):GOTO230
1800 FORI=32720TO32765:READX:POKEI,X:NEXT:RETURN
1810 DATA 195,228,127,83,67,82,78,83,65,86,
     69,48,48,48,48,0,60,0,0,0,
     710 17,211,127,6,4,14,0,42,227,127,62,
     0,181,194,250,127,205,215,55,
     195,253,127,205,221,55,201
1900 CLS:INPUT"PREPARE TO @LIST FLOPPY DATA
     TAPE";X$:@LIST:FOR I=1TO 1000:NEXTI:RETURN
1920 <DELETE WHOLE LINE>
1930 <DELETE WHOLE LINE>
2000 PRINT:PRINT"<ENTER> PAGE NUMBER ( 0 - 999)":
     INPUTP$:IFVAL(P$)>999 OR VAL(P$)<0 THEN2000 ELSE
     P$=RIGHT$(STRING$(2,48)+P$,3)
2010 FORI=1TO3:POKE32730+I,ASC(MID$(P$,I,1)):
     NEXTI:CLS:RETURN
```

Description line by line :-

110 this tells TRS-80 where to find routine
125 this new GOSUB 2000 initializes page number to start
1000 sets page to GET, sends GET flag, and calls routine
1240 sends PUT flag, and calls routine
1800 reads machine language routine and shoves it into high memory
1810 this is program listing 1, converted into decimal
1900 prepares Floppy Tape at start of program
1920-1930 not required - keyboard debounce in A.F.T. ROM
2000 page number input sub-routine
2010 POKEs page number in ASCII into data store

* Hopefully Floppy Tape owners will be able to find their way through the above maze, and will be able to find their own uses for this routine.
* Incidentally may I take this opportunity to mention @ZEN, I think John Hawthorne and Laurie Shields have produced a program which is equal if not superior to the rivals, and for Floppy Tape owners who aspire to assembly language, I think it is a 'must'.

Clive Isbell,
Trewint House,
Chelmsford Road,
Felsted,
Essex.

AMENDMENT TO RENUMBERING PROGRAM

Thank you for publishing my re-number contribution. Unfortunately I have just realised that I accidentally sent you an incorrect copy, the print was an early - not fully de-bugged version.

I have since found another bug which can be induced by using merge or by fairly substantial deletions, which is that the basic program does not always begin at the same place.

I have solved this one by discovering the locations in the memory which hold the program start point and using these I have so far had no failures.

Since sending the program I have discovered how to use the re-number program in TRS DOS 2-3, which of course in effect duplicates my program.

RENUMBER FOR TRS80 - RENUM1. 1.APR.81 Page 1

```
63000 INPUT"RENUMBER LINES FROM ";S1
63010 INPUT"                 TO ";S2
63015 X=PEEK(16548)+PEEK(16549)*256+2
63020 INPUT"WHAT IS THE FIRST NEW LINE NUMBER? ";P
63030 INPUT"              WHAT STEP (1 TO 10)? ";P1
63040 P=P-P1:T=0:P$=STR$(P):IFVAL(RIGHT$(P$,2))=0THENT=1
63050 DIMA(300),B(300):AD=X:FORI=1TO300
63060 GOSUB63270:IFLN>62999THENY=I:GOTO63100
63070 N=P+I*P1:NH=INT(N/256):NL=N-NH*256
63080 POKEAD,NL:POKEAD+1,NH:A(I)=LN:B(I)=N:PRINTLN,N
63090 AD=NA:NEXTI:PRINT"OVER 300 LINES":END
63100 AD=X:FORI=1TO300:GOSUB63270
63110 PRINTLN:IFLN>62999THENPRINT"COMPLETE":END
63120 FORJ=AD+2TONA-3:C=PEEK(J)
63130 IFC<>141ANDC<>145ANDC<>149ANDC<>202THEN63260
63140 L=PEEK(J+1):IFL=32THENJ=J+1:GOTO63140
63145 IFL<48ORL>57THEN63260
63150 C$="":FORK=J+1TOJ+8:C=PEEK(K)
63160 IFC<48ORC>57THEN63180
63170 C$=C$+CHR$(C):NEXTK
63180 L=VAL(C$):FORH=1TOY:IFA(H)=LTHEN63200
63190 NEXTH:LPRINT"LINE ";LN;"LABEL ";A(H);"NEW ";B(H):GOTO63250
63200 N$=STR$(B(H)):R=LEN(N$):FORI=2TOR
63210 POKEK+I-R-1,ASC(MID$(N$,I,1)):NEXTI
63220 IFK-R<JTHENLPRINT"OVERWRITTEN LINE ";B(H)
```

```
63230 IFK-J-R(=060T063250
63240 J=J+1:POKEJ,32:60T063230
63250 IFC=44THENJ=K:60T063150
63260 NEITJ:AD=NA:NEXTI:PRINT"INCOMPLETE"
63270 NA=PEEK(AD-1)*256+PEEK(AD-2)+2:IFNA)32767THENNA=NA-65536
63280 LN=PEEK(AD+1)*256+PEEK(AD):RETURN
```

NOTE:- The character -^- denotes an iabedded line feed

M.C. Matthews

THE MX-80 PRINTER

1. Pin 17 of the parallel connecter is connected to 'chassis ground', this goes to 'logic ground' on the TRS-80 Interface board, as neither machines' logic grounds are connected to chassis ground it is advisable to disconnect the no. 17 pin at the printer end.
2. The TRS-80 switch setting on dip switch 2 is only useful for printing Graphic characters not programmed in the 'string$' mode these latter can be printed when the printer is in the 'standard mode by adding 32 to the string$ character number.
3. For all other printing the 'standard' mode is more useful as only a few of the options are available in the 'TRS-80' mode, 'LPRINT' on it's own doesn't work & only one set of print characters are available, if you want to print the 'hash' sign the USA set has to be used.
4. The attached program can be used for Initializing print parameters except when using most Word Processors, (there are special programs coming on the market now from the USA for that purpose)

As yet I have not been able to get routine 13 (the form feed) to work but as it is so simple to POKE the required form length into the printer DCB (16424,nn) 'nn' being the form length required, I have not tried to find out why it doesn't.

Since I have had the machine I have printed out over 1500 sheets of paper each with 800 characters on, thats about 1,200,000 characters so you can understand why this printing is a little faded, the man who wrote the attached program says that the ribbon can be re-inked but doesn't say how, any ideas?.

E. C. Kilpatrick,
3a Gainsborough St.,
Sudbury,
Suffolk,
CO10 6ET
Tel: (0787) 79504

CHECKING THE SPEED OF AN ACULAB FLOPPY TAPE.

I have found that there can be some incompatability between different Floppy Tapes which have their drives running at different speeds.

It is possible to adjust the speed of the drive very easily by opening up the unit.

This program will give a speed index for your Aculab. To use the program to measure your Aculab-unit's speed use a wafer (with or without programs) that was originally formatted on your machine. More accurate readings are obtained with longer wafers. I normally use a 50' wafer.

```
10    DEFINT J,K,L
20    @LIST
30    J=INP(240)
40    IF J=127 THEN GOTO 100
50    K=K+1
60    GOTO 30
100   INPUT"HOW MANY SECTORS WERE LISTED IN TOTAL";L
110   PRINT"THE SPEED INDEX IS ";K/L
120   END
```

My Aculab shows a speed index of 21.85 on average for most tapes. I have some wafers which are slightly sticky or stiff, normally I can hear this when when they are running. The program shows up any changes in the running speed as they wear in. The Aculab will normally read wafers without trouble with a ±15% speed margin.

For another user to use my wafers and synchronise his machine to mine he/she should run the program with my wafer and adjust his machine speed to give my standard index.

This program only gives a relative speed measure. The measurements made on your own wafers will nearly always show the same index unless you have changed the drive speed. The index measures the change between the speed used for formatting (@NEW) and the speed when the program is run.

John Newgas.

Do not use 75' wafers for calibration with this program.

****
FOR SALE

ONE QUICK PRINTER II

£100 O.N.O.
CHAS.PHILIPS
WELLINGBOROUGH 674229
****

INITIALISNG PRINT PARAMETERS WITH THE MX-80

```
10 CLS: CLEAR 500: DIM A$(14): DEFINT I,V,X
20 B$= CHR$(27): C$= "": Q$= STRING$(12," ")
30 G$= STRING$(14," "): M$= STRING$(37,45)
40 PRINT CHR$(23);"          Epson  MX-80
50 PRINT"     Initialization Program." REM 5 spaces after the "
60 PRINT @ 576,"Type   T  For TRS-80   or "
70 PRINT"        S  For Standard  "
80 PRINT"        Pin Configuration."
90 D$= INKEY$: IF D$="" GOTO 90
100 IF D$= "T" GOTO 370 ELSE IF D$<>"S" GOTO 90 ELSE 110
110 CLS: PRINT: PRINT Q$;"  Epson Initializer Program  (Standard) rem 2 spaces
   after the "
120 A$(1)= CHR$(14): A$(2)= CHR$(20): A$(3)= CHR$(15):
    A$(4)= CHR$(18)
130 A$(5)= B$+ CHR$(69): A$(6)= B$+ CHR$(70)
140 A$(7)= B$+ CHR$(71): A$(8)= B$+ CHR$(72)
150 A$(9)= B$+ CHR$(48): A$(10)= B$+ CHR$(49):
    A$(11)= B$+ CHR$(50)
160 A$(12)= B$+ CHR$(65): A$(13)= B$+ CHR$(67): A$(14)= CHR$(24)
170 PRINT G$;M$
180 PRINT:PRINT Q$;"===>  Menu -- Type '0' to Terminate  <==="
190 PRINT" 1)  Double Width.                8)  Cancel Double Printing  " REM 17
   spaces in the middle
200 PRINT" 2)  Cancel Double Width.         9)  Line Space = 1/8 inch   " REM 9
   spaces in the middle
210 PRINT" 3)  Condensed Width.            10)  Line Space = 7/32 inch  " REM 14
   spaces in the middle
220 PRINT" 4)  Cancel Condensed.           11)  Line Space = 1/6 inch   " REM 13
   spaces in the middle
230 PRINT" 5)  Emphasized Print.           12)  Input Line Space        " REM 13
   spaces in the middle
240 PRINT" 6)  Cancel Emphasized.          13)  Input Form Length       " REM 12
   spaces in the middle
250 PRINT" 7)  Double Printing.            14)  Purge Print Buffer      " REM 14
   spaces in the middle
260 PRINT
270 INPUT "Enter Routine Number";V: IF V= 0 GOTO 540
    ELSE GOSUB 330
280 IF V> 14 OR V< 0 GOSUB 330: GOTO 270
290 IF V= 12 OR V= 13 GOSUB 350
300 LPRINT A$(V); C$; :PRINT @ 916,"Code Entered"; :C$=""
310 FOR I=1 TO 200: NEXT: GOSUB 330
320 PRINT @ 938,"(Code"; :PRINT V; "was entered)"; :GOSUB 340:
    GOTO 270
330 POKE 16417,63: POKE 16416,128: PRINT STRING$(63,32)
340 POKE 16416,128: RETURN
350 GOSUB 330: INPUT"  What is the Special Value.";X
360 C$= CHR$(X): GOSUB 330: RETURN
370 CLS:PRINT
380 PRINT Q$;"   Epson Initializer Program  (TRS-80)  " REM 3
    spaces after the "
400 A$(1)= CHR$(29): A$(2)= CHR$(30): A$(3)= CHR$(31)
410 A$(4)= B$+ CHR$(54): A$(5)= B$+ CHR$(56)
420 A$(6)= B$+ CHR$(65): A$(7)= B$+ CHR$(66): PRINT G$;M$
430 PRINT Q$;"===>  Menu -- Type '0' to Terminate  <==="
440 PRINT
450 PRINT" 1)  16.5 CPI Width.                  4)  6 Lines per inch     " REM 15
   spaces in the middle
460 PRINT" 2)  10 CPI Width.                    5)  8 Lines per inch     " REM 17
   spaces in the middle
470 PRINT" 3)  5 CPI Width                      6)  Long Line Mode       " REM 20
```

```
   spaces in the middle
480 PRINT"                    7)  Short Line Mode" REM 18 spaces
    after the "
490 INPUT " Routine Number.";V: IF V= 0 GOTO 540 ELSE GOSUB
    330
500 IF V> 7 OR V< 0 GOSUB 330: GOTO 490
510 LPRINT A$(V);: PRINT @ 916,"Code Entered.": C$=""
520 FOR I=1 TO 300: NEXT: GOSUB 330
530 PRINT @ 938,"(Code";: PRINT V; "was entered)";: GOSUB
    340: GOTO 490
540 GOSUB 330
550 L$= "Epson MX-80 Printer Initialization Routine Concluded":
    PRINT TAB (31-LEN (L$)/2); L$
560 END
570 REM FROM A PROGRAM BY J.ROSENMAN PUBLISHED IN THE APRIL '81      ISSUE OF H &
 E COMPUTRONICS.
```

E. C. Kilpatrick

SOFTWARE REVIEW -- BMON --

Not too long ago, TRS-80 users had to drool at adverts for "Toolkits" for Apples and Pets: similar utilities for BASIC programmers for Tandy users were few, far between and in single form, so that you had to load a positive armoury of short utilites. In the last few months that situation has drastically altered, and now the problem is choosing between a variety of excellent programs, many of which offer some, but not all, of the functions you always needed. There is also quite a lot of overlap between different utilities; for example the "Toolkit" reviewed in May's newsletter has some functions of BMON (a Basic Monitor), which I shall now describe.

BMON is by Eddie Paay of the Micro-80 magazine staff in Australia. It is in machine code, takes up a little over 3K and loads into high protected memory. Versions for all three memory sizes come on the cassette, which is easily readable. All the relevant addresses are supplied for reloading the program onto floppy tape or disks. A 5-page A4-sized document accompanies the tape, and this tells you all you need to know.

What does BMON do for you? It is activated by pressing <shift down arrow>, adding <Z> if you have a new ROM machine. <Control> gives you access if you have a Genie. BMON replies with its Menu and you simply press the key for your choice. At any time you can exit the menu to basic by <B>.

You can load a BASIC tape, and BMON displays the program on the screen as it squirts in, so you can see if you have a good load. In addition, the way in which the tape is read can help with difficult cases. When the load is complete, BMON displays the start and end addresses, so you can see how long the program is.

BMON also offers renumbering with user-selected starting point and increment. You can "hide" a program in memory, while you work happily, say, on a subroutine for later inclusion. The protected program can be freed at any time you wish.

A very useful function is to be able to call an alphabetized list of all the variables used in your program; invaluable for a long and complex session of development.

If you accidently NEW a program it can be recovered by BMON and listed. So that you can append from your library of subroutines, BMON will merge a load from tape and automatically renumber the newcomer as it arrives.
Decimal-hex and Hex-decimal conversion are supported. It is also possible to go to a hex address directly for execution of a M/C routine.
There is a useful memory edit mode, which allows you to zap and change bytes or to input a program in machine code.
Finally, you can make a SYSTEM tape from any area of memory; prompts for start, end and transfer addresses are given.
There is a keyboard debounce routine built in, and directions are given to alter the amount of debounce to suit your own keyboard.

BMON hasn't got ALL those facilities you long for when programming, but it has more than most. For the price of $19.95 Aus (about £10) it is very good value, and a program I use often.
Write to: Micro-80, P.O. Box 213, Goodwood, South Australia 5034.

John Miller.

BRIGHTON

Contact John Bedford
19B Rose Walk
Goring by Sea
West Sussex

BRIDGEND AREA

Contact Peter Chapman
36 Park Court Road
Bridgend, Mid-Glam.

Tel: 0656-3484

BRISTOL

Contact Roger Bamkin
19 Wood Street
Eastville
Bristol

CHELMSFORD

Contact Mr R. Hamlett,
Pine Lodge
Desden Road,
Loughton,Essex

Meetings

NUNEATON

Contact F[illegible] Challenor
40 Whober[illegible] Ave.,
Coventry CV5 8EP.

OXFORDSHIRE

Contact Steve Bird
139 The Moors,
Kidlington,
Oxford, OX5 2AF

Tel: 08675-6703

Meetings - Newsletter

SWINDON GROUP

Contact Bob Sparling
The Ridgeway,
51 Station Road, Chiseldon,
Nr Swindon, Wilts, SN4 0FW

YORK GROUP

YORK COMPUTER CLUB
Contact G.Wilson
1 Grangle Close,
Skelton,
York, YO3 6YR

NORTH WEST GROUP

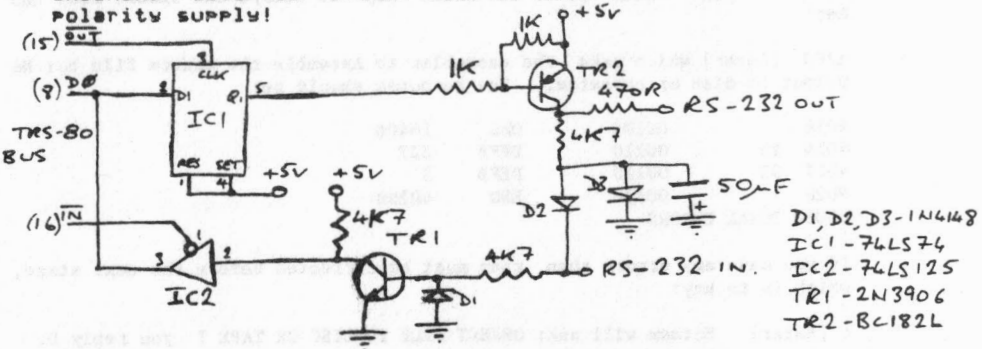
Contact Melvyn Franklin
40 Comlees, Westhoughton,
Bolton, BL5 3EG

Tel: 0942-812843

Meetings - Newsletter

THE ULTIMATE (?) LOW-COST SERIAL INTERFACE

Instead of using a quad latch for serial output, an even cheaper solution is to use one half of a dual flip-flop such as the 74LS74. A PNP transistor can be used for level conversion from TTL to RS-232 voltage levels. Input is via a NPN transistor. By deriving the negative supply from the incoming data as shown, you do not even need a dual polarity supply!



Suitable software will be needed, of course, and a pair of subroutines to output a byte in the A register, and input a byte to the A register follow. As written, baud rate is 300, 8 data bits, no parity, one start and one stop bit.

```
SERIN   EQU     $
        IN      A,(PORT)        ;TEST FOR START BIT
        BIT     0,A
        JR      Z,OK1
        XOR     A               ;NO START BIT, RETURN 0
        RET
OK1:    CALL    DLY1            ;WAIT HALF BIT TIME
        IN      A,(PORT)        ;TEST AGAIN
        BIT     0,A
        JR      Z,OK2
        XOR     A               ;MUST HAVE BEEN NOISE, RETURN 0
        RET
OK2:    CALL    DLY2            ;WAIT ONE BIT TIME (3.333ms)
        LD      DE,8            ;D<=0, E HOLDS BIT COUNT
NEXT1:  IN      A,(PORT)        ;INPUT A BIT
        AND     1               ;ACCUMULATE BITS IN D
        ADD     A,D
        RRCA
        LD      D,A
        CALL    DLY2            ;WAIT ONE BIT TIME
        DEC     E               ;DECREMENT COUNT
```

```
        JR      NZ,NEXT1    ;GET NEXT BIT
        LD      A,D         ;TRANSFER TO REG A
        CALL    DLY2        ;STOP BIT
        RET

SEROUT  EQU     $
        LD      D,A         ;TRANSFER BYTE TO REG D
        LD      E,8         ;BIT COUNT
        XOR     A           ;ZERO REG A
        OUT     (PORT),A    ;OUTPUT START BIT
        CALL    DLY2        ;WAIT ONE BIT TIME
NEXT2:  LD      A,D         ;OUTPUT A BIT
        OUT     (PORT),A
        RRCA
        LD      D,A
        CALL    DLY2
        DEC     E
        JR      NZ,NEXT2    ;OUTPUT NEXT BIT
        LD      A,1         ;OUTPUT STOP BIT
        OUT     (PORT),A
        CALL    DLY2
        RET

DLY1    EQU     $           ;HALF BIT TIME DELAY
        PUSH    AF
        PUSH    BC
        LD      BC,114
        JR      DLY3
DLY2:   PUSH    AF          ;FULL BIT TIME DELAY
        PUSH    BC
        LD      BC,228
DLY3:   CALL    60H
        POP     BC
        POP     AF
        RET
```

Using these subroutines I had no trouble in interfacing my TRS-80 to both a Z-80 based and a SC/MP based remote data acquisition system using the hardware described above. With minor modifications for seven data bits and even parity I tried to write a full-duplex terminal emulation program for communication with a time-sharing system via the telephone and my acoustic coupler, but whilst it worked after a fashion, I was not able to communicate reliably. I think I need to do some more work on the duplex protocols - the timing seemed to be wrong.

Leon Heller

STORAGE FOR FLOPPY TAPE WAFERS

After a long search, I found a neat and inexpensive way of storing wafers. Transparent plastic specimen boxes, 75x43x20mm from Griffin & George are ideal. The boxes hold the tapes exactly and are deep enough to take, say, a program wafer and several related data tapes. The boxes have sliding lids for easy access; they stack on end neatly in a desk draw and can easily be labelled with an adhesive sticker.
G & G are at 285 Ealing Road, Wembley Middx HA0 1HJ. You want Cat No. S16-745/030 and they cost (last time I looked!) less than £2 a pack of 10.

John Miller

S P A C E V / C M D

The following is an account, that others might find interesting and might like to follow, of getting Spacev/cmd to run direct from disc.

Before I was asked if there was anything that I could do, the cassette program had already been put onto disc using Lmoffset or some other similar utility, but to run the game it was necessary to to Load Spacev/cmd, go to Level2 Basic, and then execute a System, /xyz [Enter] sequence of commands.

Normally I would have used Zen and Superzap to tackle this sort of problem but just for the challenge I decided to solve it using just the utilities supplied with TRS2.3 Dos and one of the Edtasm type of Disc assemblers.

The usual reason why some machine code cassette programs don't work when they are loaded from disc is that there is a conflict with some part of the Dos, left over and still active, after control has passed to the program.

The most frequent culprit is the Dos keyboard routine. If the normal Level2 keyboard scan could be restored when the program loads then all the trouble might be over.

The Level2 manual tells us how the Z80 finds out where the keyboard scanning program, known as the driver, is located. It is in part of the TRS80 memory map called the Keyboard Device Control Block and the address of the driver program is located in memory bytes 16405+1 and 16405+2.

So simply power-up Level2 with the break key down and:

```
PRINT PEEK(16406),PEEK(16407)
```

Back comes the response from our user friendly computer (if you don't believe me just try it on a Sharp) of 227 and 3, or E3 and 03 in Hex. This means that to check the keyboard Level2 calls a routine in ROM at address 03E3H. (the Z80 always gets its addresses back to front)

Now we come to the simplest machine code program ever written and anybody can understand it. The object is to load 227 into address 16406 and 3 into the next one. That's it, so if you've never used you disc Edtasm before then now is the time.

From Dos ready just key EDTASM [Enter] and you should get the prompt: *
Since we want to insert some text we key I [Enter] and Edtasm will respond by printing 00100 for the line number, in a similar fashion to AUTO 100 in Basic.

You now enter the following lines of code using the right arrow to tab across to the various columns and terminating each line with [Enter].
Since we want to start by putting a 227 into location 16406 we tell this start or origin address to Edtasm using the ORG statement. After that we use the define byte DEFB instruction for the 227 and the 3 and the program is finished. All that is then required is an END and the number 402DH which means that after the program has loaded control passes back to the Dos at this address.

It should look like this:

```
00100          ORG     16406
00110          DEFB    227
00120          DEFB    3
00130          END     402DH
```

After the fourth line press the Break key to escape the insert mode and key:

A/NO [Enter] which asks the assembler to Assemble the source file but No Output to disc or cassette. The response should be:

```
4016             00100          ORG     16406
4016  E3         00110          DEFB    227
4017  03         00120          DEFB    3
402D             00130          END     402DH
00000 TOTAL ERRORS
```

If you have any errors then they must be corrected before the next stage, which is to key:

A [Enter] Edtasm will ask: OBJECT FILE TO DISC OR TAPE ? you reply D.

In response to OBJECT FILESPEC? anwer BOUNCE/CMD [Enter] and with luck you will create a very useful CMD file that you can call from Dos which will make you all nostalgic about the good old days when you got three characters for the price of one key stroke.

Now for the magic, from Dos ready key:
BOUNCE [Enter] and then,
SPACEV [Enter] You are saving the Universe as we know it.

However the excessive effort of calling both programs might be too much for some disc users and for their benefit we will combine them.

For a number of reasons its a lot easier to tack things on the end of a machine code program rather than at the start so lets see what our little program looks like on the disc and then have a look at the end of Spacev as well.

Although TRS2.3 doesn't have a Superzap it does have a utility called Diskdump/bas and this will tell us all we need.

Run it from Basic giving Bounce/cmd for the filespec and your printer will list out the first (and only with this file) sector.
The first line is all we need and it should look like this:

```
0   01 04 16 40 E3 03 02 02  2D 40 FF FF FF FF FF FF   !...@....-@......!
```

In simple language the meaning of these bytes is as follows:

Byte	Value	Meaning
0	01	Wake up Dos there's some something coming.
1	04	In fact there's 4 Bytes coming.
2	16	Right hand half of address where you have to put them.
3	40	Left hand half of address.
		Combining these two we get the Load address of 4016H.
		Which is of course 16406. Easy isn't it ?
4	E3	This is 227 decimal, and it gets loaded into 4016H.
5	03	Likewise this 3 gets loaded into the next address 4017H.
		That's the last of the four bytes we had to sort out.
		What happens next ?
6 & 7	02 02	Thanks for your help Dos you can go back to sleep.
		After you've told the Z80 to Goto the following address:
8 & 9	2D 40	Just like bytes 2 & 3 they combine to give an
		Execution addres of 402DH.

Nothing else on this disc sector is of any meaningful value.

Now we know all there is to know about the layout and meaning of machine code programs on disc sectors; well not quite all but what's left is just frills and trappings.
So full of confidence we now have to find the end of Spacev and add our new bit onto it. Where do we find the end ? Easy get the Dos to tell us via the Directory, just key DIR (A) [Enter] and in among the other information on the video you will get:

SPACEV/CMD LRL= 256 / EOF= 12 / SIZE= 3 GRANS

The LRL=256 tells us that each record of the program is 256 bytes, ie a full sector, this makes it easy for us as had they been shorter than 256 we would have had to do some sums. The EOF=12 tells us that the file ends in sector 12, bearing in mind that the Dos does some of its sums by starting at 0 not 1. Therefore there are 13 sectors to the file and as we are going to use Diskdump to get at it we must remember that Basic starts counting at 1, usually.

Power up Basic, run Diskdump again asking for the 13th sector of file Spacev/cmd; the printout should be:

```
 0  20 28 4D 4F 4C 49 4D 45   52 58 29 20 20 20 20 20  ! (MOLIMERX)     !
16  45 4E 54 45 52 20 20 20   53 54 41 44 44 41 52 44  !ENTER   STANDARD!
32  20 20 20 4F 46 20 20 20   50 4C 41 59 20 20 20 20  !   OF   PLAY    !
48  28 30 20 20 3D 20 20 46   41 53 54 29 20 2D 2D 20  !(0  =  FAST) ---!
64  28 39 20 20 3D 20 20 53   4C 4F 57 29 20 02 01 11  !(9  =  SLOW) ...!
80  EE 7B F3 21 00 70 11 53   43 01 EE 0B ED B0 C3 53  !...!...SC......S!
96  43 02 02 EE 7B 42 20 41   53 52 43 20 4F 20 52 54  !C....B ASRC O RT!
```

etc. up to byte 255.

We want to find the end of the program and as we now know it is signified by the two bytes 0202 followed be the execution address.
Careful examination of the printout shows these to be located at byte 97 with the next two bytes being EE 7B - the execution address 7BEEH.

To add our new bit of program what we have to achieve is a gap of 4 bytes between the program end and the exec address, insert 01 04 16 40 and the job is finished. We need to retain the original execution address of Spacev/cmd rather than putting the 402DH we had with Bounce so that the Z80 will start to execute Spacev after it is loaded.
As we haven't got a Superzap we can only get at this disc sector to alter it as a Random Access file through Basic.

Summarising the problem:
1. Open the file Spacev/cmd for random access.
2. Field the buffer so as to allow us to manipulate bytes 97 to 106.
3. Get the 13th record or sector.
4. Move bytes 97 - 100 to 102 - 106.
5. Change bytes 97 - 100 to 01 04 16 40.
6. Put the modified sector to the file.

When finished a check on the 13th sector using Diskdump should show the following, where xx indicates don't care:

```
Before:
96  43 02 02 EE 7B xx xx xx   xx xx xx xx xx xx xx xx

Move bytes 97 - 100
96  43 xx xx xx xx xx xx 02   02 EE 7B xx xx xx xx xx

Insert:01 04 16 40 E3 03:
New Program
96  43 01 04 16 40 E3 03 02   02 EE 7B xx xx xx xx xx
```

Here is a simple Basic program to do the job:

```
10 CLEAR1000:
   CLS:PRINT
20 INPUT"LOAD DISC WITH SPACEV/CMD PROGRAM  ";X$
30 OPEN "R", 1, "SPACEV/CMD"
40 FIELD 1, 97 AS DD$, 1 AS D0$, 1 AS D1$, 1 AS D2$,
   1 AS D3$, 1 AS D4$, 1 AS D5$, 1 AS D6$, 1 AS D7$,
   1 AS D8$, 1 AS D9$, 149 AS DX$
50 GET 1, 13
60 LSETD6$ = D0$: LSETD7$ = D1$: LSETD8$ = D2$: LSETD9$ = D3$
70 LSETD0$ = CHR$(1):  LSETD1$ = CHR$(4):   LSETD2$ = CHR$(22):
   LSETD3$ = CHR$(64): LSETD4$ = CHR$(227): LSETD5$ = CHR$(3)
80 PUT 1, 13
90 END
```

This technique will probably work with other programs that have been put to disc with an offset loader and don't work properly.
One that comes immediately to mind is Mon3. It still uses the Dos keyboard and all sorts of funny things can happen if you try to use Mon3 from disc to load a System tape into low memory.
(Do I hear lots of voices saying 'so thats what was happening !')

A simple check with any of these programs would be to run Bounce first and if this cures the problem then add this little piece of code at the end.

Laurie Shields

PS This was printed on a Wang 611 Golfball typewriter that I've linked to the TRS80 using a few bits of wire and some special software.

MORE NEWDOS 80 DEBUG MODS

Since my last contribution I have found rather more use for the 'mini-zap' functions L and W. Sufficiently that I don't want to lose them from the monitor.
I am now using the stand alone version of the additional functions which I described last time. The code I have appended to SYS0/SYS by the Hallam/Ozaniec methods described in previous newsletters.
Although I don't altogether approve of using valuable SYS0 space for this type of application, since it is only needed when DEBUG operates, the convenience of the method does in this case justify its use.

In adding these functions I decided that some other simple modifications might be worthwhile.
These I offer as a package for 48K systems. The changes are to some extent are interactive. It would be difficult to do some without the others. Also to keep the article short I am showing the changes in machine code. Disassembly would take an unjustified amount of space. Anyone trying these mods will have the Disassembler available if they wish to see what is going on.

The changes are as follows,

1 The new Transfer and Block fill functions mentioned in the April newsletter are made available with no loss of other functions.

2 The Find function is a very useful addition to the monitor but my experience of past usage of this type of function is that I am Finding generally in order to Modify memory. I have arranged that on finding the required bytes, the system displays them in memory mod mode rather than the buffer display mode. If one does not wish to modify it is only necessary to hit Enter then F to continue the search. It does save entering the address every time one does wish to modify.

3 I regret the loss of ability to see code being executed under the single step functions C and I, as with the old Debug. I have arranged that when the programme counter is loaded with a value, this address is displayed in the middle of the 3rd display buffer. Execution of the functions C and I will update this display and always show the code about to be executed in the same position. Normal use of this buffer is not affected if it is required for normal display.

The last two changes are possible using only 14 bytes of extra code after making the internal changes to DEBUG.
I regret also the loss of display of memory pointed to by resister addresses but I found the extra code required to reinstate those functions was too much to justify their inclusion.

The changes may be implemented as follows.

First to reserve memory space for the extra code.
Zap SYS0/SYS, Sector 10, Byte 23 from FF to F9.
This reserves and protects 6 pages at the top of memory for machine code routines. This may seem a little excessive for the 5 lines of code which are to go in there, but I find it very useful to have a protected area like this to use as an overlay area for machine code programmes.

Next is to arrange for the code to be written into this area automatically.
Zap SYS0/SYS, Sector 12, Byte 69-,
from,

	1H	60	0000	0000	0000	0000	0002	0200	4D28	053E
		70	1832	BC45	AFCD	0049	C2A2	4C11	1843	D5C5
	TRS	80	21E0	4201	2000	EDB0	21AC	4ECD	6744	C1E1
	7	90	AFFD	CBEC	7620	0D3A	4038	0FDA	0044	7EFE
	7H	A0	0DCA	0044	CD67	44C3	0544	3A40	38CB	5728
		B0	147E	0730	1007	380D	3A68	45B7	2007	F1C1
	FRS	C0	D1E1	C3EE	45CD	E303	C35D	451C	1F4E	4557
	12	D0	444F	5338	302C	2041	5050	4152	4154	2753
	CH	E0	2044	4953	4B20	4F50	4552	4154	494E	4720
		F0	5359	5354	454D	2C20	5645	5253	494F	4E20

to,

1H	60	0000	0000	0000	0000	0001	5200	FAFE	52CA
	70	F94D	FE54	2013	CD2D	FADF	3B05	03ED	B018
TRS	80	0709	EB09	EB03	EDB8	C9FE	42C2	2B4E	CD2D
7	90	FA03	7323	0B78	B120	F9C9	0603	CD7A	50D5
7H	A0	10FA	D1E1	C1C5	ED42	E5C1	E1DA	B650	C923
	B0	72F5	7DFE	F020	04F1	C379	4EF1	C902	0200
FRS	C0	4D00	0000	0000	0000	0000	0000	0000	0000
12	D0	0000	0000	0000	0000	0000	0000	0000	0000
CH	E0	0000	0000	0000	0000	0000	0000	0000	0000
	F0	0000	0000	0000	0000	0000	0000	0000	0000

Don't worry about apparently removing Apparat's message. This is a redundant copy.

Now for the internal modifications to Debug.
Zap SYS5/SYS, Sector 0, Byte 25-,
from 06 80 CD 60 to 1B CD 79 4E.
Zap SYS5/SYS, Sector 0, Byte F9-,
from FE 52 20 32 to C3 00 FA 00.
Zap SYS5/SYS, Sector 1, Byte 30-,
from 23 72 C9 to C3 42 FA
Zap SYS5/SYS, Sector 1, Byte 7E-,
from 11 E0 FF 19 22 63 40 3E 58 18 59
to C3 15 4F 21 E0 FF 19 22 67 40 C9

Now hit the reset and enter Debug. All mods should be operating.

Andrew Donald

MANCHESTER WORKSHOP 2ND MAY 1981

This particular workshop was at the Open University's regional office in Chorlton and local man Tom Vincent very kindly assisted in making the day very easy to administer.

The enthusiasm for workshops continues, with nearly 50 at this location, and the programme for 1981 has been stepped up accordingly. One idea for 1982 is to hold 9 monthly workshops in Birmingham or Milton Keynes at the M1 Service Area Hotel or in London, with just one particular topic covered in depth at each, with full lecture notes and video's taken of those lectures where possible.

NEWDOS/80 - Laurie Shields.

Laurie after a brief introduction into the DOS history went into those Newdos/80 utilities he currently uses, or has used. For those north of Watford Gap this was the first serious discussion comparing Newdos/80 with VTOS. Alan Redhouse from York has been using the latter for some time and assisted Laurie with some observations when a comparison was useful. In fact with Leon Heller and Nigel Dibben in on the session various points were dealt with, by whoever "drew first".

Although still finding his feet with this operating system, it became apparent that in general terms this was an excellent DOS, but with documentation that could be more helpful!

Laurie explained some of the potential uses the intialization procedures could be put to, which always requires proper explanation using a large display. Most users appreciate the potential of the file handling, but few seem to actually use it in a serious way, (in a business environment, for instance).

Writing Software - Nigel Dibben

Many members will have seen various programs published by Nigel, and one member wrote in asking for certain topics and questions to be covered, which Nigel went out of his way to illustrate. Essentially, improving existing software was explained step-by-step and the participants were taken from the initial stages to that of patching. Once again this area was a favourite of Laurie's (Scripsit & Electric Pencil) and they swopped techniques or just agreed on a point of procedure.

Both the sessions were on machine code programming and a variety of techniques was covered along with the use of

software tools 'to do the job'. Judging from the response of those present, and the informal surgery that followed, this long session was greatly appreciated and enjoyed. On a lecturing point, this was the first time where lecture notes were presented with a word processor, and individual handouts made available on request.

Communications - Leon Heller

These sessions always seem to break new ground. This time Peter Tootill's cassette-based system was used to demonstrate the topic. Systems accessed were those of Frederick Brown at Hull, the Open University main frame at Milton Keynes and my own system at Milton Keynes.

The software used was one marketed by Molimerx and worked quite satisfactorily. The previous Sunday some the Clay family hooked up to Forum-80 (Milton Keynes), which was quite eerie to watch in the office.

This session would have been the first to link with an European member but it transpired the system was down. For the record on the previous Thursday (30 April), the Milton Keynes Forum-80 received the first call from a Dutch member, where the quality of transmission was perfect.

Os House attended once again and must be thanked for his efforts, plus the two reps who brought along a daisy wheel printer which will print circuit diagrams and similiar layouts.

The day closed as usual with members quite tired and exhausted, going home with ideas and hints to try out, to perfect and use in their applications.

Brian Pain

GLOUCESTER

THREE COUNTIES TRS80-USERS GROUP
Contact John Christie,
10 The Pramleys
Long Hope
Gloucester, GL17 0QP

0452-830141(Evening)
Meetings Newsletters

HULL

Contact Frederick Brown,
421 Endike Lane, Hull.

Tel: 0482-859169

Meetings - Newsletter

GLASGOW AREA

Contact Jim McPherson

Tel: Udd ston 4813717
or 4812797

EDINBURGH GROUP

Contact J.Johnson
6 Allen Park, Kirkliston,
Edinburgh, EH29 9HA.

Tel: 031-3332411

EDUCATIONAL SUB-GROUP

Contact Dave Futcher
Beaconsfield First & Middle School,
Beaconsfield Road
Southall, Middlesex.

Tel: 01-574-3506 (School)
01-743-5310 (Home)

LAURIE SHIELDS SOFTWARE

The superb ZEN Editor/Assembler/Debugger is now available for Disc, Cassette or Aculab operating systems.
All versions have been enhanced with a wide range of extra commands to provide the user with facilities not available on any other assembler.

Aculab version	£19.50
Cassette version	£19.50
Disc version	£29.50

HELP/CMD will recover Scripsit or Pencil text from memory lost through re-boots, disc crashes or other acts of the devil.

Disc only	£14.50

BACKUP Total security now for the Aculab.
Any data, including the directory, can be read from a floppy, stored on another floppy or cassette and transferred back again.
Recover unlistable tapes if you have previously saved a copy of the directory.
Numeric printouts of the directory and re-entry from the keyboard also allowed.

Aculab only	£12.50

Electric Pencil is the word processor for the Aculab.
Your cassette version modified and upgraded to give the full power of a disc based system.

Aculab only	£19.50

Electric Pencil does work with the Tandy lower-case but you will have to send your copy to me first for the modification.

Disc or cassette	£9.50

Laurie Shields Software, 151 Longedge Lane, Wingerworth, CHESTERFIELD.
Tel 0246 75568 Evenings or weekend.

LIBRARY

Librarian L.H.Davies
Brynna Road, Pencoed
Bridgend, Mid - Glamorgan

Tel: 0656 860398

BARROW IN FURNESS

Contact Jack Lowther
131 South Row
Roose, Barrow in Furness,
Cumbria.

Tel: 0229-34953 (Home)
-26214 (Business)

BASILDON
Contact Head Office
40A High Street
Stony Stratford
Milton Keynes

Tel: 0908 566660

BIRMINGHAM GROUP

Contact Mike Gibbons
1 New Street,
Castle Bromwich,
Birmingham, B36)ap

Tel: 021-747-2260

BLANDFORD FORUM

Contact Os House
Higher Shaftesbury Road,
Blandford Forum, Dorset.

Tel: 0258-53737

Meetings

LONDON (NORTH)

Contact John Wellsman
292 Caledonian Road,
London N1.

Tel: 01-607-0157

Meetings - Newsletter

NORTH EAST LONDON'80' USERS GROUP,
P.O.BOX 71,
Chingford,
London E4 7QX.

Contact Alan Greenhalgh

COLCHESTER

Contact Roy Smith
8 Mallard close,
Layer-De-La-Haye,
Colchester, Essex.

Tel: Layer 442

Meetings

LONDON (WEST)

John Carne
14 Lyncroft Gardens,
Ealing W13.9PO

Tel: 01- 567 - 7873 (Home)
01- 993 - 1462 (Work)

LONDON (SOUTH WEST)

Contact Ron Everitt
2A Longdown Lane North,
Ewell, Surrey.

Tel: 01-394-2123

MEDICAL SUB-GROUP

Contact Nick Robinson,
The Residences,
Northwick Park Hospital,
Watford Rd., Harrow,
Middlesex HA1 3UJ.

MERSEYSIDE MICROCOMPUTER GROUP

TRS-80/VIDEO-GENIE SPECIAL
INTEREST GROUP
Contact Peter Tootill

Tel: 051-9227260
ext. 250 or 211 (W)
-2209733 (Home)

MIDLANDS (EAST)

Contact Mike Costello
17 Langbank Avenue,
Rise Park,
Nottingham, NG5 5BU

Newsletter

ISLE OF WIGHT

Contact M.Collins,
3 Altofts Gardens,
Ventnor 85 2008

Meetings - Newsletter

LEEDS

TRS-80 GROUP
Contact John Jowitt
Kings Edward Crescent, Horsfor
Leeds. Tel: 0532-581734
or
Contact Evan Jones
Braside, Newlaywood Ave.,
Horsforth Tel: 0532-586314

Meetings

* * * P C R - 8 1 * * *

Low cost RS232-c interface for

TRS-80 or VIDEO GENIE

Allows a 16k machine to commnicate with standed rs232 peripherals
No need for expansion box, No power supply needed
Plugs into back of keyboard, nothing else to buy
Ideal for commnicating with other computers or forum-80 bulletin boards and networking systems

TWO PROGRAMS PROVIDED :-
(1) 'MODEM' Converts a 16k Trs-80 or Video Genie into a rs232-c terminal, and allows the user to per-define (offline) a message which can be transmitted with a single keystroke, thus reducing expensive online time
(2) 'PRINT' To allow the use of LLIST and LPRINT with an rs232-c serial printer or teleprinter.

ONLY £49.00 INC VAT

Available from :-

3-LINE COMPUTING

36 CLOUGH ROAD HULL

HU5-1QL

TELELPHONE (0482) 445496.

DEALER ENQUIRIES WELCOME

DATA RELIABILITY USING VOICE GRADE LINES
CRYSTAL ACCURACY AND STABILITY
UPLEX ASYNCHRONOUS OPERATION (LOCAL COPY OPTIONAL)
32 TERMINAL INTERFACE
Y INTERFACE (OPTIONAL)
E DATA RATES UP TO 450 BITS PER SECOND
T AND LIGHT WEIGHT FITS UNDER STANDARD TELEPHONE
AND CARRIER DETECT INDICATORS
NNECT/DISCONNECT SWITCH
NE DISCONNECT WITH LOSS OF CARRIER
M103 Originate only ... ... only £160.00 plus VAT
M103A Auto-answer ... ... only £225.00 plus VAT

AVAILABLE ONLY FROM :–

3-LINE computing

OUGH ROAD HULL HU5 1QL Telephone: (0482) 445496

DEALER ENQUIRIES WELCOME

INNOVATIVE
TRS-80 SOFTWARE
FROM THE PROFESSIONALS



SPACE EYE

When you come to think of it, computer programs are rather like films, the viewer or operator normally takes the part of the good guy. In this game the roles are transposed. You take the part of a Vogon space commander and your mission is to destroy Earth, the Moon, Mars or Jupiter, before the surface defences shoot you down with their missiles. So far, apart from the roles being somewhat transposed, we have an ordinary space shooting game. The importance of this game is hinted at by its title — "Space Eye", for during the play of the game, that is to say during the attack on the planet, the centre of the screen is taken up by a fantastically realistic view of the planet underneath. Obviously the topography of Earth is better known to us than that of the other planets, so it is with the Earth attack that one gets the most realism. One almost gets the actual feeling of passing over the Earth as the Continents pass below the Space Eye. The impression is quite uncanny and really has to be seen to be appreciated. The graphics for the various planets are so extensive that they cannot be included in the program and are supplied in the form of datafiles which the program inputs. In other words, when you have chosen the planet which you wish to attack, the data for that particular planet is fed in from either tape or disk.

Here and there on the planet's surface are enemy bases which have to be destroyed. Intermingled with them are the enemy's rocket sites which will, with uncanny accuracy, damage your vessel with their missiles. Although this shooting back and forth is good fun, the value of the program as we have said, lays in the realism of the image of Earth passing beneath the Space Eye. As we are not so familiar with the other planets, the view passing beneath the Space Eye has been annotated with the names of the most important features and in the case of Jupiter and Mars, some of the Moons are displayed. During an attack the surface of the planet passes beneath the Space Eye as we have described, but an added feature is that the user has the option of displaying on the screen the planet over which he is orbiting. This can come in handy if you are not used to orbiting around Mars and Jupiter!

The program is available for disk minimum 32K sytems or tape with a minimum of 16K. It is compatible with Video Genies which have had the righthand arrow key fitted. Orders must stipulate tape or disk as the two versions are different.

Tape version .....£8.75 Disk version £11.75

Both prices **plus** VAT and 75p P&P.

TRS-80 & VIDEO GENIE SOFTWARE CATALOGUE £1.00 [**refundable**] plus 50p postage.

MOLIMERX LTD.

A. J. HARDING (MOLIMERX)

1 BUCKHURST ROAD, TOWN HALL SQUARE,
BEXHILL-ON-SEA, EAST SUSSEX.

TEL: [0424] 220391 / 223636 **TELEX 86736 SOTEX G**

• Circle No. 149

ALBION SOFTWARE

LAMMAS ROAD,
LONDON, E10 7QT.

Telephone 01-539-7071/2/3/4

Telex 27950 Quote Ref 3635 Dly
Answerback: MONREF G

DUPLITAPE

A copy program which can copy any length program or data-file from tape to tape. Duplitape will run on a computer with 4K of RA.M. , but will copy any length of program including Adventures, Machine Code & Protected Tapes. Duplitape is not a simple copy program but is designed to alter and reposition tape pulses so that difficult tapes will load easily. It requires two cassette recorders.

CHAIN-LINK

This program allows long BASIC programs to be split up so that they will run in a small memory machine. It allows variables including strings to be passed from one program to another. It has a built in MERGE for BASIC programs, and allows two BASIC programs to be kept separate in memory if needed. (16K L II)

THE WIZARD'S CASTLE.

A fantasy adventure with graphic maps. The objective is to find treasures in a 500 room castle. The castle has monsters which have to be fought together with other hazards. Every time the program is run the castle will be different. Magic spells can also be used by some characters. Suitable for all Dwarves, Elves, Hobbits and Humans . (16K L II)

ACULAB DATA-BASE

A general purpose data base to run with an Aculab Floppy Tape under Extended BASIC (which must be obtained from Aculab Ltd.) The use of the P.I.M.S. manual by SCELBI Publications is reccomended. Functions supported include Help Command; Arithmetic; Searching; Sorting; Listing; Printer output if required; Printing of 5-line address labels; Commas are allowed in the text lines. As this is intended for present owners of PIMS the instructions are only briefly summarised except for new commands and general operating procedures.(16+ K L II)

PROFESSIONALS HELP-MATE

This will be available in late May. This program will take a number of time sheets from clerks showing the time spent for each client, and produce sheets for each client showing what work has been done for them. HELP-MATE will also be able to price the hourly rates for each clerk. No serial numbers are used, all input being done by name of the client or clerk.
No price has been fixed for this yet.

ALL THESE PROGRAMS ARE SUPPLIED ON CASSETTE AT £9-50 EACH. THEY ARE NOT DISK COMPATIBLE AND WILL ONLY RUN FROM CASSETTE,

PLEASE STATE WHETHER YOU REQUIRE TRS-80 OR VIDEO-GENIE VERSIONS FOR DUPLITAPE.

National TRS-80 Users Group

Newsletter

VOLUME 2 ISSUE 12 JUNE 1981

CONTENTS

2. Editorial.
3. Members Letters.
5. Monitor programs for the TRS-80/Video Genie.
9. Some hardware and software projects.
11. Software review - Duplitape.
12. More on the Epson MX-80.
13. MuSimp/MuMath.
15. Max - Min routines.
15. Execution of a program without a 'RUN' command.
16. Microtek problems.
17. Exatron Stringy Floppy.
17. Software review - Invaders from Space and T-Short.
19. Re TRS-80's hidden keyboard.
19. IBM compatibility for Model II.
19. Tandy sue over Video Genie.
22. Problem Corner.
26. Modifications to ROM.
27. TRS-80 Educational Users.
32. Correction to upper-case to lower-case conversion program.
32. 16 bits on the Model I.
33. Problems with Microtek.
34. Floppy Tape Corner.
39. New software.
40. New hardware.
40. Local Sub-groups.
42. Sheffield Workshop Report.

EDITORIAL

As suggested recently, we are now including a "Problem Corner" section. No-one has volunteered their services to me but no doubt members with the necessary expertise will help out with questions I cannot answer. Please send your queries to me and I will publish them.

Competition in the business section of the small computer market place seems to be hotting-up. Xerox Corp. have announced a couple of relatively low-cost systems with the capability of connection to Ethernet, Xerox's local area network system. I.B.M are about to announce their new system which will be very strong competition for the Model II. Apparently it will use the 8088 processor (which I am playing with at the moment), has high resolution graphics and, being from I.B.M., excellent support. Tandy should get a move on and put a 16-bit processor into the Model II, together with hard disks and networking capability, if they wish to stay in business at the top end of the market.

The Commodore VIC will be available next month. Like the TRS-80 Colour this is aimed at the home computer market. However, unlike the equivalent Tandy system it is PAL compatible. The TRS-80 Colour is a better system in my opinion, but it looks like Tandy will miss the boat in the UK just as they did with the Model I.

Leon Heller

Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.
Tel: (0908) 613004

Publisher:-

Brian Pain,
40a High Street,
Stony Stratford,
Milton Keynes.
Tel: (0908) 566660/
614271

Membership of the TRS-80 Users Group is by subscription to the Newsletter and currently costs £6.00 for six issues. Back issues are available. Membership enquiries to Brian Pain at the above address.

80 - US MAGAZINE DIRECT FROM THE U.S.

Single copies or 6 monthly subscriptions
£3 a copy / £9 subscription
First copy available May/June 1981
Back copies available soon

Please make Cheques payable to MKSS
at:- 40a High Street
Stony Stratford
Milton Keynes
(0908) 566660

MEMBERS' LETTERS

From Nigel Hyde

Having just skimmed through the May newsletter and seen my name taken in vain by Laurie Shields, I felt compelled to write myself as I should have done a long time ago and tell you about some of my business applications of the Model 1.

I now have four 48K systems, two in Chesterfield, one in Stoke and the other shuttles between the office and home depending where it is needed most, housed in a crude copy of the Blandford Box.

We started in November 1979 with our first system bought on impulse after looking at very much larger machines and integrated packages. Our ignorance was staggering as we blundered in the dark with a copy of Electric Pencil given by the Tandy shop with photocopied manual. Two months later, shortly after discovering what a disk drive was and that we had two of them, something went badly wrong with the set and Tandy agreed to have it in at Wednesbury.

I sat for four hours whilst the famous buffered cable was fitted cursing at the time, but grateful on reflection, because perusing the limited software I came across the Mailing List. With nothing else to do, by the time I left the shop I had worked out how to store our component part numbers, drawing references and engineering specifications in the limited format and we were on the way to our first database for producing works job sheets.

Jumping to the present, one machine is almost totally dedicated to a production reporting system. Based on the original Tandy ICS but now expanded beyond recognition with the invaluable help of the "Wizard of Wingerworth" (L.S.), the whole Foundry order, sales and production position is constantly available. It is not unusual for the system which incidentally has peaked within 2K of the 48K available, to run 60 hrs. continuously.

The second machine is equally dedicated to Scripsit and various product databases. It is linked to a daisywheel typewriter which is printing this letter through the RS232 interface and an IBM golfball is attached to the cassette port. The IBM, now obsolete, was bought from Vlasak Computers, is mechanical & slow but has fantastic "clout" for making 8 good carbon copies. The daisywheel bought reconditioned from Orchard Data is fast, and can only manage 4 copies so we use horses for courses. This combination linked with Tandy's Profile and Software Concepts' Special Delivery enables the circulation of accurate works orders internally and order acknowledgments to the customer in about a quarter of the time taken manually.

I make considerable use of Visicalc which must be one of the most useful programs released this year. Special Delivery, recently enhanced to include a key coding facility is very powerful as a Mailing List or Database and represents remarkable value for money. Each record can carry twice as much information as the Tandy Mailing System, and you print the data exactly as you want it by "flagging" in a Pencil or Scripsit text. To save space, the latest version allows data to be stored as code, but printed out in full via a lookup chart also stored as a Pencil or Scripsit file. If anyone is particlarly interested I would gladly show them & will bring it to Milton Keynes in July anyhow.

You may have gathered by now that I am fairly hooked on the TRS-80 and never cease to be amazed by its' expanding capabilities. I am fortunate to have two people as competent as Laurie Shields and Keith Bedford so close to hand which allows me to develop ideas & systems which they put into practice. Future projects include a more powerful Production reporting system, probably on a Model-II and with Leon Heller's new interface, a link to the output of a Spectrograph for metal analysis. Eventually we expect to use sophistocated graphics for creating the master patterns from which we make castings, but on what equipment I don't yet know. An excursion into the accounts department is planned for later this year.

If I don't finish soon I shall have no disk space left: in conclusion, many thanks to yourself & Leon for another good meeting in Sheffield & I look forward to Milton Keynes.

Nigel Hyde

From Dave Hobbs

I would like to reply to M. Barry's letter in the last newsletter. I can sympathise with his point of view. When my pile of back issues arrived late last year, about 95% of the contents were, to my mind, gobbledygook. But as my studies have progressed, using the manuals, the microcomputer magazines and the many specialised books that are available, I have managed to get the Gobbledygook Ratio down to about 50%

I keep my newsletters in a loose leaf file and browse through the lot about once a month (a process that has not been made simpler by the recent format changes). At each reading I find that a few more points have become clarified, and the G.R. has gone down a couple of points. Then the next issue arrives and the G.R. shoots up again.

So please don't decry the newsletters, M. Barry. If you want "The TRS - 80 from Square One" Tandy publish some excellant books on the subject. But the newsletter is a very useful source of information provided by people who were once in your situation. For an example you only have to compare page 3 of issue 6 (Sept '79) with page 24 of Vol. 2 Issue 5 (Nov '80).

This letter was printed from Scripsit via an Epson MX-80. Nice, innit? If I can assist anyone with LLIST'ings or printouts of Scripsit or Pencil files from disc or tape, just write or phone.

Just one small moan. I think that Tandy's 90 day warranty is a bit miserly. Especially as my CTR-80 lasted 102 days before the "Play" key refused to latch down.

MONITOR PROGRAMS FOR THE TRS-80/VIDEO GENIE

I thought this correspondence had finished but, as it seems that I shall likely start being accused of everything from the demise of the groat to the result of the last general election, I must protest that my few mild words concerning a certain grossly inaccurate, unjustified and totally biased review of the finest piece of computer software since Hollerith first punched holes in Babbage's eight track (IBM format no doubt) steam powered difference engine could in no way be construed as a "blistering attack" on Mon3.

As I recall, I simply remarked that it was rather forgetful of Dr. Howe, after including a jump command, to ommit from his 'Monitor' the facility to set at least one breakpoint. Perhaps it was just beyond his abilities, which may also explain why Mon3 doesn't provide a display of the Z80 registers either.

As far as relocating disassemblers go I will agree that Mon3 is as good as some others that I've come across and, like many other S80 users it was with Mon3 that some of the inner workings of the TRS80 were first made clear.

It does have a number of drawbacks and should John not have noticed them here are a few:

1. No debounce - an absolute must for any Level2 software.

2. Very primitive memory edit with no attempt to format the display and no default to skip over bytes that don't require altering.

3. Primitive Ascii display with Bit 7 stripped whether you want it or not.

4. Degradation of the Level2 environment so that re-boot is the only way back to Basic.

A much superior monitor in many ways is IMON. It is the only disassembler I know that will evaluate the unofficial Z80 instruction set and together with its mode of presentation of data to both the VDU and printer, it leaves Mon3 a long way behind. Unfortunately like most software it isn't perfect and suffers, or the version I've used does, from a bug in the disassembler.

There is an excellent little relocating monitor that is available with the Exatron unit called ESF-80 which also has a true System tape copy command, but it does not have a disassembler.

The most recent to come to my notice is STEP80 which seems to be the ultimate in debugging monitors in that it can single step through ROM and RAM code with dynamic disassembly of the instructions as they are executed.

All of these latter packages can be called true monitors in that they will allow small sections of code to be executed under control with return to the monitor via breakpoint(s) and with register display.

Not until the programmer has experienced such improved facilities does he become aware of the shortcomings of such as Mon3.

John really ought to see some of these features before committing himself to Mon3 for the rest of his days :

IMON's beautiful user interface.

ESF-80's relocation - much simpler than Mon3's.

STEP80's debugging - Mon3 can't do it.

ZEN's Hex and Ascii display - much nicer than Mon3's.

Now how on earth did Zen creep in here when we were talking about monitors. (I suppose it was a major achievement to get even this far).
Well apart from being the only assembler that will assemble the Z80 mnemonics as they are defined in Zilog's manual, and before we have all the howls of protest just try getting your assembler to work with the instuctions exactly as they are printed without all this tabbing into fields and padding with God knows how many extra spaces, Zen is quite a competent monitor in the true sense of the word.

As John remarked, there are other packages on the market that have attempted to emulate Zen's facilities but what is the sense in a tape based assembler/debugger that occuppies nearly all of the 16K of RAM

Zen achieves in 5K, most, if not more, in terms of a monitor that is available in Mon3 except for the disassembler and should you require that as well, load Mon3 and Zen will quite happily co-habit and respect the area of RAM used by it.

What is more the two programs together will come to not much more than Edtasm by itself and certainly about half of your 16K will still be available.

After extolling the virtues of some machine code software, none of which is less than 4K and all of which must have been generated from source codes well in excess 20K, John then asks what is the point of being able to assemble large blocks of source code.

Talk to Brian for not more than 5 minutes and you'll not get away without at least a few words on the fantastic Nominal Ledger program Keith wrote for him.

Now what Brian doesn't know, is the trouble Keith had in creating that piece of software, because with the source file in memory the disc based inefficient Edtasm had no space left for the Symbol Table.
Keith had to dump the source on cassette, go back to Level2, load the tape Edtasm, (this freed a few K of RAM from the DOS), read the source tape, assemble to cassette, reboot the DOS, power up LMOFFSET to read the object code and transfer to disc. All of this before he could start to debug his program, and all of it repeated with every minor change.

John asks this question regarding large source files after getting totally confused between a monitor and an assembler and also following a sentence that reads "By jumping from ZBUG to MON3 I managed to rescue the source from EDAP's buffer for dumping to disk".
Come off it John if thats the way you think that Mon3 or any other of these second rate imported utilities, that you're raving about, were created then I think you're in for a rude awakening.

But then again perhaps not, if you are prepared not to look beyond the confines of the little world that the walls of EDAP and MON3 have built around your TRS80.

Your computer is deserving of better software.

PS. Could I also correct an alleged capability of Mon3, once again perpetuated by yourself Leon, in that it will not tell you the start and finish addresses of a System tape.
It will simply tell you the addresses of the first byte and the last byte to be loaded; where they are relative to the start and end of the program, as well as where the ones inbetween get loaded, is anybody's guess.
Try copying PROLOAD with Mon3 and see how well you manage.

Laurie Z. Shields

Stop Press: Just seen ZENMON, or some other name, that disassembles source code to selected RAM (or video, printer or cassette) and updates Zen's pointers.

For anyone who needs a labelling disassembler Keith has modified Mon3 and I've added a source disc write routine, but this could only be made available to customers, who could demonstrate that they had bought correctly an official version of Monitor3.

SOME HARDWARE AND SOFTWARE PROJECTS

1. General purpose parallel interface

Since getting my disk drive in January the priority of my projects has inevitably changed. I have 'temporarily' shelved the interface project described in the December newsletter and instead have modified the printer port on the expansion interface to act as a full 8-bit bidirectional parallel port with handshake. This has involved the addition of a #1 chip and provides input bits B0-B3 on pins 30, 32, 19 and 29 of the printer card edge. Pins 26 and 18 currently carry +5v on my system but I will use one of these for an interrupt line when I understand how to program interrupt service routines in assembler a bit better. Since all these pins are unused by the TRS the signals on them do not affect normal printer operation.

2. Analogue /digital interface

I have designed/cribbed and breadboarded a A/D interface which plugs into the parallel interface described in (1) above. This enables analog voltage signals to be directly monitore by the TRS; for example the monitoring of temperature or illumination. Before designing a PCB though, I should really incorporate a two or four channel analog multiplexer and a timer for generating interrupts at suitable intervals so that the data collection monitoring process can be carried out concurrently with normal use of the computer. Even with a four channel input multiplexer there would still be 6 output bits available for alarm or control purposes. Under VTOS however interrupt servicing is not a problem as a full set of o/s calls are available to install, initiate, run and exit foreground tasks concurrently with normal TRS usage. This means temperature etc can be monitored and logged every n/3 seconds (the foreground tasks execute every 1/3 sec) wiilst playing Startrek.

3. General purpose single bit I/O ports

I have used 2 spare on-board tristate buffers and a spare latch as a single bit I/O interface connecting to the outside world by an 8-way ribbon cable erminated in a 5-pin DIN line socket (which also carries +5v). The input lines go to bits b4 & b5 of port 255 whilst the latch is connected to bit b4 of port 254. Use of the ribbon cable enables the connector to be sneaked out of the keyboard underneath the jack panel without any case cutting. So far I have used this interface to connect twin games paddles (each hand held unit contains the 555 monostable circuit

given by Leon in the V1/#12 newsletter and is powered directly by the TRS); my home built but not fully working TTL compatible modem; a non-handshake RS-232 interface (powered by the TRS and 2-PP3's) which I've used with one of Fred Brown's Modtech modems; and a 20ma current loop for driving my printer at the bottom of the garden. Of course, all the serial to parallel conversion & v.v., line monitoring and bit waggling has to be done by software...of which more later. Like the parallel interface this monitoring could be done by a foreground task and could be used for instance for burglar alarm monitosing. The morse code decoder and MSF radio clock in issues V1/#8 and V2/#2 could also be plugged into and powered by this connector.

4. Acoustic coupler modem

I've modified the design of the modem in August 1980 BYTE to use CCITT (ie UK) frequencies whilst retaining the original Micromint pcb. Both transmit and receive sections work individually but under normal operation acoustic feedback via the telephone handset causes jitter in the demodulator section thus corrupting received data. Michael Clay is sending me details of a filter design which should sort this problem. The modem itself has non-handshake RS-232 and TTL interfaces - which are adequate at up to 300 baud - and I have worked out how to make it work in a half duplex manner from the cassette port by adding a bit more hardware to the modem. It has cost about #20 to build including case, power supply and pcb.

5. Auxiliary keypad

The addition of a calculator keypad to enter the non-keyboard characters {,|,},~ and which I described in my December letter is due for modification to improve the utility of the auxiliary keyboard concept. This will consist of line drivers and buffers connected to a 16 pin IC-type socket mounted flush with the keyboard case (or possibly underneath..?). Such an arrangment will allow calculator-type keypads to be configured for a particular range of keys and easily interchanged so that, for example, Space Invaders can be played well away from the CPU and eliminate the need for close supervision, particularly when children and refreshments are involved. I would think a six foot cable would be quite feasible.

6. Related software projects

As you know, when I got the disk drive I used TRSDOS 2.3 and NEWDOS+ before settling on VTOS (or LDOS as the Lobo version is called). Although the other two operating systems obviously have their plus points they are in the main a collection of largely unrelated programs and

utilities. VTOS on the other hand treats all programs and utilities in a rational integrated and coherent manner: so, for example, device drivers or utilities installed under the operating system are automatically protected under Basic without having to do any mindbending hexadecimal to decimal calculations before answering 'memory size' questions. The other aspect of VTOS which has an impact on hardware driver routines is the interchangeability of sequential files and devices; a 'device' being a physical I/O mechanism - such as the keyboard, display or printer - which either generates or accepts characters via a Device Control Block (DCB). VTOS provides library commands to defi e a new device (or redefine an existing one) in terms of its driver routine, to route I/O generated by subsequent programs from one device or file to another or to link devices in parallel. All this is by way of explanation of the sort of driver routines I have/am writing for the hardware interfaces above. These routines contain two basic sections :-

The first interprets parameters given with the driver filespec or sets default values, installs the second routine below the existing logical top of memory readjusting the pointer to protect itself and puts the absolute driver address in the newly created DCB. It then returns control to Vtos. This routine is only transient and can thus execute anywhere from X'5200' upwards.

The second is the actual driver code which is executed when the device is accessed. In the case of the games paddles for instance this routine interprets the monostable delay (which is dependant on the rotational position of the control) as an integer in the range 0 to n where n is set by parameters on device initialization. As this second routine can be located anywhere in memory - it depends on the logical top of memory at the time of installation - it must be written in relocatable code with any absolute addresses or parameters being patched in by the first routine.

So far I have written the following routines :-

A driver for the games paddles connected via the single bit interface described above. (I normally define it as the *PD device). Parameters set the range of each paddle.

A duplex serial line driver also using the single bit interface. By parameters it can be set for 110 or 300 baud, odd or even parity, positive or negative logic and any bit of any port for input and output. I wrote it primarily for driving the modem but it can be equally used for driving the serial printer out of the cassette port. I call this the *CL device.

A slimmed down version of the above driver which drives the (large) Olivetti terminal printer in the shed by a current loop from the cassette port. The *PR device is set to this driver automatically on booting by the VTOS sysgen proceedure. Paramet rs set various line feed options. This driver was actually written first.

In use devices created as above can be used just like files. In Basic for instance:-

```
SAVE"*CL",A
```

will send the resident program to the *CL device (modem) in ASCII form. Omitting the ",A" would send the program in compressed form. Under the o/s environment:-

```
COPY <filespec> TO *CL
```

would have the same effect.

```
ROUTE *KI TO *CL
ROUTE *CL TO *DO
```

Enables the TRS to be used as a teletype terminal to another computer, whilst replacing *KI with *PD should enable the playing of games remotely with the games paddles. An additional statement:

```
LINK *PD TO <filespec>
```

would simultaneourly record the game moves on disk.

Al Redhouse,
The Villa,
East Cottingwith,
York, YO4 4TL.
Tel: Melbourne (07593) 502

D U P L I T A P E
THE COPY ALL PROGRAM

A S O F T W A R E
R E V I E W

by Dave Futcher

DUPLITAPE is written by John Newgas and published by

ALBION SOFTWARE
Lamas Road,
Leyton,
London E10 7QT

is an excellent real time tape copying program for use on the TRS-80 or the VIDEO GENIE.
Duplitape offers the facilities in one program to copy / backup any 500 Baud tape of many different types including

basic programs
machine code programs
data ta
Electric Pencil files

In addition DUPLITAPE works with protected tapes and programs that run immediately on loading.
What is particularly valueable is that you can backup a whole mixture of programs of different types mixed on one cassette. Also very important is that the computer memory size is not important as the amount of available RAM does not limit the size of file which is being copied. This means you can use a 4K machine to copy a full 16K program. This is where DUPLITAPE is a winner -- the program works where before there was not enough room for the copying program and the program being copied to both fit into memory.

How then do you do all this? And what do you need? Well

a computer
two tape recorders
a blank cassette
and DUPLITAPE

The two cassettes are connected to the computer by means of the the normal computer cassette lead and the black jack going to one cassette and the grey jack going to the other cassette. One cassette is set in the record mode with a blank cassette and the other in the play mode with the tape to be copied
While operating DUPLITAPE gives on screen instructions and displays a monitor window which shows moving graphics when Duplitape is actually copying.
There have been many copying /backup programs for the TRS-80 and I expect that most owners have got a few already. But DUPLITAPE has something else to offer, we all know the programs that we have been unable to copy, so far Duplitape has not failed me. DUPLITAPE is a welcome acquistion to my library of programs.

The program is supplied on cassette and it comes with an excellent instruction booklet which not only tells you how to run and use the program;but also it explains how and why Duplitape works. I found the instructions clear and easy to understand although a diagram of the actual wire up of the machines would have been useful.

DUPLITAPE is well worth the £9.50 charged .All those 'protected ' programs can now be backed up, as can those long Adentures. But I particularly like being able to backup my general data tapes and to copy long and mixed tapes. Well done ALBION its a great program!!!

Dave Futcher

More on the Epson MX-80

In the last newsletter I was interested in the modification to SCRIPSIT for the MX-80 printer and I shall be trying this.

Those with tractor fed Epsons (and I suspect that I bought mine from the same source as N. Hendel) need not forgo the use of single sheets. Although there is a (costly) add-on modification on the market now to give both tractor and single sheet feed, a cheaper solution is simply to feed a single sheet through on top of and together with say a 3 length strip of perforated edge paper which is attached to the tractor feed as usual. The top of the single sheet is attached to the base paper by a small piece of masking tape. This is easily removed together with the single sheet when printing has finished. The lever which adjusts the distance of the printing head from the paper has, of course, to be moved towards the front of the printer to allow for the double thickness of paper. Apart from that nothing could be simpler!

As I now have a 32K expansion box, I no longer require the interface kit for the Epson. It comprises a bus interface cable (catalogue number 8221) and an interface board (catalogue number 8120) which fits inside the printer. The kit will also fit the TX-80 (and possibly the up-range Epson models but this should be checked). The interface kit enables the printer to be connected directly to the rear port of the keyboard. I am open to offers over £35 - it cost£49 + VAT. Full installation instructions are provided.

Bob Wiggins,
"Dilkhush",
North Bank,
Hassocks,
W. Sussex BN6 8JG

muSimp/muMath

I am a member of the National TRS-80 Group and am writing to you about muMath/muSimp. I have had the TRS-80 version of muMath for about six months but have, up until recently, been rather disappointed with it. As an 'A' level maths student I found it did'nt live up to its advertising, and that in too many cases I could do the work quicker myself!!

As result I have not made much use of it and been further offput by its poor manual. However, the arrival of Harding's latest list revealed that he now had in stock the full manual. Reading though articles about muMath/muSimp, including your articles in the Newsletter reawakened my interest and indicated that there was more to the system than meets the eye.

Anyway, I have now bought the manual and as I suspected muMath/muSimp is a lot better than it seems. You asked if any body using the system would contact you and so I thought I would drop you a line. I'm sorry its a bit late but when you wrote your articles I was not particularly interested in the system. However, apologies over, I will give you some of my impressions of the system, after a few days use having received the manual.

One of the things I quickly noticed were the missing muMath modules. From my point of view the SOLVE function looks particularly useful and should'nt have been left out of TRSMATH. Also the other functions such as SIGMA, LIM and INTMORE would enchance the system greatly for advanced maths. For programming, the TRACE function is important as it gives one the opportunity to find out whats going on.

since these are, presumably, all standard muSimp programs, the source code must be available from someone. I intend to pursue this further but as you may have already taken action in this direction, I am interested in your comments.

A different course of action, of course, would be to write the code myself!! As yet, however, I don't know enough about muSimp, although reading the manual makes me think that the actual code may be relatively simple. Only time will tell how things turn out!!!

On your comments on providing an editor in muSimp, this would seem impossible as the source code is not actually stored in memory. Using the RECLAIM() command only gives a free memory space of about 3000 (on a 48K machine). This does not seem enough to provide any useful sort of editor at all. On the other hand I may just be creating problems through lack of understanding of the way things work!!!

Another point I have pondered is removing the muMath to leave only the muSimp. This would surely leave a much more useable system. But yet again lack of detailed knowledge prevents any action.

Perhaps, when I get used to muSimp these questions and others will be answered but whatever happens it has turned out to be a very interesting package. Whether this letter has been of any use or not, I would be most interested to hear other users comments and hope that I may be able to c ontribute eventually!!

On a completely different subject, we (my father and I use the computer) have installed the Graphix-80 programmable character generator, made by Programma International in the computer. I don't know if anybody else is using it or if it has been mentioned in any issues of the Newsletter that we don't have, but you may be interested in having something written about it. If you are, please write and ask, as the Graphix-80 has turned out to be extremely useful. Despite people's apparent contempt of character generators as compared with full Hires screen graphics, the potential of a generator should not be ignored. The ability to create characters with the same resolution as ordainary characters, combined with ease of manipulation (same as with ordainary characters) outweighs the inability to draw large pictures.

To give an example of what I have achieved, when I use APL-80 (The Software Exchange version), having the full APL character set makes an incredible difference!!!!

To close, I hope there is something here to interest you and look forward to your reply.

Graham Roberts,
38 Oakwood Avenue,
Purley,
Surrey CR2 1AG

(* Several members have expressed an interest in the Programme mod. Please let me have an article. Regarding the muSimp, I have not tou it for some time as I am more interested in LISP. LFH *)

MAX - MIN ROUTINES

FOR WHAT SEEMS AGES I HAVE USED SUBROUTINES LIKE THE FOLLOWING FOR DETERMINING MAX AND MINIMUMS:

```
 9 'SUBROUTINE MAXIMUM
10 IF V1 > V2 THEN MX = V1 ELSE MX = V2
20 RETURN

29 'SUBROUTINE MINIMUM
30 IF V1 < V2 THEN MN = V1 ELSE MN = V2
40 RETURN
```

BUT IF YOU HAVE DISK BASIC OR LEVEL3 THEN THE ABOVE CAN BE ACCOMPLISHED IN 1 LINE USING THE DEFINE FUNCTION COMMAND

```
10 DEFFNMX(V1,V2) = -( V1 * ( V1 > V2 ) + V2 * ( V2 > V1 )):
   DEFFNMN(V1,V2) = -( V1 * ( V1 < V2 ) + V2 * ( V2 < V1 ))
```

THENCE WHENEVER STATEMENTS SUCH AS:

X = FNMX(A , B) or Y = FNMN(A , B)
ARE ENCOUNTERED THE APPROPRIATE MAXIMUM OR MINIMUM VALUE IS RETURNED AS X OR Y RESPECTIVELY

IT ALL WORKS OUT BECAUSE THE BRACKET (V1 > V2) IS EVALUATED AS EITHER -1 IF TRUE OR ZERO IF FALSE WITHOUT THE NECESSITY OF AN IF-THEN-ELSE TYPE OF STRUCTURE.

THERE MUST BE ACRES OF CODING I COULD PRUNE USING THE ABOVE TYPE OF LOGIC; THE DEFINE FUNCTION COMMAND MUST BE ONE OF THE MOST UNDERUSED IN MICROSOFT'S BASIC

Laurie Shields

EXECUTION OF A PROGRAM WITHOUT A "RUN" COMMAND

THANKS TO NIGEL'S INFORMATION (SEE PAGE 23) I WAS ABLE TO WRITE THE FOLLOWING ROUTINE WHICH WILL FORCE EXECUTION OF ANY RESIDENT BASIC PROGRAM WITHOUT THE TYPING OF RUN.

```
LD      HL,41E6H    ;POINT TO INPUT BUFFER
LD      (HL),8EH    ;AND PUT A RUN
INC     HL          ;TOKEN AND A
LD      (HL),0      ;ZERO THERE.
DEC     HL          ;NOW GO BACK ONE BYTE
DEC     HL          ;PAST START OF BUFFER
JP      1D5AH       ;AND RUN THE PROGRAM
```

ALUN EVANS,
64 CHRISTOPHER ROAD,
YNYSFORGAN,
ABERTAWE,
SA6 6QR.

MICROTEK PROBLEMS

Like Chris DEmpsy (April newsletter) we found that the Microtech unit wasnt compatible with Aculab. Ours did indeed work perfectly while it was working at all, but failed suddenly, leaving us with a non functioning TRS 80 and a bill for abaout £30 for repairs. The unit went back to the suppliers,Kingston Computers, who commented that that was the second they had supplied that had failed in use with an Aculab.Afer looking at it they said that they were not satisfied about the design of the Microtech being suitable for Aculab and they would refund the purchase price (we are still waiting for the cheque though)

Having read and heard a good many adverse comments on Tandy's servicing we were very pleasantly surprised by the speed and efficiency wiwth which our keyboard was repaired. A phone call to Seacoal Lane and another to John Ridgeway at Wednesbury and we'd arranged to go there ourselves and it would be repaired while we waited if at all possible, which it duly was. True it meant a long drive but since the breakdown had come at an awkward time and we needed the TRS 80 working again as soon as possible it was worth it. Many thanks to John Ridgeway and his team.

We also had the Roms changed from new to old type. We'd had problems with some machine code progrmamms since we reached the stage of trying to use them. Mon 3's L command didnt work and neither ordinary pencil nor Laurie Shields floppy pencil would write or read cassette tape. After trying various combinations of keyboards and programmes (thank you John Carne and Nick Robinson) we pinned the problem down to new ROMs. The solution,according to Tandy, was either to change the ROMs--cost £6--or wait for new versions of the programmes designed to work with the new ROMs. No doubt the programmes could have been changed if we knew enough about machine code, but we dont and the first was the only pracical choice for us Another thing that doesnt seem to work properly with new ROMs is floppy pencil's ability to read in basic programmes. Since our programming is done mainly at home,with old ROMs but the programmes are for use at work , with new ROMs it would be nice to be able to translate between the two if necessary. Can anyone advise please?

Geoffrey & Ariela Taylor

EXATRON STRINGY FLOPPY

Thanks to you publishing my letter about the Exatron Stringy Floppy I received a call from Ian Sinclair and we were able to get together. As a result I was able to confirm that my data I/O tape was at fault and Ian was able to give me a correct copy which works beautifully. At least we know that we are not alone with our Stringy's. I was also interested to hear that Laurie Shields is going to write a patch so that Acculab Floppies can be run on the Exatron Drive. This would be excellent because there is software available and Murphy's Law makes sure that what ever you want is only available for the device that you do not have.

When I purchased the Stringy Floppy it seemed like a Poor Mans Disc and as the price of discs dropped it became a less attractive proposition. As we have used the Stringy we have come to appreciate some of its hidden virtues. We have found that it is very tough and stands up to transporting to Club Sessions in the manner one would expect from a tape recorder and it loads fast and reliably without volume problems. This is why Exatron are bringing out an RS 232 Model which is intended to be used for industrial machine control. The worst feature of the Exatron machine is that they have not established a good agent in this country. If Tandy sold the machine they would be a sure fire winner. In the mean time if there are any other members with Exatron Stringys please get in touch (040 24 47661)

Derek Trayler

SOFTWARE REVIEW - INVADERS FROM SPACE & TSHORT

One of the things I look for most in magazines and newsletters is personal comment on hardware and software. There seems to be plenty of hardware review around, but buying software is a bit of a gamble. Here are my impressions of two programs purchased recently. Any chance of other members reciprocating with comments on their own best or worst buys?

'Invaders from Space'. Supplied by Microcomputer Applications. £9.50. Not the best version I've seen, but certainly not the worst. Fair graphics and good sound effects. Rather spoilt (for me at least) by flashing bands of light across the width of the screen, presumably to signify hits. To be fair, this doesn't bother the kids at all (and it was bought for them - honest!). A useful feature is the option to vary bomb and laser intensity as well as game speed, although I find it irritating (on other versions as well) not to be able to set the winning score. On this programme you must score no less than 655,000 points to win - no-one has done it yet! The game runs automatically as soon as loaded (system) and is impossible to copy, even using the system copy program from the Group Library. I did, however, make a successful copy simply by audio recording from one cassette recorder to another - not I hasten to add, in order to violate copyright, but to provide that basic essential, a backup copy. All in all, the game is fair value for money.

'TSHORT'. Also from Microcomputer Applications, this is excellent value for money at £6.50. Once loaded, shifted keys give a selection of preset words such as INKEY$(, CHR$(, THEN, GOSUB, GOTO, etc., etc. The authors claim that it will not interfere with other systems programs subsequently loaded, but I have'nt had the opportunity to test this. If you have lower case on your machine, Tshort can be switched (or poked) on and off, but this looks to me as though it might (I don't have lower case) be more bother than it is worth. I was very impressed with the increase in my typing speed and the improvement in accuracy when entering programs. Self adhesive decals are provided for the fronts of the keys, and I found it advisable to remove the keytops for the best results. A couple of grumbles (mainly from a personal point of view). Shift↓ should give CLOAD? - on my new ROM machine it didn't, although I found that pressing the Z at the same time gave the right result, so no sweat. Shift→ now gives TAB(instead of doubling chracter width. If you're addicted to this feature I found that Shift↓ E gave the same result most of the time (I don't know why not all of the time). Also, Shift Enter gives GOTO 10 - I'd rather the Enter key had been left alone. There's no provision for a single-entry RUN key, although strangely enough there's a single-entry CONT. I did wonder about the provision of CLOAD? rather than CLOAD until I realised how dangerous a single-entry key for the latter could be. A most useful feature is the provision for defining a key of your own (K for 'Kustom'!), which accepts an entire logical line of text. The key can be re-defined at any time. I find it useful for RUN(ENTER), ?CHR$(23) to replace that missing function, and even for ?**********, etc., to put in quick program subdivisions. Great value for money for £6.50.

Incidentally, both my order and a subsequent technical query were replied to in three days by Microcomputer Applications.

John Luby

THE TRS-80s HIDDEN KEYBOARD

Reprinted from the Liverpool Software Gazette April 1981

It may surprise you to learn that the TRS-80 keyboard can take on quite a different appearance to that which we normally expect. For instance next time you have a BASIC programme in an endless loop, instead of pressing the 'break' key, whilst holding down the shift and ↘ keys press 'A'. You might be surprised at the result! Shift and ↘ on the TRS-80 is equivalent to the control key on many other computers.

In fact, most of the ASCII control codes (no's 0 to 31) are available directly from the keyboard, which is not made clear in the Level II manual. However, some of the effects are slightly different to those in the standard ASCII alphabet. Table I sets out the codes in numerical order, and shows which keys should be pressed to obtain the required code. Table 2 has the same information, but is set out in numerical/alphabetical order, and indicates the key on the keyboard and the code generated in normal, shifted and control modes, with some notes on the control function where appropriate. A dash indicates that pressing the shift or control keys has no additional effect (e.g. shifted space still produces 'space', control and 5 still produces '%', as does shifted 5). There are as you will notice, one or two gaps: for instance codes 28 to 30 do not appear to be obtainable directly from the keyboard, and I suspect, but cannot prove that control and @ is quivalent to ASCII code) (NULL). This is a fairly usual method of obtaining this code from the keyboard, if you really need to.

The codes are valid for machines with old and new ROMs. The only difference is that the old ROMs give ASCII 26 for shift and ↘. but the new ROMs produce nothing until a further key is pressed. If you want to get '26' you have to press control and Z.

If you want to check your own computer the following routine will print the codes:–

```
10 A$= INKEY$: IF A$= "" then 10.
20 PRINT" THE CODE FOR "; A$;" IS"; ASC(A$),
30 GOTO 10.
```

This obviously doesn't work for the break key, as the programme is interrupted. However, I have occasionally been able to surprise the computer into printing the value of '1' for control and 'A' before it had time to realise that it should have stopped!

N.B. If you have the Tandy lower case modification, you won't be able to get the control codes when running under ULCBAS. I don't know how other lower case systems are affected, but the Tandy system uses the shift and zero to switch between upper case only and normal typewriter operation, and the software modifies the effect of the shift key to do this.

IBM COMPATIBILITY FOR MODEL II

According to Electronics, Tandy have announced three packages for the Model II which enable it to:-

1) emulate an IBM terminal (presumably using the synchronous serial port for bi-sync communication) for connection to 360/370 and 303X systems.

2) be used for RJE (remote job entry) using 3780 protocols.

3) convert between IBM and TRS-DOS formats, so that diskettes can be interchanged.

The first two cost $995 and the third is $249.

Leon Heller

TANDY SUE OVER VIDEO GENIE

Sol Libes, in his Bytelines section in the June issue of Byte, reports that Tandy are suing PMC, the US importers of the Video Genie (called the PMC-80 over there), and several dealers. Tandy are seeking damages and an injunction over alleged copying of input/output programming and the use of a similar trademark to that registered by Tandy.

Leon Heller

TABLE 1

CONTROL CODES			CHARACTERS					
Code	Function[1]	Keys	Code	Char.	Code	Char.	Code	Char.
0 (00)	NULL	④	32 (20)	Sp	64 (40)	@[3]	96 (60)	@[3]
1 (01)	BREAK(SOH)	Break or Cntrl&A	33 (21)	!	65 (41)	A	97 (61)	a
2 (02)	STX	Cntrl & B	34 (22)	"	66 (42)	B	98 (62)	b
3 (03)	ETX	Cntrl & C	35 (23)	#	67 (43)	C	99 (63)	c
4 (04)	EOT	" D	36 (24)	$	68 (44)	D	100 (64)	d
5 (05)	ENQ	" E	37 (25)	%	69 (45)	E	101 (65)	e
6 (06)	ACK	" F	38 (26)	&	70 (46)	F	102 (66)	f
7 (07)	BEL	" G	39 (27)	'	71 (47)	G	103 (67)	g
8 (08)	BKSP	← or Cntrl&H	40 (28)	(	72 (48)	H	104 (68)	h
9 (09)	HT	→ or " I	41 (29)	)	73 (49)	I	105 (69)	i
10 (0A)	LF	↓ or " J	42 (2A)	*	74 (4A)	J	106 (6A)	j
11 (0B)	VT	Cntrl & K	43 (2B)	+	75 (4B)	K	107 (6B)	k
12 (0C)	FF	" L	44 (2C)	,	76 (4C)	L	108 (6C)	l
13 (0D)	CR	" M	45 (2D)	-	77 (4D)	M	109 (6D)	m
14 (0E)	CURON(SO)	" N	46 (2E)	.	78 (4E)	N	110 (6E)	n
15 (0F)	CUROFF(SI)	" O	47 (2F)	/	79 (4F)	O	111 (6F)	o
16 (10)	DLE	" P	48 (30)	0	80 (50)	P	112 (70)	p
17 (11)	DC1	" Q	49 (31)	1	81 (51)	Q	113 (71)	q
18 (12)	DC2	" R	50 (32)	2	82 (52)	R	114 (72)	r
19 (13)	DC3	" S	51 (33)	3	83 (53)	S	115 (73)	s
20 (14)	DC4	" T	52 (34)	4	84 (54)	T	116 (74)	t
21 (15)	NAK	" U	53 (35)	5	85 (55)	U	117 (75)	u
22 (16)	SYN	" V	54 (36)	6	86 (56)	V	118 (76)	v
23 (17)	ETB	" W	55 (37)	7	87 (57)	W	119 (77)	w
24 (18)	CAN	Shift← or Cntrl&X	56 (38)	8	88 (58)	X	120 (78)	x
25 (19)	EM	Shift→ or Cntrl&Y	57 (39)	9	89 (59)	Y	121 (79)	y
26 (1A)	SUB	Shift↓ or Cntrl&Z	58 (3A)	:	90 (5A)	Z	122 (7A)	z
27 (1B)	ESC	Shift↑	59 (3B)	;	91 (5B)	↑	123 (7B)	↑
28 (1C)	HOME (FS)		60 (3C)	<	92 (5C)	|[2]	124 (7C)	↓[2]
29 (1D)	BOL (GS)		61 (3D)	=	93 (5D)	←[2]	125 (7D)	←[2]
30 (1E)	EREOL(RS)		62 (3E)	>	94 (5E)	→[2]	125 (7E)	→[2]
31 (1F)	EREOF(US)	Clear	63 (3F)	?	95 (5F)	_[4]	126 (7F)	_[4]

Note 1 ASCII standard is shewn in brackets if different.

Note 2 These characters cannot be obtained directly from the the keyboard, but can be displayed by PRINT CHR$(92), for example. Similarly the control functions can be used within a programme with the command PRINT CHR$(X), where 'X' is the ASCII code for the desired function. (e.g. PRINT CHR$(31) will erase from the cursor position to the end of the screen: see also note 3.)

Note 3 Characters no'd 64,91-94,96, and 123-126 are not standardised internationally,and are used for different characters on different machines.

Note 4 Control and @ is usually used to produce 'NULL', but seems to have no effect whatsoever on the TRS-80.

Note 5 Shift↓ doesn't produce 26 with the new ROMs.

TABLE 2

KEY	ASCII CODE				
	Normal	Shifted	Control	Function	Remarks re: Control codes
ø	48 (30)	32 (20)	-	-	
1(!)	49 (31)	33 (21)	-	-	
2(")	50 (32)	34 (22)	-	-	
3(#)	51 (33)	35 (23)	-	-	
4($)	52 (34)	36 (24)	-	-	
5(%)	53 (35)	37 (25)	-	-	
6(&)	54 (36)	38 (26)	-	-	
7(')	55 (37)	39 (27)	-	-	
8(()	56 (38)	40 (28)	-	-	
9())	57 (39)	41 (29)	-	-	
:(*)	58 (3A)	42 (2A)	-	-	
;(+)	59 (3B)	43 (2B)	-	-	
,(<)	44 (2C)	60 (3C)	-	-	
.-(=)	45 (2D)	61 (3D)	-	-	
.(>)	46 (2E)	62 (3E)	-	-	
/(?)	47 (2F)	63 (3F)	-	-	
@	64 (40)	96 (60)	?	?	Shift @ is pause on TRS-80
A	65 (41)	97 (61)	1 (01)	BREAK	Same as 'Break' key (ASCII is SOH)
B	66 (42)	98 (62)	2 (02)	STX	Start of text
C	67 (43)	99 (63)	3 (03)	ETX	End of text
D	68 (44)	100 (64)	4 (04)	EOT	End of transmission
E	69 (45)	101 (65)	5 (05)	ENQ	Enquiry
F	70 (46)	102 (66)	6 (06)	ACK	Acknowledge
G	71 (47)	103 (67)	7 (07)	BEL	Bell (sounds an alarm)
H	72 (48)	104 (68)	8 (08)	BKSP	Backspace
I	73 (49)	105 (69)	9 (09)	HT	Horizontal tab.
J	74 (4A)	106 (6A)	10 (0A)	LF	Line feed
K	75 (4B)	107 (6B)	11 (0B)	VT	Vertical tab.
L	76 (4C)	108 (6C)	12 (0C)	FF	Form feed
M	77 (4D)	109 (6D)	13 (0D)	CR	Carriage return (same as enter)
N	78 (4E)	110 (6E)	14 (0E)	CURON	Cursor on (ASCII is SO - Shift out)
O	79 (4F)	111 (6F)	15 (0F)	CUROFF	Cursor off(ASCII is SI - Shift in)
P	80 (50)	112 (70)	16 (10)	DLE	Data link escape
Q	81 (51)	113 (71)	17 (11)	DC1	)
R	82 (52)	114 (72)	18 (12)	DC2	) Device control codes
S	83 (53)	115 (73)	19 (13)	DC3	)
T	84 (54)	116 (74)	20 (14)	DC4	)
U	85 (55)	117 (75)	21 (15)	NAK	Negative acknowledgement (not ready)
V	86 (56)	118 (76)	22 (16)	SYN	Synchronous idle
W	87 (57)	119 (77)	23 (17)	ETB	End of trans. block(also sets 32 char
X	88 (58)	120 (78)	24 (18)	CAN	Cancell
Y	89 (59)	121 (79)	25 (19)	EM	End of medium
Z	90 (5A)	122 (7A)	26 (1A)	SUB	Substitute
↑	91 (5B)	123 (7B)	27 (1B)	ESC	Escape
↓	10 (0A)	26*(1A)	-	SUB	Same as above (old ROMs only)
←	8 (08)	24 (18)	-	CAN	As above (same as contrl & x)
→	9 (09)	25 (19)	-	EM	As above (same as contrl & y)
Break	1 (01)	-	-	BREAK	ASCII is SOH -start of header
Enter	13 (0D)	-	-	CR	Equivalent to NL+CR
Clear	31 (1F)	-	-	EREOF	Erase to end of form(ASCII is US)
Space	32 (20)	-	-	SPACE	Shifted zero also produces space

*With the new ROMs shift and down arrow no longer produces code 26; however, control and Z will still give it, when required.

Peter Tootill

PROBLEM CORNER

From D. Ackerman

Please can anyone suggest why my 16K Level II system will only operate for a maximum of 30 mins., providing the machine has not been used for a few hours. The first indication of trouble is the appearance of an UP arrow instead of the usual prompt. Secondly, no cassette input or output is possible after the appearance of the UP arrow. Thirdly, entering characters from the keyboard produces incorrect data on the screen. I should point out that a relationship exists, i.e.:-

Usual prompt = ASCII 95
Up arrow = ASCII 91
Entering character from keyboard after fault commences = ASCII code - 4.

This state of affairs does not last long before the memory size question appears followed by the screen blanking out. The only action possible is to switch the machine off, the reset button being ineffective. Any attempt to re-use the computer will only permit a few minutes' operation unless it has been switched off for a few hours.

D. Ackerman,
55 Fawcett,
Birch Green,
Skelmersdale,
Lancs.

(* The sensible thing to do when you encounter this sort of problem is to send the faulty unit in for repair. The symptoms you describe might be due to overheating, so you could try running the unit from a reduced voltage supply. LFH *)

From Bernard Hayes

I am writing for help with my newly acquired Seikosha GP-80 printer. So far, it has responded to all the programs invoking it for hard copy, with the sole exception of Scripsit (tape version). Now I do recall more than one mention in the Newsletter of the fact that Scripsit does not work with all of the available parallel printers (and that even Tandy themselves concede as much), and wonder if anyone has got around to solving the matchiog problem.

I have disassembled the program, but have not managed to unravel the route taken to get the printer to respond.

When I call up the 'Special Command' and respond with the prescribed 'P', I merely get a line feed, whereupon the system hangs up. A 'CLEAR' gets me back to the 'Special Command', but another go gives the same result. One other thing, there is a single line feed when calling up the start after loading Scripsit from tape. I suspect that the Tandy printers have a response which common man's parallel printer cannot give. Any suggestions, please.

Bernard Hayes,
11 The Spinney,
Handsworth Wood,
Birmingham B20 1NR.
Tdl (021) 523,6328

(* Tandy themselves now sell a version of the Seikosha printer, although it looks somewhat different. Presumably this works satisfactorily with Scripsit. One way to find out what is going wrong would be to get hold of the interface specification for, say, the Lineprinter II and compare it with that of the Seikosha. Cross check all the signals, and their connections, to see if there are any discrepancies. You might find some small differences that can be rectified easily. Of course- if the Seikosha was sold to you as suitable for the TRS-80 you can return it under the Sale of Goods (Implied Terms) Act as unsuitable for its intended purpose. The line feed when Scripsit initialises is quite alright. It happens with my system, anyway. I think it is done to clear the buffer in the printer. LFH *)

Dear Nigel,

Remember a mysterious 'phone call a few nights ago asking for help on the TRS-80 operating system? It was me! Let's hope you don't regret your "go-ahead-and-ask" response!

My machine is a TRS-80 model one, level 2, 16K running a CTR.

I want to know what happens after I've keyed in a command and hit ENTER...especially what happens when RUN is concerned.

I'm familiar with Z-80 assembly language and have a disassembler together with Howe's book "Machine Language Programming from the Ground Up". I've also disassembled enough chunks of ROM to know that a question like "what happens when..." is going to need a very long answer indeed.

I've looked at the routine starting at1EA3, which Howe says is accessed when RUN is entered, but I cannot locate the routine that sorts out keyboard input in the first place and decided which command has been entered and where to go to obey. If you could tell me the location of the routine that accepts input and decides what to do with it, I'd be immensely greatful.

A secondary problem is this:- writers of extensio.)to BASIC often preceed their new key-words with @. Why? All I get is Sn Error no matter how I fiddle with the RST vector addresses. [around 4000H on]

I've been intrigued and frustrated by these matters on and off for months now..and cannot decide whether to persist with this folly or start building a model of Hadrian's wall with dead matches. So, will you either send any hints, tips, pushes in the right direction or advice that you have time for,

or a box of used Swan Vestas!!!!!

£ (Seriously, I don't expect the whole problem served up as acres of de-bugged and annotated code; just tell me where to look next)(Please!)

Thanks in advance,

Alun Evans

Dear Alun,

Thanks for your letter that I received this morning. I enclose a sheet with a rough sketch of what is happening in the circumstances that you mention, that is command acceptance, command interpretation and programme execution.

Regarding the use of the @ symbol, I think this is only because it has no significance in BASIC except after a PRINT so that it can readily be spotted by an interoepting routine. Before every command is executed, the interpreter carries out RST 10H (which is a call to 1D78H) and this can be intercepted by a user routine. If the routine wanted to use '@' it could be as follows:

```
INC   HL          ;need to look at NEXT character
LD    A,(HL)
DEC   HL          ;must restore HL
CP    '@'
RET   NZ          ;not wanted
;
; user routine here, which should check this is not PRINT@
;
RET               ;HL MUST be restored
```

If you use RST10H in this way, be careful not to use more than a couple of levels of stack, preferably save the stack pointer and use your own, as otherwise you may overwrite a GOSUB or NEXT block with disastrous results.

I hope this advice will give you some assistance in whatever you are trying to do. I have taken the liberty of sending a copy of both your letter and mine to Leon Heller in case he wishes to publish them in view of recent comments in the TRS-80 Users Group Newsletter.

All the Best,

Nigel

MONITOR

(All addresses HEX)

1A19	Prints READY
1A76	Prints prompt character (>)
1A7B	Gets keyboard input using KEYLIN at 0361
1A88	Gets line number if line entered (via 1E5A, into DE)
1A99	Packs line via 1BC0
1D5A	Executes line in direct mode (DEpoints to line) eg: if RUN typed, then (DE)= 8E
1D60	Knock off MS bit: A = 0E
1D6A - 1D72	Put HL = position in keyword jump table ie: HL = 1822 + 0E + 0E = 183E Then, (183E) = A3, (183F) = 1E, ie: 1EA3
1D76	Put routine address (1EA3) onto stack
1D78	Read next byte and then jump to execution routine via RET at 1D7C

RUN ROUTINE

1EA3	If RUN alone then goto 1B5D else treat as CLEAR:GOTO x
1B5D	Set start of programme as (start of text -1)
1B64 - 1B6C	Set all variables to floating point
1B6E - 1B77	Clear error, error handler and CONT location
1B7A - 1B7D	Set free string space to MEMSIZ
1B80	Restore data pointer to bottom
1B83 - 1B89	Set variables and arrays to null
1B8F - 1B9A	Reset BASIC stack
1BA1 - 1BA4	Clear down devices and open files
1BA7	Clear FOR flag
1BAF	Load the current position in text into DE
1BB2	Jump to 1D1E to resume execution (via RET instruction)

PACKER

1BC0	This is not a DATA statement so clear flag, also clear character count
1BC4 - 1BCB	Set up destination as (buffer -1) and source as (DE)
1BCD - 1BCF	Skip blanks
1BD3 - 1BD5	Copy strings verbatim
1BD8 - 1BD9	If end of line, then clean up buffer and use RET to continue
1BDC - 1BE1	Skip packing routine if this is a DATA statement (which we've already established at 1BC0 that it isn't in this case!)
1BE4 - 1BE8	Change '?' to PRINT
1BEB - 1BF2	Ignore numerals
1BF6	Load DE with (keyword table address -1) and zero B
1C00 - 1C0B	Convert lower case to upper case
1C0E - 1C10	Move to start of next keyword with top bit of first letter set
1C1B	Adjust B to keyword count
1C14 - 1C17	Check we're still in the keyword table
1C18	Match ??
1C19	No - try next word
1C1B - 1C20	Next character, start of next word? If so then OK, got to 1C39, put keyword no in C
1C23 - 1C2A	Skip space in GO TO
1C2C - 1C31	Convert LC to UC again!
1C33 - 1C37	Check next letter, loop back if matched otherwise next keyword

---

N.J. Dibben
25th June 1981

MODIFICATIONS TO ROM

For those who have tried Leon's EPROM programming experiments, the following may be of interest.

If port C of the 8255 interface is connected to the EPROM socket in the following manner:-

Port	C0	C1	C2	C3	C4	C5	C6	C7
Pin	23	22	19	18	20	-	-	-

Then with a 2716 in situ the following will be the connections:-

2716	A8	A9	A10	$\overline{CE}$/PGM	$\overline{OE}$

which may be programmed with appropriate software as previously described.

If a 2732 is now put in the same socket the following will now be the connections:-

2732	A8	A9	A10	A11	$\overline{OE}$/PGM

Pin 21 in both cases carries +25V in programming mode and +5V in read mode.

The 2732 may now also be programmed if suitable changes are made to the software. Note particularly the low pulse required at pin 20 to programme rather than the high on pin 18.

Why should you wish to programme a 2732? Well, if you have the three chip ROMs the EPROM may be substituted for them. It should substitute directly for ROM C and may be used for A and B if pins 21 on each are tied high (to pin 21 on C is suitable), rather than low which the present chips are.

I have only used one so far, for A, but this has enabled me to rewrite byte 0473 from 38 to 18 and so give permanent lower-case, and to make the permanent debounce patch which the later ROMs contain. Full details of the new ROM changes are given in "Microsoft BASIC Decoded" by James Farvour and these may easily be included.

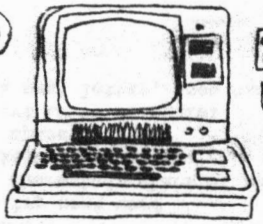
Andrew Donald.

PRINTERS FOR SALE

Anadex	£ 300.00
Tandy Quick Printer	£75.00

Contact: Robert Abrahams
Long Bar
Little Hallingbury
Bishops Stortford
Herts CM22 7QU
Tel: (0279) 723263

TRS-80 EDUCATIONAL USERS



The TRS 80/Video Genie Educational Group continues to grow. Over 30 members now; from all ends of the country; from all sorts of institutions -

Colleges of Higher Education

Colleges of Further Education

Secondary Schools of all descriptions

Independent Schools and

Primary Schools

some with 1 machine, another with 10!

If you are interested in Education do write''

TRS 80/VIDEO GENIE
EDUCATIONAL SOFTWARE LIBRARY

The group now has a rapidly growing library - material is coming in very quickly from all over the country.

A tape of 10 Primary Programs is ready for distribution. This covers material from Birmingham, Bristol, Exeter and London.

3 pre-school programs have been sent from Dallas.

30 secondary programs from Peter Green in Bristol.

Do you want a Flying Saucer Shooting Game that includes work on Percentages, or a Map of Britain with a quiz on towns and cities?

We have plenty of tables testers - fast ones, graphic blocks ones, tables for two and new Ten by Ten which gets so fast I can't win.

What about reading Temperature Practise or a Driving Test Quiz.

Or Dolly Mixtures, a unique mixture of sums for 6 year olds.

There is lots of software about and, so it seems, plenty of users willing to share it. Let's pass it around, let's exchange, let's give it to others and hopefully encourage them to contribute to our library.

TRS 80
EDUCATION SOFTWARE FOR SALE

Mrs. G.E. Dowdle has sent me a vast list of Education Software she has written for the TRS 80. The range of the material is great ranging from:

Infant School sums to Alphabet Test, to Resistances in circuits or Analyses of Weather Statistics to Probability exercises.

The listing looks impressive and the software is all prices at 50p or £1 plus cassette. I've ordered a couple to try and will report next month!

The material was written to counteract the shortage that all schools know about! Mrs. Dowdle has tried and tested the programs in Cheshire Schools.

For futher details write to her at

15 Arran Drive,
PRODSHAM,
Warrington,
Cheshire.
WA6 6AL.

PROGRAM CONVERSIONS

Members of the users group will have read my appeals for many months for users of TRS 80 to volunteer to convert programs from PET, APPLE and 380Z for the TRS 80 Education Users Group.

About 6 people are now in the group of convertors and the first fruits of their work is coming in.

Ken Robinson of Milton Keynes has done a great job on converting a RM 380Z program from Newman College Birmingham -

PHRASES

This program presents in jumbled order a set of phrases which make up a meaningful sentence e.g.

to play	they go	with the others	into the water
- - 1 - -	- - 2 - -	- - 3 - -	- - 4 - -

the child has to work out the sensible order 2 4 1 3 . The program has a number of factilies

R for reshuffle if the pupil has no ideas

STOP which gives his score

N for moving to the next problem

If wrong when the child responses say with 4 1 2 3 the screen displays the phrases in this order so that the child can have another go.

The sentences with separate phrases are stored in data statements with code for correct order, it is possible to program for the acceptance of alternative response too.

This program is a useful stimulus in school (or home) and we have found it generates a great deal of lively and purposeful discussion particularly when a small group is gathered round the key board.

Mr. Quarterman of Crawley, has converted another RM 380Z program from Newman College -

FRACTION SNAP

In this program the screen displays 2 fractions either diagramatically or numerically and the object of the game is to 'call' SNAP (by pressing the space bar) if the two fractions are equivalent.

The prgram generates fractions from a group of 27, covering $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{3}$ $\frac{1}{6}$ $\frac{1}{8}$ $\frac{1}{10}$ $\frac{1}{12}$ and $\frac{1}{20}$

The program was originally written for a High Resolution Graphics Board but converts to be as good as the RM 380Z version.

At the beginning of the program you can choose whether to work with

Numerically, Diagramatically or a mixture of both.

Also converted is TRAINS an addition, subtraction and multiplication program but details next time.

IF YOU WOULD LIKE A COPY OF THESE CONVERSIONS SEND ME A BLANK CASSETTE, A JIFFY BAG AND STAMPS - plus an educational program in exchange if you have one!

SOUND AND ANIMATION
IN EDUCATIONAL SOFTWARE

We are all aware of the excellent graphics and sound sequences that are there to be seen in games; I especially like the material coming out of BIG FIVE in the States and we must not forget the magic of Les Christopherson with Beeway or Android Nim and new Duel - n - droids.

It is time that the same sort of expertise hit Educational programs. ANIMATION published by A.J. Harding can go some of the way to help those frustrated by SET or even STRING GRAPHICS. Members with experience of this super utility please

give me a ring or write to me about when and where you have used ANIMATION.

Sound too can be easily added to your programs.

E - Z Sounds by James Talley provides an excellent basic poked machine code utility to fit within your programs to give an unbelievable range of music and sound.

Richard Taylor of TRS 80 Opera fame has already been rated, and his sound sequences have got into 2 Educational programs:

WORD CHALLENGE and

SOUND SCRAMBLE

with E - Z Sounds from Adventure International. More is possible!

Please, if you are into sound and graphics sequences volunteer to improve the dull educational material that is around. It can be as good as the games packages!

THE SPANISH MAIN

Members may be interested to know of Mr. M.B. Holmes of St. Helen's County Primary School in Bluntisham, Hunts. He has produced an Apple Disk Program called Spanish Main; it sounds a great game for children to practise specific skills - plotting co-ordinates, using bearings (degree); and to improve their strategic planning and deductive reasoning. The game is played by 2 groups - The Spaniards and The Pirates.

Any members with access to an Apple and willing to convert this program do contact me. I am discussing with the author the marketing of a TRS 80 version of this program.

A PET version has just been completed by Don Walton of Houghton Primary School in Hunts. So lets get a TRS -80 version out!!

DO YOU WANT A CHALLENGE!!

Just received are two listings from SOFTSIDE of two very interesting Maths Games.

MATH DECATHLON	for all Mathletics at the moment an Apple listing
NUMBER BATTLE	it's the Integers v the Fraction this time an Atari 8K listing

Do offer to help, the listings come with details of how the program should work on the machine, with variables and good program description!

MICROSCOPE

Staff at Newman College Birmingham have founded MICROcomputer Software Co-operation in Primary Education and produce an excellent magazine 3 times a year. Full of news about computing and software in the 5 - 13 age range.

Write to Roger Keeling at the College for details - 50p a copy plus postage and well worth the money.

They have developed some excellent software but RM 380Z based. It has all been donated to the public domain, and so far 3 programs have been translated for the TRS 80.

FOR SALE.

I am writing to ask if any of your members would be interested in taking over my TRS 80 set up, which I can no longer use due to absence abroad.

The equipment consists of TRS 80 16K Level II, 32K Expansion interface, mini-floppy disk drive and Microline 80 printer. The printer, used for this letter, gives 40, 80 or 132 characters per line on continuous or single sheet stationary with a speed of about 2000 characters per minute in the 80 character mode (this varies depending on line length). Software consists of TRSDOS version 2.2 plus Electric Pencil. All the equipment is in good working order complete with all manuals and spare discs.

The Eqipment is leased and the rental is 163.15 per quarter plus VAT. The remaining payments amount to 1660.25 after 1st July 1981.

I should be happy to let the equipment go by sale or by transfer of the lease.

Should any of your members be interested, they should contact me at the above address care of Allen Rutter.

J.M. Taylor.
Broadwater House,
Romsey,
Hampshire SO5 9QT.

CORRECTION TO UPPER-CASE TO LOWER-CASE CONVERS. PROGRAM

Laurie Shields has pointed out a mistake in my conversion program in the last issue. I omitted to close the input file in the error routine before returning to DOS. Please insert the following code after CALL PRINT:-

```
LD          DE,DCB
CALL        CLOSE
. . .
```

Also thanks to Laurie, I have found out how to get DOS to print a meaningful error message. The information in the manual on page 6-12 is wrong. Instead of OR 80H try OR 0C0H before CALL 4409H. This works properly and can be substituted for my:-

```
LD          HL,MSG2
CALL        PRINT
```

Leon Heller

16 BITS ON THE MODEL I?

I have just acquired an Intel 8088 chip and its associated clock generator, the 8284. Using these devices I have started wire-wrapping a 16-bit processor system that will use my ancient Model I for I/O via an 8-bit bi-directional port using a pair of 8255 PPIs, one on the Model I bus and the other on the 8088 system.

The 8088 is virtually identical to the Intel 8086, in that it has a full 16-bit internal architecture, but looks like an 8-bit processor to the outside world. Having 20 address lines it can cope with 1 Megabyte of RAM (I don't think my pocket can, however) and has lots of very nice software features like position independent code, multiply and divide, easy multi-tasking etc.

The initial system will be rather minimal with a simple monitor in 2K of EPROM and 1K of RAM; about eight or so chips in all. CP/M-86 has just become available, together with BASIC-86 from Microsoft and Pascal-M from Sorcim, so if the initial system works satisfactorily I intend to build it up to a full 64K system with its own disks, but still using the Model I for I/O. If any other members are looking for a challenging hardware/software project I can let them have a copy of the circuit diagram for the initial prototype system.

If things work out I shall end up with a better system than the Model II at a fraction of the cost (and a lot of hard

work!).

Leon Heller

FOR SALE

I am about to upgrade my system by purchasing disk drives, either for my present Model I or by purchasing a Model III. I have not yet decided which.

I therefore want to sell my Aculab floppy tape drive as soon as possible. I would therefore be grateful if you would insert the following notice in the next edition.

Aculab floppy tape in perfect working order. £40 worth of wafers full of programs. Also double bus adaptor. £135.

Chris Dempsey,
36 Buller Road,
Barking Essex.
Tel: 01 594 4584

PROBLEMS WITH MICROTEK

It is now two months since I returned my unit to the U.S. (air mail), and I have received no communication from them whatsoever in that time! My opinion and suspicions regarding Microtek you can obviously guess; perhaps other members should be warned about them.

Chris Dempsey.

CHELMSFORD TRS-80 USERS GROUP
==========

Meets generally at:-
38 Britten Crescent,
Great Baddow,
Chelmsford.
Plus other places as required

Contact:
The Secretary,
Mr R Hamlett,
Pine Lodge,
Debden Road,
Loughton,
Essex IG10 2NY.

01-505-0062

FLOPPY TAPE CORNER

It would seem that the recent problems caused by the unreliability of the tape medium have at last come to an end. At last the full story has come out. It was apparently due to the move by Exatron from one side of the States to the other, coupled with a slightly naughty tape supplier. The tape was originally BASF video tape cut down to size and then put in cassettes. Then one of the suppliers received reject tape with dropouts and instead of cutting out the bad, incorporated this duff medium in the material sold to Exatron. Due to another supplier selling this duff tape as BASF video cassettes, BASF stopped supplying this type of tape to all buyers. Exatron, desperate for tape supplies, found Sonerex who started to supply their needs. However Exatron had not done their homework and the result was the loose coated directory smearing gunk we all came to love!!!!!!!!!!!!! Happily today the picture is clearer. The tape supplier now produces a type of tape that is as reliable as the original.

As regards the move from West to East this resulted in the mould for the cassette and components being broken. Exatron then proceeded to redesign the whole cassette. Again unfortunately the tolerances were not quite as exact as they should be and they didn't fit the drive!!!!!!! (maybe it was because they should have left Microlink's name on it). The tapes now available from Aculab have been certified, tested, and fitted in a drive and so far the ones we are using have not caused any problems.

It would be advisable however when using "old" tapes to check the condition of the head before a write as you could still transfer gunk onto a perfectly good tape i.e. like any tape recorder you need to keep it clean.

Bob James — Adrian Hancock

Note to Laurie: How do you stop the reboot on SpaceV after playing the first game? I used your ZAP's in the last newsletter but this only allows one game before a reboot.

Signed
Desperate

THREE COUNTIES TRS-80 USERS GROUP

Contact : John Christie,
10 The Bramleys,
Longhope,
Glos.GL17 0QP.

Tel.(0452) 830141 (evenings)
Newsletter - Meetings on first Tuesday of month at various venues

FLOPPY TAPE CORNER PART 2

This month I have pleasure in presenting the long awaited review of X-Bas, the new Aculab Extended Basic for the F-Tape

X-Bas is a very economically written piece of software occupying only 2.5k of RAM on top of the normal Floppy Tape directory, making a total loss of 3.25k. This is a minor sacrifce compared with the gains in performance over the basic unit. X-Bas is akin to a small version of Disc Basic (which takes up 10k). The normally complicated F-Tape file handling is sorted out by X-Bas with a full set of disc-like random access file handling commands and the addition of sequential file handling capability. A number of useful extra commands normally only found in Disc Basic have also been included, making conversion of Disc programs to Floppy Tape very much easier and cutting down on those annoying L3 error messages. The final touch to this package is the fact that the first 1k is an overlay area which can contain either of two utility programs supplied with X-Bas or any other machine code utilities which you care to write or relocate to fit in this area, a simple CMD call gives instant access to these utilities.

The main features are described in more detail below:

Random Access Datafiles.
As the basic F-Tape stands the resident operating system only gives two commands for Random Access files, these being àGET and àPUT which simply get a record from tape and dump it into an I/O buffer or put a record onto tape from the I/O buffer respectively. The task of getting information into and out of the buffer and making sure that the buffer is full before àPUTting it on tape is all left to the user. Getting data out of the buffer into the Basic working area is also very convoluted involving a barely comprehensible set of VARPTR statements. All numerical variables have to be converted to strings before transferring to tape and this can be awkward where floating point variables are invoved.

X-Bas provides a set of commands (familiar to Disc users) which simplifies all these processes beyond all recignition. They consist of three statements:

FIELD : This allows the buffer to be split up into several areas of pre-defined length up to a total of 255 bytes.
E.G. FIELD 4 AS A$, 10 AS B$, 6 AS C$ etc. would allocate 4 bytes to A$, 10 Bytes to B$ and 6 bytes to C$ and so on until 255 bytes had been specified.

LSET : This puts a string into a specified field and pads out to the right with spaces if the string is shorter than the allocated number

of bytes for that field.

RSET : This is identical to LSET except that it pads to the left.

There are also three complimentary pairs of functions:

MKI$: This makes an integer variable into a 2 byte string ready to be transferred to the I/O buffer.

MKS$: Makes a single precision variable into a 4 byte string.

MKD$: Makes a double precision variable into an 8 byte string.

CVI : This is the opposite of MKI$ and converts a 2 byte string into an integer variable after it has been called back from the I/O buffer.

CVS : Converts a 4 byte string into a single precision variable.

CVD : Converts an 8 byte string into a double precision variable.

Transfer to and from the I/O buffer no longer involves a series of POKEs and VARPTRs. All that is now needed is for a variable to be assigned to a particular field of the buffer and then any value subsequently given to the variable is transferred to the buffer, and vice-versa.

Sequential Files.
These are almost the same as both the cassette and Disc commands for sequential files, making conversion of programs written for either system easily convertible.
There are six commands associated with this facility:

àSET "FILENAME/EXT:D",rec : This is a real time saver as it partially overcomes the sequential nature of the tape medium. Normally if when recording or reading a datafile the computer has to perform a function on the data in between subsequent write or read commands it will not return control to the Floppy Tape in time to catch the next sector of data as it goes past, the tape therefore needs a complete pass for each record slowing the reading time to at least that of a casstte. àSET re-formats the tape so that the sectors are numbered alternately I.E. 1 - 2 - 3 etc. where - represents an un-numbered sector which is then filled in on the next pass of the tape so that a 5 sector file would be numbered 1 4 2 5 3. The read/write commands

stop the tape after each sector has been read or written and the gap between consecutive sectors allows time for tape to stop and start in time to catch the next sector cutting the maximum number of passes needed to read a file to two.The variable 'rec' is the number of sectors to be &SET-1.

&OPEN "FILENAME/EXT:D",MODE : This opens a named file which has previously been created with the &SET command. MODE refers to whether the file is being opened for output (MODE=0) or for input (MODE=1). Two files may be open at any one time, one for input and one for output.

&CLOSE, MODE : All files must be closed after they have been used.

PRINT£,variables : As with cassette files this is the command which actually puts your list of data onto tape.

INPUT£,variables : This inputs the data list from tape.

LINE INPUT£,var$: This is like INPUT£ but instead of being followed by a list of variables in the same order as those recorded LINE INPUT£ is only followed by a single string variable name. This command will read everything on the tape up to an 0DH which is not followed by a line feed. This means that files can be read even when the format in which they have been recorded is not known, making for virtually crash-proof file reading.

Added Basic commands are as follows:

LINE INPUT"prompt string";var$: This can be used instead of the normal INPUT statement in a Basic program with or without a prompt string. It will accept any string input including punctuation (an important anti-crash factor) and also does not automatically print that annoying question mark unless you include it in the prompt, which makes programs look much neater

INSTR (n ,var1$, var2$) : The INSTR function searches for the first occurrence of string var2$ in string var1$ starting from the nth occurrence. This is a useful routine which has only been available in Disc Basic or as a subroutine in the back of the Level II manual until now.

MID$ (var1$,n,k) = var2$: This resembles MID$ in Level II

with the exception that it can now be used on the left side of an equation. The statement replaces k characters of string var1$ with var2$ starting at the nth character of var1$.

Hex Variables : Variables can be supplied in decimal or, if preceded by '&' in hex. Conversions can be carried out from dec to hex and back again very simply and it is surprising how often it comes in useful.

USR var1, (var2) : This is a modified user call allowing an address (var2) to be called as well as the name of the routine.This allows several different USR routines to be held in memory and called at will with the appropriate address.

CMD : This is possibly the most useful part of the whole package as it has an almost infinite number of functions depending on what is resident in the 1k overlay area when the command is given.

Overlays:
There are two overlay programs supplied with the package, these are RENUM/CMD and SYSTEM/CMD.

RENUM/CMD is a very versatile renumber and byte-saver routine allowing unwanted spaces and/or REMs to be removed as well as all the usual renumbering facilities. Removal of spaces in DATA statements is optional

SYSTEM/CMD is similar to Disc Basic's LMOFFSET and makes the saving of machine code programs much simpler than usual. The utility reads the program from tape into a buffer located at 5300H and then displays the run-time addresses for the program. Also displayed is the format of the command to be used to save the program including the number of sectors. This is in hex but the appropriate '&' signs are shown to perform the hex-dec conversion which occurs as the program is being saved. The clever part is that, regardless of run-time address, the program is always saved at 5300H with an entry point of 5300H. A module is tacked on the end of the program which moves it from the buffer area before running it. This means that only one address has to be memorised for most programs. SYSTEM/CMD will not work for all programs but these are in the minority. Where the utility really scores is the fact that in most cases a program which would normally overwrite the directory can now be loaded and run without having to relocate the directory first. Unfortunately this will still not allow the running of adventures from F-Tape on a 16k system, but it is nevertheless a very useful utility.

Although only two overlays are provided it is a simple matter

to create your own. A lot of utility programs can be relocated from their normal position at the top of memory down to the ovelay area at 4900H where they can be easily called by a CMD. Almost any machine code program of 1k or less which performs its own return to Basic can be placed in the overlay area. I have a relocated Lower Case Driver from an early newsletter and most of you will have seen our Screen Print (JKL) overlay in a previous Floppy Tape Corner.

As you can see X-Bas adds a lot to the basic Floppy Tape operating system and it seems to work perfectly in all respects. All in all it represents £20.00 or so well spent.

Adrian Hancock.

NEW SOFTWARE

Apparat have announced Flextext, a utility to enhance Scripsit for Centronics 737 users. It allows full use of all the 737 features from Scripsit including (apparently) right justification with proportional spacing. This is rather difficult to achieve, so it looks like good value at $29.95 from:-

Apparat Inc.,
4401 S. Tamarac,
Denver CO 80237,
USA.

Prospective LISPers might be interested in a LISP interpreter for $100 (disk) or $75 (cassette) available from:-

Supersoft Associates,
P.O. Box 1628,
Champaign, IL 61820,
USA.

According to the advertisement an editor and trace facility are included.

Microsoft are still trying to get the bugs out of their version of LISP (produced originally by the Soft Warehouse, Hawaii). One of our members managed to get it out of Microsoft (bugs and all!) and it isn't bad. Being based on LISP 1.5, it is considerably different from the LISPs in the current AI textbooks, unfortunately. They tend to use MACLISP.

An even cheaper interpreter is available from:-

Cyber Innovations,
World Trade Center,
P.O. Box 58657,
Dallas, Texas 75258,
USA.

for $50 on cassette. No editor or trace facility appears to be included.

NEW HARDWARE

A 5 1/4 " Hard Disk Controller for the TRS-80 has been announced by:-

act,
11301 Sunset Hills Road,
Suite A-4,
Reston, VA 22090,
USA.

No price details were in the advertisement but you are unlikely to get much change out of $1500 for the drive and controller.

Leon Heller

LIBRARY

Librarian L.H.Davies
Brynna Road, Pencoed
Bridgend, Mid - Glamorgan

Tel: 0656 860398

BARROW IN FURNESS

Contact Jack Lowther
131 South Row
Roose, Barrow in Furness,
Cumbria.

Tel: 0229-34953 (Home)
-26214 (Business)

BASILDON
Contact Head Office
40A High Street
Stony Stratford
Milton Keynes

Tel: 0908 566660

BIRMINGHAM GROUP

Contact Mike Gibbons
1 New Street,
Castle Bromwich,
Birmingham, B36 9ap

Tel: 021-747-2260

BLANDFORD FORUM

Contact Os House
Higher Shaftesbury Road,
Blandford Forum, Dorset.

Tel: 0258-53737

Meetings

LEEDS

TRS-80 GROUP
Contact John Jowitt
Kings Edward Crescent, Horsforth,
Leeds. Tel: 0532-581734
or
Contact Evan Jones
Braside, Newlaywood Ave.,
Horsforth
Tel: 0532-586314

Meetings

LONDON (NORTH)

Contact John Wellsman
292 Caledonian Road,
London N1.

Tel: 01-607-0157

Meetings - Newsletter

LONDON (WEST)

John Carne
14 Lyncroft Gardens,
Ealing W13.9PD

Tel: 01- 567 - 7873 (Home)
01- 993 - 1462 (Work)

LONDON (SOUTH WEST)

Contact Ron Everitt
2A Longdown Lane North,
Ewell, Surrey.

Tel: 01-394-2123

MIDLANDS (EAST)

Contact Mike Costello
17 Langbank Avenue,
Rise Park,
Nottingham, NG5 5BU

Newsletter

NORTH WEST GROUP

Contact Melvyn Franklin
40 Comlees, Westhoughton,
Bolton, BL5 3EG

Tel: 0942-812843

Meetings - Newsletter

NUNEATON

Contact Fred Challenor
40 Whoberley Ave.,
Coventry CV5 8EP.

OXFORDSHIRE

Contact Steve Bird
139 The Moors,
Kidlington,
Oxford, OX5 2AF

Tel: 08675-6703

Meetings - Newsletter

SWINDON GROUP

Contact Bob Sparling
The Ridgeway,
51 Station Road, Chiseldon,
Nr Swindon, Wilts, SN4 0FW

YORK GROUP

YORK COMPUTER CLUB
Contact G.Wilson
1 Grangle Close,
Skelton,
York,

BRIGHTON

Contact John Bedford
19B Rose Walk
Goring by Sea
West Sussex

BRIDGEND AREA

Contact Peter Chapman
36 Park Court Road
Bridgend, Mid-Glam.

Tel: 0656-3484

BRISTOL

Contact Roger Bamkin
19 Wood Street
Eastville
Bristol

COLCHESTER

Contact Roy Smith
8 Mallard close,
Layer-De-La-Haye,
Colchester, Essex.

Tel: Layer 442

Meetings

EDINBURGH GROUP

Contact Ted Gladstone (031) 661-4558
or Dick Mackie (031) 229 6032

EDUCATIONAL SUB-GROUP

Contact Dave Futcher
Beaconsfield First & Middle School,
Beaconsfield Road
Southall, Middlesex.

Tel: 01-574-3506 (School)
01-743-5310 (Home)

GLASGOW AREA

Contact Jim McPherson

Tel: Uddingston 813717
or 812797

HULL

Contact Frederick Brown,
421 Endike Lane, Hull.

Tel: 0482-859169

Meetings - Newsletter

ISLE OF WIGHT

Contact M.Collins,
3 Altofts Gardens,
Ventnor 85 2008

Meetings - Newsletter

WORKSHOP AT SHEFFIELD MAY 16TH 1981

This was held at the Sheffield Polytechnic,with accomodation arranged by local member,John Bacon.The stamina of local members seems to be waning as just Leon and myself made the journey North.

Communications - Leon Heller

It must be apparent to members that this topic is the major development of the time,and again Leon covered the technical side.As luck would have it a spare room was found on the same floor with a telephone on the floor and this was used for the demonstration.Leon connected to Forum-80 Hull - courtesy of Frederick Brown - and to a mainframe in the University of Aston at Birmingham.To those who have not seen Forum-80 please make an effort to evaluate its' worth as to date the software has proved to be of a very high order.

Mainframe meets Micro - John Bacon

John,when decorating one evening,agreed to do a short session on this which always intrigues me,as I have no experience of mainframes whatsoever.John's chat was worthwhile when Alan Redhouse took John's side with Nigel Hyde coming down on a micro users' viewpoint,mine!!.Those ten minutes were good fun ,and made the session worthwhile.

Z80 Simulator and Problem Solving - Laurie Shields

Laurie showed off a modified Z80 simulator (22K),typed in from 80-Micro-computing,which pictorially gave an insight into the mechanics of the processor.This should be a popular presentation with members at Milton Keynes where the refresh will be real ale and roles will be allocated by way of straws or bids.Following this Laurie explained how a members' problem was solved,using GSF(a sorting routine) and a upper/lower case conversion routine.The problem had been passed on from a Milton Keynes Sunday session.

VTOS 3.0 & 4.0 - Alan Redhouse

As a result of seeing Alan at Manchester and his obvious for the above,he 'agreed' to do a session for the benefit of any waverers.The latter relates to those who cannot make up there minds between Newdos80 and VTOS.By use of a flip chart (History of Dos) and examples (reverse video - routing) members could gain some ideas on the operating system.It is hoped that this session can be repeated,obviously at Alans' convenience.

This report must end on a very unsatisfactory note. Ten disks bought by myself disappeared just fifteen minutes later whilst I was listening to Alan Redhouse' chat.Will the finder please return them as they are MY property ;they did cost £ 18.11 .

MEDICAL SUB-GROUP

Contact Nick Robinson,
The Residences,
Northwick Park Hospital,
Watford Rd., Harrow,
Middlesex HA1 3UJ.

MERSEYSIDE MICROCOMPUTER GROUP

TRS-80/VIDEO-GENIE SPECIAL
INTEREST GROUP
Contact Peter Tootill

Tel: 051-92272
ext. 250 or 211 (W)

-2209733 (Home)

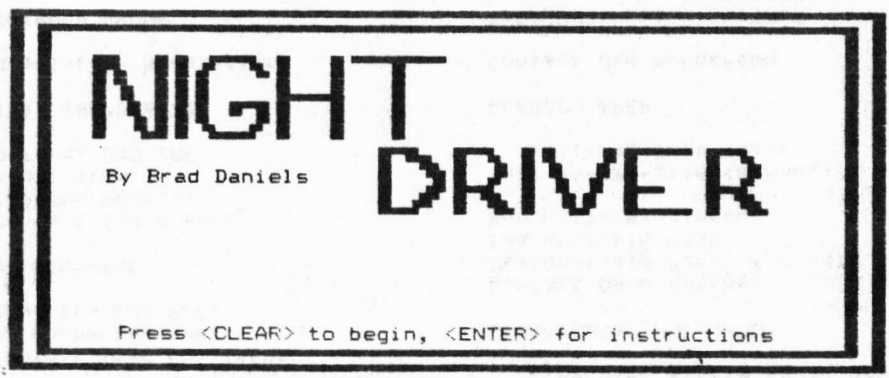
Albion Software

N I G H T D R I V E R

by Brad Daniels

A new arcade game which simulates driving a car. You see the road ahead of you through your windscreen and have to steer your car to avoid the edges of the road. As in real life there are other hazards for the road-user. You are particularly warned to behave well to the police if you are found to be speeding. This program is written in machine language and features sound, graphics and a fast real-time display of the road in 3-D. The game features several different levels of difficulty and has some surprises for the more experienced driver.

Cassette Version £9-50. Disc Version £11-50



ACULAB DATA-BASE

A general purpose data-base to run with an Aculab Floppy Tape under Extended BASIC (which must be obtained from Aculab Ltd.) The use of the PIMS manual by SCELBI publications is reccomended. Functions include Help Command; Arithmetic; Searching; Sorting; Listing; Printer Output; Printing of Address Labels of 5 lines. Commas and punctuation are allowed in the text lines. The available memory space is shown after addituon of records. As this is intended for present owners of PIMS the instructions only briefly summarise the commands except for new commands and general operating procedures. £9-50

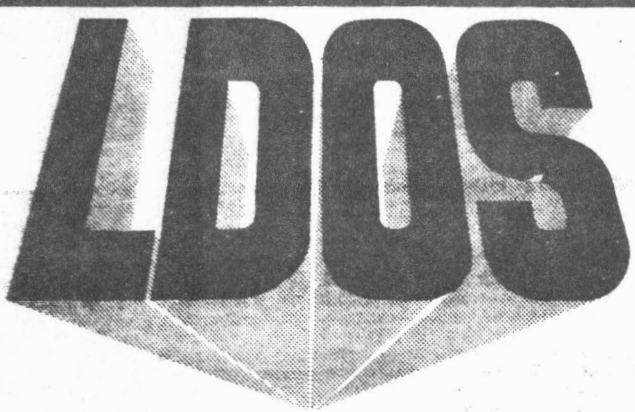
PROP. J. R. NEWGAS
LAMMAS ROAD, LONDON E10 7QT, ENGLAND. TELEPHONE: 01-539 7071 TELEX 27950 QUOTE REF 3635 DLY

INNOVATIVE

TRS-80 SOFTWARE

FROM THE PROFESSIONALS

LDOS



First there were the TRSDOS's, 2.0, 2.1, 2.2 and 2.3. Then came Newdos+, essentially a patched version of the TRSDOS's but with a number of very useful commands and utilities added. Then VTOS 3.0 and VTOS 4.0. These constituted a departure from the earlier DOS's and featured Device Independence so that devices such as the keyboard, printer, VDU and disk drives could interact directly together. Then came Newdos80 which is a rewrite of Newdos+, adding new utilities and new Basic commands, its main features being the ability to mix different capacity drives on the same cable and the ability to use variable length records. Now from LOBO International comes LDOS, the fifth generation disk operating system for the TRS-80 microcomputer. It combines most of the advantages of the preceding disk operating systems and unlike some of them, is accompanied by a complete and readable set of documentation, which includes a Technical Section containing relevant addresses.

It is impossible to describe all of the features of LDOS in an advertisement. For instance it includes no less than 35 library commands as follows:—

APPEND	COPY	DEVICE	DIR	DO	FILTER	KILL
LIB	LINK	LIST	LOAD	MEMORY	RENAME	RESET
ROUTE	RUN	SET	SPOOL	ATRIB	AUTO	BOOT
BUILD	CLOCK	CREATE	DATE	DEBUG	DUMP	FREE
PROT	PURGE	SYSTEM	TIME	TRACE	VERIFY	XFER

All of the useful abbreviations in Newdos are included and the System Commands in Basic (CMD) now number eleven. A program called LBASIC/FIX is included, with which the normal TRSDOS Disk Basic may be patched to include a number of new commands and features. A Job Control Language is included and in fact is one of the most powerful features of LDOS. It allows the user to compile a sequence of commands or key strokes for later execution as a chain, with or without user intervention. There are too many new features to list them herein, but examples are: The ability to provide an audible signal, output through the cassette port. To flash or blink a one line message on the video display. A WAIT feature is included so that the machine can be put into a "sleep" state until such time as the system clock matches the time specified. And so on!

Hard disks in addition to single/double density, single/double sided, 8" and 5¼" floppies are supported although they may, of course, require hardware modifications. Utilities included in the package are:

BACKUP	COMMAND FILE	FORMAT	LCOMM
PATCH	RS232	KEY STROKE/MULTIPLIER	PRINTER FILTER

A Basic Renumber facility is included, as is a Basic Cross Reference function. Both are similar to the ones in Newdos+ and Newdos80. Most of the utilities are library commands which were existent in the previous DOS's, have been improved with the addition of new functions or facilities.

The prime development team of LDOS consisted of no less than 8 first rank programmers and they had the support and advice of six other well known programmers. They have done an excellent job to bring to the user what must be the best disk operating system so far produced for a microcomputer, which is destined to become the Standard DOS.

LDOS is totally upward compatible with TRSDOS, that is to say LDOS will be able to copy files and programs from TRSDOS disks onto LDOS formatted disks. As they are competitive disk operating systems, it is not suprising that the manual states that disks created under Newdos are not guaranteed to be compatible with LDOS, but we have not experienced any difficulty. We have done some work on investigating the compatibility of LDOS and the Video Genie and at the time of going to press we have found no incompatibilities. LDOS appears to run on the Video Genie without any problems at all. LDOS is compatible with either the Tandy or Electric Pencil lowercase modifications and Scripsit. LDOS is available for the Model I and Model III. A Model II version will be available shortly.

LDOS .....£85.00 plus VAT and £1.50 P&P.

TRS-80 & VIDEO GENIE SOFTWARE CATALOGUE £1.00 [refundable] plus 50p postage

MOLIMERX LTD.

A. J. HARDING (MOLIMERX)

1 BUCKHURST ROAD, TOWN HALL SQUARE,
BEXHILL-ON-SEA, EAST SUSSEX.

TEL: [0424] 220391/223636 TELEX 86736 SOTEX G

feshon
SYSTEMS LIMITED

Data Communication Equipment Supply

Walton House, 93/95 High Street, Bromley, Kent BR1 1JW Tel: 01-464 4433 Telex:

0673

30th June 1981

Mr.B.G.Pain,
National TRS 80 Users Group,
40a, High Street,
Stoney Stratford,
Milton Keynes,
Bucks.

Dear Mr. Pain,

We have recently had the pleasure of supplying a Star Acoustic Coupler to one of the members of your group and we are very pleased to say the performance was found to be most excellent.

We are suppliers of professional data communication equipment to Industry and have not in the past sought to sell equipment to hobbiests or amateur users. However, as users of a TRS 80 business system ourselves, we do understand that members of user groups have to represent a large sector of the computer peripheral buying community. As you can appreciate, the margins on this type of equipment are generally rather small and it is not worth our while individually demonstrating the Acoustic Coupler to users and generally they form part of a system. However, based upon the enormous enthusiasm shown by one of your members, we are writing to you to see whether you would be interested in acting in a centralised buying capacity for members of your group. If the answer to this is in the affirmative, we would be prepared to allow you a price of £110 each, which we think you will agree is most attractive considering the full V21 specification of this equipment. We can make a unit available for evaluation by you if this is of interest. We look forward to your comments.

Whilst writing may we please apply to join the Forum 80 membership. Please send us full information.

Sincerely,
for Feshon Systems Limited.,

Bob Dubery

```
FILE DIRECTORY --- DRIVE 1      NEWDOS    -- 05/30/81
TABLES              ANIMHANG              GEOGQUIZ
ARTHTEST            SPELLBEE              BOUNCPLT
SIMEQUAT            GRADER                ABC
ORBITALS            SINEADD               MATHQUIZ
RTANGTRI            GRAPH                 TRIMATHS
FASTREAD            PI                    SCRAWORD
MATHTEST
```

EDUCATIONAL DISK1

```
FILE DIRECTORY --- DRIVE 1      NEWDOS    -- 10/01/80
RLNMDEC2            TELLTIME              FLSHCARD
MATHMSTR            GRAPH2                RLNMDEC1
QUANTNOS            TILTTURN              WATWORTH
POLYGON             WORDNUMB              UKMAP
LIGHTRAY            GETPOINT
```

DISK2

```
FILE DIRECTORY --- DRIVE 1      NEWDOS    -- 04/19/81
VOLTREG             ATOMDCAY              RADMATHS
CORRCOEF            CHISQTST              LOGICTTL
UNCTTEST            CORTTEST              ANOVA
LATQRA              WILCOXON              OHMSCONV
VSWRCALC            STDTTEST              KOLMOG
QUADANT             MANWHIT               STRTLINE
MORSCODE            PERMUTAT              BEAMHEAD
QKALAT
```

STATS + RADIO

DISK1

```
FILE DIRECTORY --- DRIVE 1      NEWDOS    -- 04/24/80
WAGES/MOD-DISK      WAGESUM/MOD-DISK      PIPEWORK
MAILLIST-DISK       NEWEMF/MOD-DISK       MAILSORT-DISK
MORTGAGE            MAGINDEX              PAYROLL-DISK
                    MAILLIST-DISK         BANK-DISK.
POSTLIST
```

BUSINESS

DISK 1

```
FILE DIRECTORY --- DRIVE 1      NEWDOS    -- 04/24/80
CASINDEX            ASCIICOD              DISKBKUP/BAS
EXTBASIC/BAS        NOSORT1               SYSTOBAS
HEXDEC              KEYINPUT              UPLOCONV
DECTOBIN            DELYFRNT              BASECONV
DIRECTRY            NOSORT2               TRSMON/BAS
DISKMENU            GRAFEDIT              PENLOAD
GRAPHCOD            ROTA                  BINTODEC
FILEKILL            FTDIRECT/BAS          ANAGRAM
```

APPLICATIONS

DISK 1.

```
FILE DIRECTORY --- DRIVE 1      NEWDOS    -- 12/08/80
LOWCASE/BAS         MSF2/CMD              --
LOWER16K/BAS        BOUNCE48/CMD          SYSTOBAS
DISASSEM/BAS        DIRTOF/UNI            RENUM32K/CMD
FTDISK/BAS          LIFE16K/CMD           READMC/CMD
LOWER48/CIM         LOWER32/CIM           DISKCOPY/CMD
AUTOPOKE            JUSLUK/CMD            RENUM/CMD
FTDISK/CMD          SHORT/CMD             RS232
RENUM48K/CMD        RENUM16K/CMD          BOUNCE16/CMD
LLIST64K/BAS        BOUNCE32/CMD
```

SYSTEM

DISK 1.

```
FILE DIRECTORY --- DRIVE 1      NEWDOS    -- 12/08/80
MAGICNOS            BANNER                DEMO80
PHONDIAL            DELAYLII              CHESSSET
CLCULTOR            LIFE16K/BAS           RIP
DATEFIND            CASTLE                ENGYBILL
SHOWCHES            PROFREAD              PRIME
IBMTEST             SARAHPIC              UNDERLNE
LOVE
```

MISC.

DISK 1

TRS 80 LIBRARY 3.31

FILE DIRECTORY --- DRIVE 1 NEWDOS -- 04/25/81 GAMES
MODDOT SLOT4 MONACO
CRAPS TINES CALENDAR
STOCKCAR IMPUS BRANDS DISK1
MONZA FROGGIE RNDDWG
ZOMBIE PHANTUM BANDIT
SLOT3 SNARK

FILE DIRECTORY --- DRIVE 1 NEWDOS -- 04/24/80
TENPIN SUROUND1 HAMURABI
SOLITARE MESSAGE LIFE16K/BAS DISK2
OTHELLO CHKSWIPE GOLF
BKGAMMON SCIFI FIELDGUN
BLKJACK SINKEM

FILE DIRECTORY --- DRIVE 1 NEWDOS -- 04/18/81
DRAGRACE CASTLE DRAUGHTS
CHOMP JIGSAW LANDER
POEM HORSRACE SPLATT DISK4
BARRADAR ENGINEER HANGMAN
ENTRAP AMAZING SUBCHASE
AWARI COLISION

FILE DIRECTORY --- DRIVE 1 NEWDOS -- 04/18/81
DUCKSHOT/LIII LIFEEXPT RNDLINES
SUROUND2 TARGET CLIPPER DISK5
GALLERY TANKBAT1 MAZERUN2
OXO3DA CAMEL TIDLWINK
SAFARI

FILE DIRECTORY --- DRIVE 1 NEWDOS -- 04/18/81
TOWERS SLALOM PORKBARL
SHEEPDOG NINETETO BALLOON DISK7
UKBUDGET EVEREST

FILE DIRECTORY --- DRIVE 1 NEWDOS -- 04/18/81
STARTRDB STARTRDA TANKBAT2
TICTACTO CARTOON BATTBFIT DISK8
MOUSTRAP WINNER MINIGOLF

FILE DIRECTORY --- DRIVE 1 NEWDOS -- 04/18/81
GALXYGME/LII ASTEROID HEXPAWN1
STORIES CLUEDO OTHELO2 DISK9
MAZERUN2 HEXPAWN2 GALXYGEN/LII
GUNSHOOT HORSTOUT BTLESHIP

FILE DIRECTORY --- DRIVE 1 NEWDOS -- 04/18/81
BREAKOUT/LII SWORDS/LII REVERSE DISK10
ACEYDUCY MSTRMIND GUESS
MAZERUN1 WELCLIMB OXO3DB
ORB STARSRCH

FILE DIRECTORY --- DRIVE 1 NEWDOS -- 04/19/81 DISK11
GROAN MMIND2 TARGETSD/LII
CONNECT4 SNOOPY/LII PHANTUM2
NUMGUESS CASINO

FILE DIRECTORY --- DRIVE 1 NEWDOS -- 12/06/80
HOROSCPE PLANTS2 BIORYTHM DISK1
BIOGRAPH PLANTS3 SNOOPY
STOPCLOK PLANTS1 CALENDAR DISK2
DOS READY
FILE DIRECTORY --- DRIVE 1 NEWDOS -- 04/19/81
QUEER PAYOUT SPIRAL
BIORTHM2 DECIDER CARPET/LII DISK3
KALISCPE TAROT
DOS READY