National TRS-80 Users Group

Newsletter

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EDITORIAL

Thanks once again for the many contributions you have sent in. I have held some over to the next issue (August) so that we can get it out in a couple of weeks time. We should then be back on schedule with members receiving their copies before the end of the month. This might necessitate the next issue being somewhat shorter than usual.

Things have been rather hectic in the last few weeks due to the number of workshops that Brian has arranged, culminating in a week-long marathon session at Milton Keynes. Judging by the numbers attending they have been extremely successful, and the same faces keep turning up, so we must have got things about right.

We had over 600 members just before the latest subscription renewal went out. I don't know what the current figure is but I find it difficult to believe how the Group has grown, when I think back to when we started. I originally intended to merely issue a membership list so that users could contact one another. Brian suggested that we issue a newsletter and offered to look after the admin. Things have just gone on from there.

Leon Heller

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Membership of the TRS-80 Users Group is by subscription to the Newsletter. Contact Brian Pain at the above address for details.

MEMBERS' LETTERS

My interest in computing started with a passion for automatic control systems, leading to digital electronics, leading to microprocessors. Mostly as a hobby interest overflowing into my work as a Mechanical Engineer. When I found myself spending all evening in the office/workshop instead of at home I decided my own computer was the only answer. I picked on a TRS80 because it was cheapest, best value, most expandable (at the time), and most of all because it used the same microprocessor as the office Horizon. My home equipment now comprises keyboard and expansion interface with 48k of memory, a Hitachi 9" monitor, 2 Shugart SA400's and a Microline 80.

I must confess to a yearning to move into the communications side of things, and if you have any standard handouts going on the 80-NET system I'd like to see them. I doubt whether I can afford much more for the time being, though.

Having expanded my hardware to the maximum extent possible without re-equipping, I find software even more absorbing, particularly as building software costs nothing. A pity it is so expensive to buy! As far as bought software goes, I have NEWDOS80, Scripsit, Infinite Basic & Business, and the various bits that go with NEWDOS80. I also have the Microsoft Editor Assembler-Plus, and sporadically attempt to transfer it to disk - so far with singular lack of success apart from simply using LMOFFSET to load and use it. Since that leaves the problem of saving and loading programs from/to disk, which is the nub of the matter, I don't really feel I am getting very far! Actually it is not quite that bad - I have the editor and debugger working OK, except for references to the mnemonics for symbolic debugging and assembling. Since it won't assemble, it is not much use. However, I'm hopeful.

I enclose a collection of oddments on separate sheets of paper that you can slot into the Newsletter if/when you have space and/or consider them interesting enough. Feel free to hack them about as you please.

Henry H. Shepherd

Model Is going cheap!

The Tandy Computer Store at Seacoal Lane have 10 Level II Model 1 systems for sale at £350 each. They are about a year old and complete with monitors and cassette recorders. The lower case mod. is fitted and they have switchable Level I. They would appear ideal for educational use. If interested contact us on (0903) 36660 as Tandy will only sell if all 10 machines can be sold at one go.

Leon Heller

From Bill Burnside

Several times in the past I have ordered goods directly from the States, quoting my Access (Master Charge) number and asking the supplier to charge the goods and carriage to this account. This system has usually worked well. Recently, however, I had my fingers badly burned by using this method and other members may benefit from my experience

I ordered a program called FLEXTEXT directly from Apparat Inc. in Denver and failed to notice that in their advert they said that "foreign orders would be sent by Emery Air Freight collect unless other arrangements are made." They correctly charged the cost of the program (about £ 15) to my credit card account, but when the parcel arrived at Prestwick I had to pay £ 27 for air freight and an extra £ 15 for handling charges at the airport. altogether it cost me £ 57 ! The moral would seem to be either to ask the supplier to ship goods by air or surface mail, or to contact a friend in the States to buy it and to post it to you.

Fortunately the FLEXTEXT program - which allows the Centronics 737 printer proportional printing facilities to be used with SCRIPSIT - is a very good one, but it was a costly experience !

One small tip, which may be of use to members who wish to add legends to the front faces of the keys on their keyboards. Letraset sell a sheet of Instant lettering transfers (in white) which give a very professional finish. The reference number of the sheet is 1571 (order no. 47-6-CLN) 6p HELVETICA Medium. I have found it better to transfer the letters on to a strip of black PVC tape, which is then stuck to the key. Clear varnish can be applied to protect the legends, but this is probably not necessary unless they are stuck to the upper surface.

We all enjoyed the recent Workshop in Glasgow. The members of the Glasgow and Edinburgh groups actually spoke to each other for the first time ever ! We hope you will visit us again.

Bill Burnside,
70A Westbourne Crescent,
Bearsden,
Glasgow G61 4HE.

From David Bale

Congratulations on the standard of the Newsletter. I have dual interest, firstly at work Dorset Institute of Higher Education where we have a number of TRS-80 and Video Genie systems and secondly a personal interest since I own a 48K level 2 system with an 'Ds House' double sided disc drive and an Epson MX 80F/T printer. The main development work at the College is orientated towards CP/M systems with the TRS-80's used for introductory work, Word Processing, Visicalc, Profile and other Business Applications.

Finally a note on VISICALC. This is grossly undersold by Tandy, like most of their computer products, and seems superior to the versions on Apple and PET having identical commands but:-

a. Tandy has 64 columns for display, a great advantage
b. Use of NEWDOS80 allows the use of 'JKL' to print the screen display
c. Use of SCRIPSIT allows listing and editing of VISICALC programs
d. VISICALC can produce a 'print file' which can be read by SCRIPSIT to incorporate the output into reports

David Bale

Breakdown of TANDY'S INKEY ROUTINE - John Rutherford (0482-223546)

How would any member like an ingenious sub-routine which has the following features :-

1) Controls 'INPUT' statement.

2) Allows ONLY numerical OR alpha-numerical input.

3) Displays flashing Cursor.

4) Show length of Field to be input by 'x' (optional character).

5) Simplicity in use.

6) Dis-allows 'up/down' arrows.

Surprise, Surprise, if you have the 'Tandy Lev II' manual (second edition) then you already have it on page H/1. (this programme should work for any other Basic if the equivalent peeks for the cursor key - PEEK 16418 - is substituted).

It is recommended that this is No. 1 in your own personal library of sub-routines and it is essential to have the line numbering as low as possible (to minimise the amount of time that the old chips take to search for a line).

To use this routine then type it in and instead of :-

a) INPUT X - (where X is a number then replace with FL=-9 : GOSUB 100 : X = VAL(IN$)

b) INPUT A$ - replace with FL=20: GOSUB 100 : A$ = IN$

A few points to note are the use of the trailing semi-colon and the FIELD LENGTH 'FL', I find that the example line works and is a good trap for incorrect input :-

```
11111 PRINT 'Message :- ';: FL=11: GOSUB100: IFIN$ <> 'The value/string required' THEN 11111.
```

A few tests to make the user familiar with the limitations of the routine follow :-

1) FL=-1:GOSUB100 - try inputting any alphabetical character or ',' or '+' or '-' or '.' .

2) FL=11:GOSUB100 - try inputting the up/down arrows.

3) FL=-9:GOSUB100 - try inputting 1,000 (this one is really sneaky - it displays ',' but only RETURNS IN$ = '1000'

The following is an outline of the routine which you can use to check through the flow :-

```
100  START - SETS up variables, RESETS flags, sets constants, etc
105  PRINT - Prints number of 'x' then backspaces to the first character position (ingenious).
110 INPUT - sets up flashing cursor, endless loop routine.
          First loop -  Print space  - TEST for input (INKEY) if not then NEXT.
          Second loop - Print cursor - TEST for input (INKEY) if not then NEXT.
    GOTO 110 'Starts all over again
 115 PRINTS cursor in next position and tests for word length (if it is its full length THEN 175).
          ELSE TESTS for correct input if within limits THEN 170 (ADD).
          ELSE TESTS for NUMBER if correct THEN 170 (ADD).
117 TESTS input of ',' if correct - increases word length by 1 THEN 175.
120 TESTS for '.' AND sets flag (so you cannot input another '.' ) THEN 170.
123 TESTS to see if '+' OR '-' AND first character of string AND sets flag (so you cannot repeat '+' or '-')
        IF correct THEN 170 (ADD).
125 TESTS for erasure OR backspace
130 TESTS for '.' and flag  IF so THEN 135 (ERASE)
          ELSE TESTS for '+' OR '-' , if correct then set flag.
```

```
135 ERASES last character
140 SHORTEN word length and print 'x' THEN 110 (INPUT).
150 TESTS for backspace IF so THEN backspace to start position and GOTO 100 (START).
155 FINAL TEST for <ENTER> and IF true then adds space and falls through to NEXT or IF false GOTO 110 (INPUT).
160 EXIT - If you managed to get here then feel the FOR-NEXT LOOP (so the NEXT is not wrongly nested) and RETURN.
170 ADD the satisfactory INPUT to the string ADD increase the actual word length by 1.
175 TESTS for single entry satisfied and if so THEN 160 (RETURN) ELSE 110 (INPUT).
```

It is up to the members to see how :-

1) Tandy remove the enable bit of adding the ';' into the display and not return it in their INS
2) How to input lower-case (if you have the modification)
3) How to input only INTEGERS
4) How to change the blinking-cursor (to avoid AA..Hardline)
5) Draw the Flow Chart
6) Any other useful changes please pass on.

P.S. Printed on Line Printer II using Scrivit.

(* I too have been using this routine recently. For integer input merely delete lines 117 and 120. You might need to insert

:GOTO 110

at the end of line 170 to make it come properly with FL=-1 or FL=1.

By adding a test for FL in line 160 before the RETURN statement you can return a default value in IN$ if the user merely presses <ENTER>. LFH *)

MICRO-DESIGN MDX-2 EXPANSION BOARD

I have just received one of the above boards from the States. The board is extremely well made with plated through holes, solder mask, and silk-screened component placement details. A very comprehensive manual is provided.

The board can be built in stages and includes:-

32K RAM, disk controller, dual cassette (with some external circuitry), modem (filters will need changing for CCITT), serial interface, printer port, EPROM (2K or 4K).

I shall be putting the thing together over the next few weeks and will let you know how I get on.

Leon Heller

USING SCRIPSIT WITH A DISASSEMBLER

My printer recently went BANG (since repaired) but I needed to do some disassembling and I took to using Scripsit as the only available alternative. I found it much better than the usual wading through miles of printout and thought members might like to know of some of the advantages of this method. First though you need to prepare an input file.

Nigel Dibben gave me a patched version of the Apparat disassembler which returns to the O/S environment when you answer 'S' to the 'Object from disk or memory' question, and this makes things much easier. Under VTOS type:-

```
RESET *PR
ROUTE *PR TO SOURCE     .... creates a printfile
                             called 'SOURCE'
run DISASSEM/CMD with print options
Key 'S' as above
RESET *PR
```

SOURCE will now contain a text file of the disassembly. Unfortunately the first byte is 00H which Scripsit takes to be the end of file mark. This needs altering to 0DH or some other innocuous byte before reading into Scripsit. Those ZAPPERS amongst you will have no trouble with this (using SUPERZAP or DEBUG(EXT)) but the following BASIC program will also sort it:-

```
10  OPEN "R",1,"SOURCE",1   'OPEN AS 1 BYTE RECORD
20  FIELD 1,1 AS A$         'GIVE IT A NAME
30  LSET A$=CHR$(&H0D)      'DEFINE C/R
30  PUT1,1                  'INSERT IT
40  CLOSE
```

Then load Scripsit and key:-

```
<break>
L SOURCE
```

Some of the facilities now available to you to aid disassembly are:-

-- searching for addresses using the 'F' command eg the familiar calls 13H, 1BH, 2BH, 33H, 49H, 402DH etc

-- putting in 'temporary' comments which can be searched for and amended later as necessary

-- putting in dummy references when you dont quite know whats going on.

-- filing away sorted bits of code on disk to remove their distracting influence from the job in hand.

The other advantage is that the code can the be merged with text in letters such as this. Eg:-

```
                    ;KSM/CMD DISASSEMBLED
```

```
  5200 E5          .      PUSH HL          ;SAVE POINTER TO TXT
  5201 21FF52      !.R    LD   HL,52FFH    ;POINT TO MSG
  5204 CD6744      .gD    CALL 4467H       ;DISPLAY
  5207 E1          .      POP  HL
  5208 119B53      ..S    LD   DE,539BH    ;POINT TO DCB
  520B CD1C44      ..D    CALL 441CH       ;CREATE DCB
  520E C22952      .)R    JP   NZ,5229H    ;ABORT ROUTINE IF NZ
  5211 1A          .      LD   A,(DE)      ;GET 1ST CHAR FRM DCB
  5212 FE2A        .*     CP   2AH         ;ABORT IF NOT AN *
  5214 C22952      .)R    JP   NZ,5229H
  5217 119B53      ..S    LD   DE,539BH
  521A CD2444      .$D    CALL 4424H       ;OPEN DCB
  521D C20944      ..D    JP   NZ,4409H    ;POST ERROR MSG
  5220 216D53      !mS     LD    HL,536DH   ;PT  TO  11-LF's  &
                                           CURSOR ON
  5223 CD6744      .gD    CALL 4467H       ;send it TO VIDEO
  5226 C33252      .2R    JP   5232H       ;GO TO MAIN ROUTINE
2 5229 217B53      !{S    LD   HL,537BH    ;ABORT ROUTINE
  522C CD7B44      .{D    CALL 447BH
  522F C33040      .0@    JP   4030H
8 5232 CD2B00      .+.    CALL 002BH       ;ST OF MAIN ROUTINE
  5235 2837        (7     JR   Z,526EH     ;IS K/B NULL-JP IF SO
  5237 FA8452      ..R    JP   M,5284H     ;if >7F,=cntl cd↑JP
  523A 4F          O      LD   C,A         ;CHR IN C
  523B FE5B         .[      CP   5BH        ;IF AN UP  [ CONV TO
ESC...in any case C is set for ASCII capitals & numbers
  523D 2002          .     JR   NZ,5241H
  523F 0E1B          ..    LD   C,1BH
```

On a slightly different but related subject, I've patched EDTASM to return to the O/S with the "B" command which means the assembled output (with comments) can also be sent to a disk file under VTOS in lieu of the printer. Hence assembled source/object files can also be merged with text under Scripsit. Below is an example of the command file OUT which enables any byte to be sent to any port under the O/S environment. On my system I use it as an AUTO command to switch in the inverse video and lower case hardware.

```
              00100 ;VTOS PORT DRIVER
5200                00110                ORG            5200H
;TRANSIENT ROUTINE SO 5200H IS OK
5200 111852   00120          LD       DE,PARAM        ;POINT
TO PARAMETER BLOCK
5203  CD7644     00130          CALL      4476H          ;CALL
PARAMERTER SCANNER
5206 212952   00140          LD       HL,MESSAG       ;POINT
TO ERROR MESSAGE
5209      C27B44        00150              JP          NZ,447BH
;DISPLAY & LOG MESSAGE IF PARAM SCAN UNSUCCESSFUL
520C  ED4B4952  00160          LD       BC,(PORT)       ;GET
PORT £
5210  3A4B52     00165          LD       A,(BYTE)        ;GET
BYTE VALUE
5213 ED79       00170          OUT      (C),A           ;SEND
```

```
IT
5215  C32D40     00180          JP       402DH            ;GO
HOME
5218   50           00190     PARAM     DEFM       'P       '
;PARAMETER BLOCK
521E 4952       00200          DEFW     PORT
5220 4E         00210          DEFM     'N
5226 4B52       00220          DEFW     BYTE
5228 00          00230          NOP                        ;END OF
PARAM BLOCK MARKER
5229  50        00240 MESSAG   DEFM     'PARAMETER  ERROR - USE
(P= ,N= )'
5248 03         00250          DEFB     03H                ;END OF
TEXT MARKER
5249      FE00          00260      PORT          DEFW        00FEH
;PARAMETER STORAGE AREA
524B 0600       00270 BYTE     DEFW      0006H             ;VALUES
ARE DEFAULT OPTIONS
5200            00280          END      5200H
00000 TOTAL ERRORS


BYTE    524B 00270    00165 00220
MESSAG  5229 00240    00140
PARAM   5218 00190    00120
PORT    5249 00260    00160 00200
```

The commands to produce this text file were:-

```
          RESET  *PR
          ROUTE  *PR TO TXT
          EDTASM
          L D=OUT/TXT                ..... ie the source file
          A/NO/LP                     ..... send the results
to the
          *PR device
          B                          ..... return to VTOS
          RESET  *PR                 ..... close the file
```

This produces a file which will load into Scripsit immediately.

Al Redhouse
The Villa
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MEDICAL SUB-GROUP
==========

Contact : Nick Robinson,
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Northwick Park Hospital,
Watford Rd.,Harrow,
Middlesex HA1 3UJ.

A GUIDE ON HOW TO USE NEWDOS - PART 2 (C) S.C.BIRD JAN 81

WELCOME TO PART 2 , I ASSUME YOU ARE IN DISK BASIC.

SORRY ABOUT THE MISTAKES IN LAST MONTHS ARTICLE :-

AFTER ' TYPE :- PRINT MEM '
THE NEXT COMMAND SHOULD BE ;- TYPE :- SYSTEM
HIT :- ENTER
TYPE :- /0
HIT :- ENTER

PLEASE NOTE ALSO :-
TYPE :- DU10,20:LIST
SHOULD HAVE BEEN TWO LINES , I.E. :-
TYPE :- DU10,20
TYPE :- LIST

TO ERR IS COMPUTER. (IT EVEN HAS ITS OWN SPECIAL COMMAND)

START - PART TWO
TYPE IN THE FOLLOWING PROGRAM

```
10 ?"THIS IS A PROGRAM"
20 ?"THIS IS A LINE"
30 ?"THIS IS ANOTHER LINE"
40 'THIS IS 40
50 FOR L = 1 TO 10
60 ?" * ";
70 NEXT
```

NOW TYPE :- RUN
TYPE :- LIST
TYPE :- LIST 30
TYPE :- L30
AS YOU CAN SEE LIST AND L HAVE THE SAME FUNCTION

```
NOW TYPE :- E40                    'EDIT MODE LINE 40
TYPE :- L                          'LISTING OF LINE 40
TYPE :- E                          'EXIT EDIT MODE
AS YOU SEE E 10 = EDIT 10
           L 10 = LIST 10
ALSO       D 10 = DELETE 10
      D 20 - 30 = DELETE 20 TO 30
       DI 10,15 = MAKE LINE 15 = 10 & DELETE 10
       DU 10,15 = MAKE LINE 15 = 10
           A 10 = AUTO 10

        UPARROW = LIST PREVIOUS LINE
      DOWNARROW = LIST NEXT LINE
SHIFT   U/ARROW = LIST 1ST LINE      ALSO ;
SHIFT   D/ARROW = LIST LAST LINE     ALSO /
      FULL STOP = LIST CURRENT LINE
          COMMA = EDIT CURRENT LINE

TYPE :- D 20                       'DELETE LINE 20
TYPE :- L 10 -                     'LIST LINE 10 ONWARDS
TYPE :- RENUM .                    'RENUMBER 1ST LINE = 10
HIT :- SHIFT UPARROW
```

A GUIDE ON HOW TO USE NEWDOS - PART 2 (C) S.C.BIRD JAN 81

```
HIT :- DOWNARROW
HIT :- DOWNARROW
HIT :- SHIFTDOWNARROW
LINES DISPLAYED SHOULD BE :- 10 , 20 , 30 , 60
HIT :- FULL STOP                'LINE 60 REDISPLAYED
HIT :- COMMA                    'LINE 60 EDIT MODE
TYPE :- L                       'LINE 60 LISTED
TYPE :- E                       'EDIT MODE EXITED
TYPE :- D 10 - 40               'DELETE 10 TO 40
TYPE :- RENUM ,                 'RENUMBER
TYPE :- LIST
TYPE :- NEW
TYPE :- LIST                    'NO PROGRAM LEFT
-------------------------------------------------
NOW TYPE :- CMD"DIR :0"
NOW LOAD IN LAST MONTHS PROGRAM
I LEFT IT AS ALF
TYPE :- LOAD"FILESPEC"          'IN MY CASE LOAD"ALF"
TYPE :- LIST
TYPE :- RENUM ,
NOW TYPE :- REF 20
REF 20

20

                                'IF  NO REFERENCE TO 20 IS MADE THEN THIS
IS WHAT YOU WILL SEE
                                'IF  REFERENCES  TO  20  EXIST  THEN  THE
FOLLOWING MAY APPLY

REF 20

20  40 60 100 5430
                                'YOU CAN DO THIS WITH VARIABLES TOO
TYPE :- LIST
LOOK OUT FOR VARIABLES THAT RECUR , LIKE A & B , X & Y
FIND A COMMON VARIABLE AND TYPE :- REF VARIABLE
E.G. TYPE :- REF X

NOW TYPE :- REF *               'THIS  WILL  LIST  OUT  ALL  REFERENCES
STARTING  WITH 1 AND ENDING WITH Z (ASSUMING THERE ARE REFERENCES TO 1
AND Z

IF YOU HAVE A PRINTER AND IT IS READY THEN TYPE :- REF $
                                'A REFERENCE LIST WILL NOW BE PRINTED  ON
THE PRINTER.
                                'HIT 'BREAK' TO PAUSE DURING REF* OR  REF
$  , 'ENTER' TO CONTINUE & 'UPARROW' TO STOP

AS YOU CAN SEE REF REFERENCES ALL VARIABLES & CONSTANTS
DO NOT USE ( $ £ ! OR % ) IN THE REF STATEMENT

TRY :- REF*A
OR  :- REF$G

NOW TYPE :- NEW
TYPE :- 10 ?"LINE 10"
TYPE :- 20 ?"LI   20"
```

A GUIDE ON HOW TO USE NEWDOS - PART 2 (C) S.C.BIRD JAN 81

```
TYPE :- SAVE"F1A:0"              'SAVE 'F1A' TO DRIVE 0
TYPE :- CMD"DIR :0"              'DIRECTORY OF DRIVE 0
TYPE :- KILL"F1A:0"              'KILL 'F1A' ON DRIVE 0
TYPE :- CMD"DIR :0"              'DIRECTORY OF DRIVE 0
TYPE :- SAVE"F1B:0"              'SAVE 'F1B' TO DRIVE 0
TYPE :- NEW
TYPE :- LIST
TYPE :- LOAD"F1B:0"              'LOAD 'F1B' FROM DRIVE 0
TYPE :- LIST
TYPE :- CMD"S"                   'JUMP TO SYSTEM - DOS READY
TYPE :- BOOT *80 ONLY*           'IF YOU STILL HAVE AUTO BASIC
HIT RESET     *+ / 21 *          'IT SHOULD BOOT INTO BASIC
TYPE :- LOAD"F1B:0"              'LOAD 'F1B' FROM DRIVE 0
TYPE :- LIST
TYPE :- SAVE"F2A:0",A            'SAVE 'F2A' IN ASCII FORMAT
TYPE :- CMD"LIST F2A:0"          'LIST FILE CONTENTS- DOS COMMAND
```

NOW THE SYSTEM COMMAND IN DOS (NEWDOS80 ONLY - NEWDOS + / 21 OWNERS - JUMP TO ****

YOUR NEWDOS80 COMES WITH THE SYSTEM SET UP FOR 4 DRIVES , PASSWORDS DISABLED & SPECIAL FUNCTIONS (JKL ETC.) ENABLED.

WE SHALL TAKE THESE COMMANDS ONE BY ONE

AA=Y PASSWORDS ENABLED
AA=N PASSWORDS DISABLED

AB=Y RUN ONLY MODE - THE DOS AUTO COMMAND MUST HAVE AN ENTRY FOR THIS COMMAND TO FUNCTION .THIS COMMAND DISABLES BREAK & (ENTER DURING THE DOS AUTO COMMAND)
FOR FURTHER DETAILS SEE NEXT MONTH ON 'RUN-ONLY' AND DOS AUTO
AB=N STANDARD MODE

AC=Y NEWDOS80 DEBOUNCE ACTIVE
AC=N NOT ACTIVE

AD=Y JKL ACTIVE - SCREEN PRINT FUNCTION
AD=N NOT ACTIVE

AE=Y 123 ACTIVE - DEBUG FUNCTION
AE=N NOT ACTIVE

AF=Y DFG ACTIVE - MINI-DOS FUNCTION
AF=N NOT ACTIVE

AG=Y BREAK ENABLED
AG=N BREAK DISABLED

AH=Y CLOCK LOSS TIME DURING DISK OPERATIONS 12MS
AH=N CLOCK LOSS 70MS

AI=Y LOWERCASE MOD PRESENT
AI=N NOT PRESENT

AJ=Y KEYBOARD INTERCEPT (FOR JKL ETC.) ACTIVE
AJ=N NOT ACTIVE

A GUIDE ON HOW TO USE NEWDOS - PART 2 (C) S.C.BIRD JAN 81

AK=Y JKL FUNCTION TO USE GRAPHIC CODES (MICROLINE)
AK=N CONVERT TO '.'

AL=4 NUMBER OF DRIVES IN THE SYSTEM - IF YOU ONLY HAVE ONE DRIVE SET AL=1 AND THIS WILL STOP THE SYSTEM WASTING ITS TIME DURING FUNCTIONS LIKE FREE

AM=10 NUMBER OF RETRIES WHEN A DISK ERROR IS FOUND

AN=0 DEFAULT DRIVE FOR THE DIR COMMAND - IF MOST OF YOUR TIME YOU USE DIR :1 THEN SET AN=1

AO=0 FIRST DRIVE TO SEARCH TO SAVE A PROGRAM - IF DRIVE ONE IS YOUR DATA DISK AND DRIVE ZERO ONLY HASS THE OPERATING SYSTEM THEN SET THIS TO AO=1

AP=0 DEFAULT ADDRESS FOR HIMEM - IF YOU ALWAYS LOAD A MACHIN CODE PROGRAM INTO HIMEMORY , AND DON'T WANT IT KILLED BY BASIC OR HAVE TO KEEP TYPING BASIC 60000 THEN SET THIS TO THE START OF YOUR PROGRAM LESS ONE E.G. AP=59999

AQ=Y CLEAR KEY ENABLED
AQ=N DISABLED

AR=Y FULL DISK COPY WITHOUT PASSWORDS
AR=N WITH PASSWORDS

AS=Y CONVERT LOWERCASE TO UPPERCASE
AS=N LEAVE WELL ALONE

AT=Y SINGLE CHARACTER INPUT TO A CHAIN COMMAND
AT=N NO SINGLE CHARACTERS

IF YOU HAVE A 1,2 OR 3 DRIVE SYSTEM THEN CHANGE AL , E.G. IF YOU HAVE 2 DRIVES TYPE :- SYSTEM :0 AL=2

IF YOU HAVE LOWERCASE TYPE :- SYSTEM :0 AI=Y AS=N

IF YOU KEEP PUSHING 123 OR DFG BY ACCIDENT AND DON'T NEED THESE FUNCTIONS THEN TYPE :- SYSTEM :0 AE=N AF=N

IF YOU WANT TO TRY OUT THE RUN-ONLY MODE THEN :-
MAKE A COPY OF YOUR DISK AS EXPLAINED LAST MONTH
NOW PUT THE COPY INTO DRIVE ZERO
PUT THE OTHER DISK IN A SAFE PLACE (NOT A DISK DRIVE)
THEN MAKE SURE YOU HAVE A BASIC PROGRAM ON THAT DISK CALLED "FRED"
,THEN TYPE :- AUTO BASIC RUN"FRED"
NOW TYPE :- BOOT
THEN HIT 'BREAK'
THEN TYPE :- CMD"S=SYSTEM :0 AD=N AE=N AF=N AB=Y
NOW TYPE :- BOOT

WARNING :- IF YOU HAVE ONLY ONE DRIVE THERE IS NO KNOWN CURE FOR RUN-ONLY MODE

****
THANKS TO IAN FOR THE WEEKEND WORKSHOP AT MILTON KEYNES - SEE YOU ALL AT THE MILTON KEYNES WEEK LONG WORKSHOP IN JULY. I HOPE TO BE

A GUIDE ON HOW TO USE NEWDOS - PART 2 (C) S.C.BIRD JAN 81

THERE ALL WEEK - THEY DON'T CALL ME MAD MAGNUS FOR NOTHING.

NEXT MONTH - OTHER LIBRARY COMMANDS IN DOS

NEWDOS80 - CHAIN COMMAND

IN THE FUTURE :-

SIMPLE FILE HANDLING + DOS & BASIC ERROR CODES

SUPERZAP 2.0 / 3.0 & MACHINE CODE - LATER PROZAP & SUPER UTILITY (WHEN I CAN GET MY HANDS ON THEM)
A RE-ZAPPING SERVICE WILL BE AVAILABLE AT COST - FOR WHEN YOU DIVERT FROM MY INACCURATE / I MEAN ACCURATE INSTRUCTIONS.

LMOFFSET & ITS USES
OR HOW TO PUT 8 EXTRA BLOCK SHIFTS ON THE END OF SPACE INVADERS.

DIRCHECK - HOW TO USE WITH SUPERZAP TO CORRECT YOUR MISTAKES

NEWDOS 80 - ASPOOL/MAS - A DISK BASED SPOOLER FOR PRINTING TO A PRINTER VIA DISK FROM BASIC : - : MAKE YOUR PRINTING A BACKGROUND TASK - GET ON WITH SOMETHING ELSE , EVEN A DIFFERENT PROGRAM WHILE YOUR PRINTING CONTINUES WHEN IT CAN.

USE YOUR NEWDOS TO YOUR BEST ADVANTAGE :-
READ ON OVER THE NEXT FEW ISSUES

NEWDOS + / 21 / 80 IS SOLD BY APPARAT (USA)
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.
FULL UNEDITED & UP TO DATE COPIES ARE AVAILABLE FROM ME @ 10.00 INCLUDING P&P.

THE SECOND ISSUE OF THE NATIONAL MICROCOMPUTER CLUB NEWSLETTER IS NOW AVAILABLE. 1.25 FOR ISSUES 1 & 2 TOGETHER.
INDIVIDUAL MEMBERSHIP WILL BE 3.00 FOR THE 1ST FIVE NEWSLETTERS - MEETINGS DURING 81/82 WILL BE HELD THROUGHOUT THE COUNTRY.

I AM WAITING BY MY PHONE - I ONLY GOT A COUPLE OF DISTRESS CALLS LAST MONTH - I HOPE YOU ENJOY THIS SERIES,
YOURS MAD MAGNUS (STEVE BIRD).

```
5
                    ***** LOGIC DISPLAY *****
10 CLS
20 FOR C=1TO6 : Q = ( C > 3 )
30    PRINT "C = ";C ,"LOGICAL  Q  =  ( C > 3 ) ","Q = ";  Q
50 NEXT : LIST
```

John Rutherford

MX=80 DEMONSTRATION PROGRAM

Here is a little program I wrote to demonstrate what the Epson MX-80 printer can do and which also incorporates the instructions to the printer for reference. This may be of interest because it takes quite a bit of working out from the manual.

My letters by the way, has been written using the Kansas City Word Processor costing only £19.50. Being in BASIC it is pretty slow - each character is converted into lower/upper case as it is typed in, which limits one to about 15/20 words a minute - but apart from that I find it very useful. Being in BASIC I have been able to write in two alternative letter headings and also amended it to run alittle faster.

```
10 LPRINT "THIS IS NORMAL PRINTING":LPRINT
20 LPRINT CHR$(14); "'LPRINT CHR$(14);STRING' PRODUCES
DOUBLE WIDTH LETTERS BUT IT LASTS FOR THE CURRENT LINE
ONLY" : LPRINT
30 LPRINT CHR$(14);"Parts";CHR$(20);" of a line";CHR$(14);"
can be double width";CHR$(20);" by using 'LPRINT CHR$(20)'
to cancel chr$(14)" : LPRINT
40 LPRINT CHR$(15) : LPRINT "This is CONDENSED PRINTING,
obtained by USING 'LPRINT CHR$(15)'. The whole line has to
be condensed. It is CANCELLED BY 'LPRINT CHR$(18)'" :
LPRINT CHR$(18) : LPRINT
50 LPRINT CHR$(27);CHR$(69);"Ente  'LPRINT
CHR$(27);CHR$(69)' gives EMPHASISED PRINTING which is a
second hit just a fraction behind the first one." : LPRINT
CHR$(27);CHR$(70) : LPRINT "It is cancelled by 'LPRINT
CHR$(27);CHR$(70)'
60 LPRINT "The whole line must be emp  sed. The speed
is reduced to 40 characters per second" : LPRINT
70 LPRINT CHR$(27);CHR$(71); "DOUBLE PRINTING is obtained
By entering 'LPRINT CHR$(27);CHR$(71)' and cancelled by
'LPRINT CHR$(27);CHR$(72)'. This takes two passes of the
print head" : LPRINT CHR$(27);CHR$(72)
75 LPRINT "In DOUBLE PRINTING the paper is moved 1/216
of an inch before the second pass" : LPRINT
80 LPRINT CHR$(27); CHR$(69); CHR$(27); CHR$( );
"Combining these to get ";CHR$(14); LE
EMPHASISED";CHR$(20); " gives a good solid print" :
LPRINT CHR$(27); CHR$(70); CHR$(27); CHR$  CHR$(14)
90 LPRINT "A slightly larger than normal character can be
obtained by printing DOUBLE WIDTH CONDENSED as the
next two lines showUSE 'LPRINT CHR$(15);CHR$(14)'" : LPRINT
100 LPRINT "ABCDEFGHIJKLMNOPQRSTUVWXYZ
110 LPRINT CHR$(15);CHR$(14);"ABCDEFGHIJKLMNOPQRSTUVWXYZ" :
LPRINT : LPRINT : LPRINT CHR$(18)
120 LPRINT "Line spacing can be altered in increments of
1/72 of an inch byentering 'LPRINT CHR$(27); CHR$(65);
CHR$(n);' with 'n' As the desired increment
```

```
125  LPRINT  "IT  IS  THEN  ACTIVATED  BY  'LPRINT
CHR$(27);CHR$(50)
130  LPRINT  "FOR  THIS  EXAMPLE";  :  LPRINT
CHR$(27);CHR$(65);CHR$(3);
135  LPRINT  CHR$(27);CHR$(50)  :  LPRINT  "
n=3";
140 LPRINT CHR$(27);CHR$(65);CHR$(15);
150  LPRINT  CHR$(27);CHR$(50)  :  LPRINT  "
  THIS TIME 'n' IS 15"  : LPRINT CIR$)27);CHR$(65);CHR$(0) :
LPRINT CHR$(27);CHR$(50)
171 LQRIOT  "IT IS RESTOSED TO NORMAL BY SETTING 'n' TO ZERO
: LPRINT : LPRINT
171  LPRINT "This is used  for UNDERLINING with 'n' set to 1
and  CHR$(95)  for  the  line";  :  LPRINT
CHR$(27);CHR$(65);CHS$(1);
180  LPRINT  CHR$(27);CHR$(50)  :  LPRINT
STRINGZ(17,CHR$(32));STRING$(11,CHR$(95));
190  LPRINT  CHR$(27);CIS$(65);CHR$(0)  :  LPRINT
CHR$(27);CHR$(50)
200  LPRINT  "The  underline  command  is  'LPRINT
STRING$(17,CHR$(32));STRING(11,CHR$)95))'
210 LPRINT : LPRINT : LPRINT
250  LPRINT CHR$(15);  "This is  CONDENSED  TYPE"  :  LPRINT
CHR$(18) : LPRINT
260 LPRINT "This is NORMAL TYPE" ; LPRINT
270  LPRINT  CHR$(15);  CHS%(14);  "This  is  DOUBLE  WIDTH
CONDENSED TYPE" : LPRINT CHR$(19) : LPRINT
280 LPRINT CIR$(14); "This is DOUBLE WIDTH TYPE" : LPRINT
290  LPRINT  CHRX(27);  CHR$(69);  "This  is  eMPHASISED
PRINTING" : LPRINT CHR$(27);CHR$(70) : LPRINT
300 LPRINT CHR$(27); CHR$(71); "This is DOUBLE  PRINTING"  :
LPRINT
310 LPRINT  CHR$(27);  CHR$(69); "This is  EMPHASISED DOUBLE
PRINTING" : LPRINT
315 LPRINT CHR$(27); CHR$(70); CHR$(27); CHR$(72)
320 LPRINT  "Back to  normal by  entering 'LPRINT  CHR$(27);
CHR$(70); CHR$(27); CHR$(72)'"
```

I. Howard Wright.

USING DEF FN TO CONTROL CURSOR POSITIONING.

I have been playing around with formatted displays recently, and have found the function definition commands, in conjunction with those obscure control codes (on page C/1) rather useful. For example, I had quite failed to notice that 29 moves the cursor to the beginning of the line and 25 advances it. So, if we define a function:

```
DEF FNC$(N)=CHR$(29)+STRING$(N,CHR$(25))
```

then, in any line FNC$(n) will move the cursor to the nth position and start printing there without erasing anything already on the line, as TAB(n) would do. Useful for filling in spaces in tables or amending data when you (or the program) does not know which line is in use, and thus can't use PRINT@,...

Henry H. Shepherd

TIPS - MODEL I

Another use for Superzap - Where a program saved under 'A' option produces a 'DIRECT STATEMENT' error due to lines expanding over 255 characters this can be easily overcome with Superzap.

1) Note down the coding of last line in loaded program ie. the one giving rise to the error

2) Use DFS on the offending file and step through from sector 0 until the offending line is found. All should be clear from Superzaps ASCII decoding.

3) After the last character actually present change the next character to 0D(Carriage Return).

4) Change the following characters to 00 until the start of the next lind number.

5) Save the modified sector

You can now load the program unless there are any more errors. The offending line should be edited to restore the missing characters - preferably the line should be reduced in length or split up to avoid any repetition of the problem

TIPS - MODEL II

It does not seem that long ago that I first used a 16k Level 2 with the well-hated CTR-41 for storage. The company where I work now has over 50 MODEL IIs most of which are being used at our branches for producing Life Quotations.

Surprisingly (?), most of the problems are mechanical - the software side of the system has been almost trouble free. Two lessons have become apparent:-

1) Any use of foreign equipments is certain to bring disaster.

2) Maintenance is a must as the MODEL II's eight inch disk drives do require regular attention (probably about 1-2 times/year). Tandy now provide a very good maintenance service which if combined with computer insurance offers total protection against loss of use - vital for business use.

The most traumatic moment was produced by Tandy's introduction of DOS 2.0A. This has major differences from the 1.2 version. These were sufficient to make us consider

CP/M but only for a moment as the horrors of CP/M's documentation together with the much talked about BDOS errors convinced us to stick with TRSDOS. On a more serious note there are some very significant benefits in 2.0:-

1) There is a copy directory automatically maintained in the event of a disk problem. This is a very major benefit which more than justifies all the conversion problems. But will someone in Fort Worth tell me why MODEL II Scripsit excludes this option?

2) Removed requirement to Initialise (I) on change of disks although this slows down I/O. Under program control it is possible to run at the original speed using a SNAPP patch (I mention under program control as this patch re-instates the need for I)

3) The directory now shows the last update date as well as that of first creation.

4) Backup will continue through disk flaws allowing maximum recovery of data.

5) There is a MOVE command allowing selective copying e.g. MOVE */BAS:1 to 2

6) The wild card specification is allowed for KILL and DIR

7) Othes benefits cover disk spooling, Type ahead buffer, HELP command for syntax information, improved TERMINAL program and better error reporting in BASIC.

Not long ago Leon asked for tips on how to overcome software problems with 1.2 programs. Silence was the great reply but the latest news is that most suppliers are now supplying revised programs. There are now a number of software packages and the following list covers the packages which I have used. I would stress that all comments are my personal opinion based on my own experience which may not be equally relevant to all applications.

Electric Pencil:- Excellent for basic word processing. Produces tremendous quality output with the Diablo version using proportional printing. Under 1.2 it is very easy corrupt disks by changing disks without an I. Under 2.0 only the Diablo version of the program will run and then only in a restricted way.

The program MUST be entered with repeated use of CTRL&P. At the print menu the use of ESC will allow the program!to work. This appears to overcome the typing problem due to the revised keyboard entry routine?

Embedded print commands no longer operate correctly e.g. .C or .L100.

Files can not be KILLED from PENCIL.

The system must be RESET after using PENCIL.

Scripsit:- Lots and lots of word processing facilities which really need special function keys to do them justice. The method of opening documents is as good if not better

than the dedicated systems. There is a useful merge facility for automatic mailing which has the Readers Digest approach to inserting variables into a standard letter. A spelling checker is very near which if effective will make this a very competitive package.

In conclusion Scripsit is much better than PENCIL for dedicated word processing but unlike PENCIL it can not be used on any other files. PENCIL can be used on BASIC programs saved under "A" or on files received from a remote computer and saved by TERMINAL. I have used this facility to copy files from a Philips Word Proessor into PENCIL on the model 2.

BASIC compilers:- Tandys own compiler is not as clever as it looks. There is major problem in that the BASIC is not standard Microsoft. Even after all the pains of conversion I am told that there are not any speed benefits. I remain convinced that the CALL subroutine facility and COMMON data areas are two useful facilities. It is sad that overall this package does not suceed.

:- Microsofts own implementation offers tremendous speed benefits which transform the system into a real computer!. The limitations are that the compiled programs use about 5 times as much disk space and that the maximum program size is about one third of the interpreter due to memory reqirements of the L80 loader. 2.0 DOS users lose 2k of memory due to a re-loaction of TOP. Racet Computes provide a procedure aptly named TOP which will reset this marker. There are some differences with the interpreter in that arrays must be specifically dimensioned - A=10:DIM B(A) is illegal and ERASE is not present.

SNAPPS XPRINT:- This allows a selection of BASIC programs to be printed from DOS. These files can be both compressed and saved as "A" e.g. XPRINT */BAS:1 will list all /BAS files on drive 1. Overall very useful.

Disc Spoolers:- These do not see very useful owing to the limitations of floppy disk transfer speeds. It should not be overlooked that disk spooling puts a lot of stress on the disk system which can lead to an increase in disk faults. Under Basic, Tandy's Spool slows down the keyboard. For the systems with which I have been involved, Snapps disk spooler does not seem to speed up applications due to disk contention. Tandy's spooler comes with 2.0 and is most effective as implemented with Scripsit. There seems little point hn using anything else.

Memory Spoolers:- SNAPP provide various memory spoolers. Amazingly the TOPSPOOL variant provides a 2k buffer with no loss of user memory. This is of significant value for those applications where processing alternates with printing and run times can be halved by using this facility.

SNAPP's extended BASIC:- a lot of useful programming aids which will be immediately familiar to users of NEWDOS. Why these features are not in TRSDOS escapes me.

Racet Computes Disk Sort Merge:- If you want to sort files this is essential and arguably better than a memory approach in that your sort has far more scope in terms of eventual capacity.

Visicalc:- For non-programmers this remains the most effective system for using computers. On the stocks are versions to handle data management and time series forecasting. For simple applications (although don't underestimate the power of Visicalc's calculations) this program can often be the fastest solution even for the experienced programmer.

Derrick Rowe

PERSONAL MICROCOMPUTERS IN MEDICINE

Dr. Nick Robinson of Northwick Park Hospital, one of our medical members who runs the Medical Sub. Group, in conjunction with Mr. I.S. Benjamin of the Royal Postgraduate Medical School at Hammersmith Hospital, organised a very successful meeting on the above topic at Hammersmith Hospital. About 50 people attended, and there seemed to be more TRS-80s around than all the other systems put together!

In the morning session Dr. Ariela Pomerance (another of our members) gave a very interesting talk on the use of the TRS-80 in a hospital pathology laboratory and I expounded on expert systems in computer-assisted diagnosis. Other presentations on obstetric data management and respiratory function testing in premature infants also took place in the morning.

Following lunch, Nick spoke on computers for G.P.s, following which there were several other presentations on computers in General Practice, by medical practitioners, software writers, and distributors. Everyone found the meeting extremely worth-while, and another meeting will take place later in the year. Both Nick and Mr. Benjamin are to be congratulated on an excellent piece of organisation.

Leon Heller

USING VTOS/LDOS

As you know I'm a great fan of VTOS (& LDOS) and I've tried to get across some of its amazing capabilities at Sheffield and (at 5 minutes notice) York. To put these in a practical context I thought it might be useful to show how some of the problems presented in the June newsletter could be tackled under VTOS.

KEYBOARD DRIVER RELOCATION

No wonder Laurie Shields likes Newdos 80 etc so much -- it gives him so much work to do! Taking his Level II keyboard driver problem for "SPACEV/CMD" , under VTOS the action would be:-

a)To modify SPACEV/CMD permanently

Under DOS simply type

PATCH SPACEV (X'4016'=E3 03)

That's it! The patch is installed at the end of the normal code (even if this needs an extension to the existing filespace) and overlays the existing values in the specified memory locations when the program is loaded.

b)To maintain manual control over the keyboard DCB

i)Create the command file

```
Type DEBUG <en> <break>
Type M7000
Type 21<sp>E3<sp>03<sp>      .... LD   HL,03E3H
     22<sp>16<sp>40<sp>      .... LD   (4016H),HL
     C3<sp>2D<sp>40<sp><en>  .... JP   402DH
Type G402D
Type                DUMP                BOUNCE/DVR
(S=X'7000',E=X'7008',T=X'7000')
```

Or use Edtasm like Laurie.

ii)To install the new (Level II) driver

Type SET *KI TO BOUNCE

iii)To return to the DOS keyboard routine

Type RESET *KI

c)If Laurie had put the system tape onto disk using the VTOS CREATE (or LDOS COMMAND FILE) utility instead of LMOFFSET the utility would have detected the need to the

Level II keyboard routine, and installed the patch automatically.

FAST CONVERSION OF TEXT FILES

An admirable example of assembler programming by Leon, but under VTOS the following commands would do the job:-

```
ROUTE *PR TO <output filespec>
FILTER *PR USING UPCASE        (UPCASE is a filter
PRINT <source filespec>         utility supplied
RESET *PR                       with VTOS 4.02)
```

The output file now contains the upper case version of the source file. To make things even easier these four commands can be written to an ASCII disk file using the BUILD utility (or Scripsit for that matter) creating a file called, say, UC/JCL. The whole process can then be invoked by simply typing:-

```
!=UC                    (or CHAIN UC on VTOS 3.02)
```

MODIFYING DEBUG

Why bother?
With VTOS if you type:-

```
DEBUG (EXT)
```

an extended set of DEBUG facilities is automatically loaded at the logical top of memory (ie below any drivers etc already installed) and then protected from BASIC and other high memory utilities by lowering the top of memory pointer.

With this package installed the following additional capabilities are available:-

Command	Action
B	Move a block of memory
E	Enter hex data into memory without using the space bar between each byte
F	Fill a block of memory with a given byte
J	Jump over the next byte without execution
L	Locate the first occurence of a given byte
O	Exit to VTOS
P	Print a block of memory in hex and ASCII
Q	Input or output a byte from a port
T	Type ASCII characters directly into memory
V	Compare two blocks of memory
W	Search for a given word (two bytes)

Disk Commands

Read or write any sector or number of sectors from any drive directly to/from any memory block

(including the directory track). All the extended DEBUG facilities are then available to search or manipulate this data in memory before writing it back to disk.

N Steps to successive load block modules on a command file image located in memory. This could have been used to find the entry point record (the one that starts 0202....) in Laurie's SPACEV exercise.

These extra facilities make DEBUG a very powerful tool and completely remove the need for Superzap and MON3 as far as I'm concerned. And its available (almost) instantly in both BASIC and O/S environments.

These are just a few of the VTOS/LDOS capabilities. If you like I'll try to cover some of the other aspects in future issues of the newsletter.

Al Redhouse
The Villa
East Cottingwith
York YO4 4TL

(07593) 502

AN ANNOUNCEMENT FROM LOWE ELECTRONICS

I read with interest your note on the current issue for the News Letter regarding the legal wrangles between Tandy, PMC, EACA and a number of dealers in America.

Perhaps you could be so good as to allow me to use your columns to assure new and existing customers for the Video Genie System that we are advised that these legal procedures can have no effect whatsoever upon the availability of the machines in the UK.

Since your readership is obviously interested in items of this nature I shall do my best to forward any other information as it becomes available.

Robert Stead,
Assistant Managing Director,
Lowe Electronics.

LOW-COST MODEMS

A supplier will be offering modems to members at £110 each (including V.A.T.). We are getting one for evaluation and hope to have full details in the next issue. One of these together with the PCR-81 serial interface would enable members to get on-line for around £160 using a 16K Level II system. You will not need an expansion interface.

Leon Heller

TANDYSCRIBE

I have been studying the programme 'Tandyscribe' which provides for the use of all the special characters on the Daisy II by using a <Z symbol. Although I had been informed by Mr Hartmann of Tandy headquarters that it could be used alone with purchasing Tandymail (about 100 extra), the attempts at so doing by the local Tandy staff and myself indicated it could not be used without having Tandymail. However, the problem has been answered very fully and helpfully by Mr Stanley of Understanding Ltd in the following letter. Unfortunately, two aspects of Tandyscript make it impractical to me for my use. First, it takes about 19 minutes to 'process' a document of less than two A4s in length. (One types the document into Scripsit and then a each character is processed by Tandyscribe to enable print-out). Secondly, with Tandyscribe it is impossible to use a special character (for example, in French the accented e acute or the e grave) without preceding it with a space (See point 2 in Mr Stanley's letter). Thus it is virtually impossible to use Tandyscribe for typing letters in a foreign language.

I have been using Superscript for the past several months. I wrote to Mr Wilkes who produced it and he said that he was marketting in the middle of May an extended version which enables all the Daisy Wheel characters above 80H to be used. However, it would appear that there are difficulties of some kind, since it appears not to be available as yet.

Incidentally, I wonder if any members has tried using the Anadex DP8000 with a parallel feed using the Tandy interface cable (Ref 26-1411) connected to the CPU. My son is using this (he has no Expansion Interface), but alas, there are occasional letter dropped at random. He has put in a 'delay' subroutine called at each line end, and it then prints out correctly. Unfortunately, Tandy says these cables are very scarce and cannot provide a second to try in order to verify whether there is a 'bug' in the one used. The alternative is of course to use a serial input, but this requires a software programme run in whenever the printer is wanted.

Bill Cowhig

Dear Mr. Cowhig,

In answer to your detailed letter of the 19th of this month on the subject of Tandyscribe, let me tackle your points in order.

1. Tandyscribe will run without Tandymail, but NOT without a minimum mailing list. This is a DICT file and a MAIL file containing one valid record, which the second program in the suite insists on reading in the current version. These two files can be copied from disk to disk, so ask your local Tandy shop if they could create one for you. Failing that, send us a disk and return postage, and we'll put one together for you.

2. In fact the '<' sign does have to follow a text marker (line, page or paragraph) or a space. We were faced with the dilemma that a person might genuinely wish to use a '<' sign in his text and that we would not in all conscience modify SCRIPSIT to include a fourth kind of text marker.

3. What I do to get round the problem of the resultant space is to use the reverse line feed option of the Daisy wheel II printer. I then have a second line of text containing only my special characters. Beware, however, of justification problems; you have to add non-printing characters to represent the HARD spaces in both lines, to distinguish them from the SOFT spaces inserted by the justification routines.

4. No, there is no way of editing the TANDYSCRIBE file pair ..../LTR and ..../SUM, you do, I am afraid, have to go back to SCRIPSIT and then repeat the "CONV". To find out why, try writing a little program to analyse said files.

Finally, I would like to add that I can see your dilemma clearly and suggest that you investigate a product called SUPERSCRIPT from ACORN SOFTWARE PRODUCTS inc.; I enclose a copy of one of their advertisements for your perusal. I believe that Molimerx of Bexhill in Sussex (0424-220391) may stock it. I haven't used this product myself, but it might be a handier answer to your particular needs.

Wishing you luck in your persuit of tools.

R. A. Stanley
DIRECTOR
For and on behalf of Understanding Limited

COMPUTERISED BULLETIN BOARDS

There is now a total of six computerised bulletin boards; including one in Holland. All but one, Peter Goldman's, are using the FORUM-80 software on TRS-80s. Peter is using a 9900-based system (16 bits on the S-100 bus) with his own software written in 9900 assembler and compiled BASIC.

80-NET Milton Keynes - (0908) 566660 Op. Brian Pain/Leon Heller. 1900-2200 every night. All day Sat. and p.m. Sun.
FORUM-80 Hull - (0482) 859169 Op. Frederick Brown
Tues. & Thurs. 1900-2200 Sat. & Sun. 1300-2200.
FORUM-80 London - 01-286 6207 Op. Leon Jay.
Tues. Fri. Sat. Sun. 1900-2300
FORUM-80 London - 01-902 2546 Op. Victor Saleh
Any time Victor is around.
CBBS London - 01-399 2136 Op. Peter Goldman
Wed. 0700-0930 & 1900-2200. Fri. 1900-2200. Sun. 1600-2200
FORUM-80 Holland - 010 313 512 533. Op. Nico Karssemeyer.
Tues. to Sat. 1800-0700. Continuous 1800 Sat. to 0700 Tues.

Leon Heller

LIBRARY PROGRAM CORRECTION

RECENTLY I SENT A PROGRAMME TO THE LIBRARY CALLED 'QUANTUM NUMBERS'. THIS PROGRAMME PRINTS THE FIRST AND SECOND QUANTUM NUMBERS WHEN THE ATOMIC NUMBER IS INPUT ALSO IT PRINTS WHAT TYPE OF ELEMENT IS BEING QUERIED.

I HAVE SINCE FOUND THAT THE PROGRAM IS IN ERROR FOR Z<39 AND Z>30 THESE ELEMENTS BEING DISPLAYED AS TRANSITION ELEMENTS.

WOUD ANYONE BORROWING A COPY PLEASE MAKE THE FOLLOWING CHANGES:-

LINES 280,300 & 310 CHECK THAT ':ELSE' HAS BEEN CORRECTLY PLACED AFTER 'IF Z>NN GOTO LLL'

KEN ROBINSON.

ADDING A HEX KEYPAD TO A GENIE

AS MEMBERS MAY HAVE NOTICED (APRIL '81 NEWSLETTER) I HAVE BEEN MODIFYING THE KEYBOARD OF THE GENIE TO GIVE THE EXTRA FIVE KEYS. AT THIS TIME I WAS ONLY STOPPED FROM FITTING AN EXTERNAL HEX KEYPAD BY NOT WISHING TO SOLDER THE TERMINATION OF THE NECESSARY WIRING HARNESS DIRECTLY TO THE KEYBOARD. I DON'T THINK IT'S A GOOD IDEA TO STOP THE BOARDS BEING REMOVED AS THEY WERE DESIGNED TO BE.

I HAVE MADE UP AN ADAPTOR TO FIT BETWEEN THE 20-WAY CABLE AND THE WIRE MATE SOCKET. THE TERMINATION OF THE HARNESS WHICH RUNS TO A 'D SERIES' 25 PIN SOCKET WAS SOLDERED TO THE ADAPTOR AND IT WAS PLUGGED INTO THE KEYBOARD. THE 20-WAY CABLE WAS PLUGGED INTO THE ADAPTOR.

THE ADAPTOR IS A 40-PIN WIRE WRAP DIL SOCKET CUT DOWN TO PROVIDE TWO 20-WAY SOCKET STRIPS. ONE STRIP IS SOLDERED INTO A PIECE OF VERO BOARD WITH 20 STRIPS X 3 HOLES. THE HARNESS IS THEN SOLDERED INTO THE VERO BOARD AND, AFTER CUTTING THE WIRE WRAP PINS TO HALF THEIR ORIGINAL LENGTH, IT'S PLUGGED IN AND HOPEFULLY, AFTER TESTING, IS O.K. FIRST TIME.

I PLACED THE 'D SERIES' SOCKET ON THE RIGHT OF THE MACHINE BY THE CASSETTE DECK. ALSO I WIRED THE SOCKET SO THAT PIN NUMBERS CORRESPOND WITH THE PIN OUT OF THE 20-WAY CONNECTOR TO THE PROCESSOR BOARD.

THE KEYPAD I HAVE USED IS A 'TANGERINE' KEYPAD FITTED WITH A 16-WAY FLAT CABLE, PURCHASED FROM HENRY'S RADIO IN THE EDGEWARE ROAD. THIS PAD USES A TOTALLY DIFFERENT MATRIX TO THE GENIE SO MOST OF THE P.C.B. CONNECTIONS HAVE TO BE CUT AND A WIRING SCHEME WORKED OUT. I CAN'T HELP WITH THIS SCHEME AS I KEPT NO RECORD OF WHAT I DID, BUT IT IS NOT TOO DIFFICULT IF YOU FOLLOW THE DIAGRAM IN THE PREVIOUS NOTE.

KEN ROBINSON.

NATIONAL TRS80 SHOW AT N.Y. STATLER

The First National TRS80 Micro Computer Show for TRS80 users was held at the New York Statler on May 21st to the 23rd. The event is one of some significance not only in that it was the first event of its kind but that it had the semi-official blessing if not the sponsorship of Radio Shack.

There were over a hundred exhibitors including many of the advertisers in the dedicated magazines, and there was a comprehensive program of talks and seminars over the whole three days.

The opening address was given by Lewis F. Kornfeld Jnr., Radio Shack President, who proved to be a small bespectacled man, soft spoken, with a noticeable and engaging speech hesitation, and a wry sense of humour.

He wished Radio Shack to be the name, rather than Tandy, as he considered the marketing image was better. He referred to "80 Robotics" Magazine which was to be a house magazine.

He said that on the 3rd August 1977 at the launch of the TRS80, he had called it the most important product ever made by the Company, and that it would open many horizons, a forecast he considered had been amply fulfilled. He had just been awarded by Boston University, a Doctorate of Humane Letters, an award in which he took an obvious pride. He claimed there were a total of 8,100 stores from which Radio Shack computers could now be obtained.

When pressed about future plans he stated that it was the Company policy not to make promises or describe products until they were actually in existence and they could deliver. They had however, plans to come out with a hard disk in the not too distant future - it appeared that this would be a fixed Winchester-type disk with tape backup.

He pledged the Company's continued support for Model I although production had ceased, as they "would be out of their minds not to", and that support would continue beyond demand for it. He mentioned a new re-formatter program to enable Model II users to have compatibility with IBM equipment.

Wayne Green, publisher of 80 Micro Computing, claimed that his Company had for the past five years expanded at a rate of 60% per annum, which meant a tenfold increase. He stressed that good business program software was urgently needed as well as many inventions more fully to utilise the equipment now available. He was especially enthusiastic about electronic mail, the development of which was inhibited by the 300 baud rate.

He foresaw instant receipt of information at a terminal in one's car via a portable unit similar to a walkie-talkie.

The amateur radio network in the States had a comprehensive range of relay stations, and there would be similar facilities for relays of business information.

80 Microcomputing were introducing "Load 80" a cassette of programs published in the magazine and "Encyclopaedia 80", a publication which would include all the magazine articles as well as other information.

The meeting of the Model II users group was headed by commended Snapp Utilities. These combined with TRSDOS 2.0A made a very good development system, although it was acknowledged that CP/M was still faster, but not so easy to use. As regards the Snapp programs, he claimed that these included everything in NEWDOS80 and indeed surpassed features on NEWDOS80 in many ways. The programs take up neither diskette space nor RAM space as all have been cleverly included on the free 25th sector of each track, which is a free sector claimed by TRSDOS. They "use the area of RAM segregated for DOS overlays".

There are 5 micro-cobols now marketed in the States. It was mentioned that Tandy have developed a cobol package with the intention of using cobol for all business programs for Model II.

Th Compuserve service permits the connection with many sources of information and data bases. It is available between 6 p.m. and 5 a.m. weekdays, and all day Saturdays and Sundays for $5.00 per hour. The reason for the cheap service at these times is offpeak use of equipment which is used during business hours at the rate of $22.50 per hour for a wide range of business and data base services. Information offered includes news, electronic mail capacity, national bulletin board, financial information, personal finance, money management information, games, personal computing aides for programming and technical information. There is a software exchange which allows the purchase of programs and have them loaded down line. The service is marketed through Tandy stores.

A talk on Model II business software was given by Dave Schnieder CPA. He spoke very highly of the Model II as quality equipment and stated that he had successfully installed and his customers were now using Corvus Hard Disk with Mirror backup. There also were multiuser applications using the hard disk configuration. With the hard disk one could now have four 20 megabytes hooked up to make total storage capacity of 80 megabytes. He spoke highly of the new TRSDOS and also referred to OASIS as a competitive very sophisticated system.

George Blank, Editor of Creative Computing, had acquired a Model I in 1977 and within a month of so doing, had written 3 games programs on it, which he had sold. To sellprograms they should be on disk with good documentation and an explanatory letter. A disk program could quickly be evaluated but programs on tape were farmed out to a secretary who would soon become frustrated if they did not load first time. A final tip was to make p rams graphic. This is a strong key for selling, especia en

accompanied by significant documentation on disk as opposed to paper.

At the Exhibition itself Model III was very much in evidence. MTI demonstrated it with two of their 80 track D/S drives. These could give 1.3 megabytes of disk storage. Two further drives could be added externally as the operating system would address these as well, so as to give a capacity of 2.6 megabytes.

VT Enterprises are offering Tick-Tock 80 microclock for $99 which is a clock running on battery, so that time and date never need be re-set. One of the most interesting hardware appendages is Type'n Talk text to speech synthesiser from Votrax. This enables the computer to talk by reading text typed in on the keyboard. The articulation is reasonably clear, but modulation is nil. I tried it and whilst it successfully negotiated anti-disestablishmentarianism it corrupted allegiance as it only recognises phonetic spelling. The cost of the equipment is $399.

Another item of interest is "ASCII" a monthly cassette magazine - PO Box 516 Valley Stream New York 11582 containing original programs ranging from games to practical applications. On the reverse of the tape there is general information and additions to previously published programs. The annual subscription is $40.00.

Profile + is a substantial enhancement of Profile II by the authors of Profile II (The Small Computer Co. Inc) and will shortly be marketed by Tandy. at a price of $250.It affords integration of Profile with basic programs and wide mathematical functions.

Don Selwyn talked about the application of TRS80 to assist handicapped persons. New Jersey Institute of Technology has a major research program in this field, and interesting work is being done. Homebound young people by computer use are enabled to be effectively tutored. The feedback afforded by the computer enables immediate and responsive training and rehabilitation for recently handicapped adults. Anyone interested in this work should contact Dr. Howard Gauge, Director Human Factors Laboratory of the Department of Industrial and Management Engineering, New Jersey Institute of Technology, 323 High Street, Newark, New Jersey, 07102.

A new word processing program, The Lazy Writer, widely advertised, has some interesting features including the capacity by automatic chaining to print any length of document.

Adam Osborne has just introduced a new Z80 computer which will retail at $1795. It has 64K RAM and 2 mini floppy disks ext 100K each. It comes with CP/M, the Wordstar package Supercalc (a Visicalc type program) C Basic and M Basic, all of which it is claimed would cost $1500 if purchased separately. It has however, only a 5 inch ideo monitor. Osborne hopes to sell 150,000 of these, to) a threat to the big three in the personal

computer field.

The colour computer was much in evidence. Game playing is obviously made much more attractive in colour. However, the 6809 micro-processor used apparently makes it incompatible with the rest of the range.

The overall impression of the Show was that the marketing men had taken over and that we are in danger of being swamped by the the pressure of advertising to upgrade and acquire the latest bolt on extra. However with the tremendous range of software and hardware support it is now enjoying Tandy's brainchild is, in view of the marketing strength of the Company, in a unique position in the field of microcomputing.

Radio Shack's job now is to preserve the integrity of its product, to encourage anyone who can add to its quality, and to discourage the hard sell marketeers now too much in evidence on the "band wagon". Only in that way will "TRASH80" earn proper respect and survive to mock its decriers.

Lew Kornfeld is shortly to retire to enjoy as he says, a period of "decompression". He has chosen his time well as with the "First" Annual TRS80 Show, his baby came of age.

Jim Gunson

QUERY CORNER

Problems with the lower-case conversion

It isn't often I become totally stuck on a problem, but I really have found an awkward one this time, and I would very much like to call on your experience and that of other members if I may.
It all relates to the Electric Pencil L/C mod. I carried this out, as per EP instructions, on my own TRS-80, which is an old on with the a above the line in the character generator (some day I'll find a replacement). This has always worked perfectly, and I recently modified the '80 in Braintree College. To my horror, lower case is unuseable on this machine! When LC is selected, a few flashing quote signs appear to the right of the cursor, and the lower case letters are mixed with the symbols which would appear if the LC/UC switch were in the UC position, but the LC driver operating. On close examination, the flashing cursor of PENCIL seems to stay over a typed character, and the character can be seen alternating between normal lower-case and the symbol-set character as the cursor flashes. A letter held down so that it repeats always gives normal results.

I have checked the soldering and the circuit several times. The action is the same with the LC/UC program, so it's not just a peculiarity of their copy of PENCIL. The machine is a MEMORY SIZE one (i.e. not the latest ROM), but more recent than mine. The only thing I can think of is that this is a ROM which makes different use of the Reserved RAM addresses.

Ian Sinclair, 89 Alexandra Road, Sible Hedingham, Halstead, Essex

8" to 5 1/4" transfer for CP/M

As I may eventually use my TRS-80 in my ironmongery business, can you find out for me whether it is possible, and who would do it, for CP/M to be reduced from 8" disk to 5 1/4" disk so that I could use the software which is to be made available to me by my trade federation, the British Hardware Federation, which will also be obviously on 8" disks.

Perhaps you will be interested to learn that the B.H.F. chose the CP/M system because they felt it was becoming the most universally used system in business software.

K. Dudman,
12 Barnfield Wood Road,
Park Langley,
Beckenham,
Kent BA3 25R.

(* Assuming that you get the Omikron Mapper I for CP/M compatibility, you will already have CP/M on 5 1/4" disks. Alternatively, you might have the modified CP/M obtainable from Lifeboat Associates that runs on a standard Model I. Presumably the applications software you wish to run will be written in C-BASIC or something similar, so you will need the appropriate BASIC interpreter. L.P. Enterprises or Lifeboat Associates should be able to supply the BASIC on 5 1/4" disk whether you have the Mapper I or a standard system. Transfer of the applications software from 8" disk to 5 1/4" disk could be done by one of our members with the Mapper II and mixed drives on their system. Can anyone help? LFH *)

I have some queries which some other reader may be able to help me with and so avoid my re-inventing the wheel.:-

1) The documentation of Superscript states that it will not run under NEWDOS80. Why not? What is the problem? Does anyone have a set of ZAPs to make it work?

2) When running Superscript under NEWDOS+ is it necessary to use the usual ZAPS for Scripsit under NEWDOS?

3) The Epsom printer runs in two modes with a switch inside the cover. One mode is 'standard' and the other is the 'TRS-80' mode which makes the codes compatible with the Microline-80 and other Tandy printers but removes a number of most useful facilities available in the standard mode. The only handicap in the Normal mode, apart from slight differences and extensions to the control codes, is the fact that the graphics characters use codes 160-223 instead of 128-191 and this is not a problem in programming but inhibits the NEWDOS80 use of 'JKL' to print graphics. There must be a fairly straightforward patch since one of the system options looks for graphics characters and changes them to '.', I would like to adapt this to add 32 which would then give the conventional graphics. Has anyone done this? or can someone point me to the relevant overlay of NEWDOS80 or even better to the section of code so that I can do it myself?

4) We have purchased CP/M for compatibility with the other Z80 machines at the College and are obtaining WORDSTAR. Does anyone else have experience of CP/M on model 1 TRS-80's or know of any additional software which will run on model 1 under CP/M.?

David Bale,
4 Walrond R[illegible]
Swanage, Dorset BH 19 1PB

Computerised drinks trolley

I wonder if any of your readers can help me. I am a TRS-80 owner which may or not relate to my problem.

Recently I was given a magnificent model stagecoach - weight c. 1 kilo. Though at first sight it looks like a piece of Swiss kitsch, it is handbuilt with superb axles. I want to use it to contain bottles of wine, spirits etc.

It ocurred to me that between the shafts, instead of some Stone-Age replica of a horse, I should have a micro-processor driven form of mechanism. Vaguely, I imagine something operated by a calculator-style keypad with caterpillar tracks. I would also like it to respond "Master!" when alerted - in effect the thing shall be a better version of K-9.

I am hopeless at things mechanical and electrical, but is there a kindred soul out there who can help me with this mania? I have plenty of enthusiasm and a little money.

Simon Dally,
85 Linden Gdns.,
London W2.
Tel: 01-229 1603 (home)
01-248 6444 (work)

(* This application is quite feasible but will involve a considerable amount of effort. The device should be self-contained which implies battery power and its own dedicated micro - perhaps a simple Z-80 system. Stepper motors would be the easiest way to drive the thing but they tend to be rather expensive. Voice synthesisers are relatively inexpensive at around £50 but if only a single word is required direct output of digitised speech would be the way to go. Rather than keyboard input why not go the whole hog and incorporate speech recognition? I would estimate around six months to a year of spare time activity for someone on this project. Any takers? LFH*)

Can anyone give me a machine language sort routine which can be included in a Basic programme? It would need to be able to sort two dimensioned tables in which some columns contain alphanumeric data and some columns contain numeric data, e.g., names and quantities.

Alan Redhouse

The paragraph on Microline 80 linefeeds (Jan 81, p.12) refers to the line printer line counter. Do any programs other than the line listed use this counter? Whenever I look at it it is always zero!

Using disk-based Scripsit, I have been unable to read back any TAPES I record using the S,T command. Listening to them they sound rather like a basic tape made without disabling the interrupts. What am I doing wrong?

H.H. Shepherd,
3 White House Close,
Shippon,
Abingdon,
OXON OX13 6LP.

MICROTEK PROBLEM SOLVED

I WAS PLEASED TO SEE FROM THE LETTER FROM JOHN MILLER IN THE MAY ISSUE THAT HIS MICROTEK MT-32 HAS BEEN MODIFIED AND THAT WITH THE PERIPHERAL ADAPTOR SUPPLIED FREE OF CHARGE BY MICROTEK THE UNIT IS NOW WORKING SATISFACTORILY.

I HAVE ALSO RECIVED MY UNIT BACK WITH THE ADAPTOR AND IN THE FIRST FEW DAYS OF USE IT SEEMS THAT ALL IS WELL ALTHOUGH I WAS A LITTLE CONCERNED WHEN THE SYSTEM RETURNED TO 'MEMORY SIZE' BUT I THINK THAT THIS WAS CAUSED BY SOME BUILT IN PROGRAMMING FAULTS - I HOPE SO ANYWAY BECAUSE THE ADDITIONAL MEMORY MEANS THAT MY WORK PROGRAMMES WILL NOW ACCEPT MUCH GREATER VOLUMES OF DATA AND HAS ALLOWED SOME EXTRA PROGRAM FEATURES WHICH IMPROVE THEIR RUNNING. I SUPPOSE THAT ONE DAY I SHALL SUCCUMB AND ADD ON A DISC DRIVE BUT FOR THE MOMENT I WILL SETTLE FOR THE ACULAB.

IF I DID DECIDE TO ACQUIRE A DISC DRIVE IS THERE ANY ECONOMICAL WAY OF INTERFACING A DRIVE TO THE MT-32 OR WOULD IT THEN BE NECESSARY TO BUY AN EXPANSION INTERFACE?

I WROTE SOME TIME AGO TO ENQUIRE ABOUT TABBING PROBLEMS ON PROGRAMS ORIGINALLY WRITTEN FOR SCREEN DISPLAY AND THEN ALTERED WHEN I ACQUIRED A PRINTER. AFTER LABORIOUSLY ALTERING SOME PROGRAMS WITH NEW ADDITIONAL LINES I FOUND THAT THE SIMPLEST METHOD WAS TO ALTER THE ORIGINAL 'PRINT' INSTRUCTIONS TO 'LPRINT' AND MAKE THE NECESSARY ADJUSTMENTS TO THE POKE INSTUCTIONS AS LISTED IN AN ISSUE OF THE NEWSLETTER LAST SUMMER. IT SEEMS THAT THE SCREEN WILL ACCEPT TAB INSTRUCTIONS GENERATED AS PART OF AN 'LPRINT' INSTRUCTION WHEREAS THE PRINTER WILL NOT ACCEPT THE SCREEN TAB FORMAT.

I FOUND A SHORT CUT METHOD OF ALTERING THE PRINT INTRUCTION IN THE APPROPRIATE LINES WITH THE FOLLOWING:-

```
FOR X = Y TO Z:IF PEEK(X)=178 THEN POKE X, 175: NEXT
```

Y + Z ARE THE LOCATIONS OF THE BEGINNING AND END OF THE PARTS OF THE PROGRAM TO BE AMENDED WHICH I FOUND BY TRIAL AND ERROR.

YOURS SINCERELY,

MERSEYSIDE MICROCOMPUTER GROUP
==========

TRS-80/VIDEO GENIE SPECIAL
INTEREST GROUP
Contact Peter Tootill

Tel: 051-9227260 ext.250 or 211 (W)
051-2209733 (Home)

LINE INPUT FOR LEVEL II

A useful feature of disk BASIC is the LINE INPUT facility. The INPUT statement treats commas as terminators unless they are contained within quotes, so strings containing commas will be truncated at the first comma and an "EXTRA IGNORED" message displayed. Disk BASIC's LINE INPUT acceptscommas as part of the string. The program following illustrates the use of a simple LINE INPUT routine for Level II BASIC that behaves very like the disk BASIC statement.

```
10 CLEAR 500
20 GOSUB 80
30 PRINT
40 PRINT L$
50 GOTO 20
60 '
70 'LINE INPUT ROUTINE
80 L$=""
90 PRINT CHR$(14);
100 K$=INKEY$:IF K$="" THEN 100
110 IF K$=CHR$(13) THEN RETURN
120 PRINT K$;
130 L$=L$+K$
140 GOTO 100
```

To quote from the disk BASIC manual: "Some situations require that you input commas, quotes and leading blanks as part of the data. LINE INPUT serves well in such cases".

Leon Heller

ARE YOU FEELING LISPLESS?

A version of the list processing language LISP is now in the Library. The source code was originally published in Doctor Dobb's Journal and the interpreter is consequently in the public domain. For those that know about such things it is an EVALQUOTE interpreter and is therefore not particularly easy to use in comparison with, for instance, MACLISP. There seem to be a few bugs, also. Microsoft announced a LISP for the TRS-80 about a year ago, but that also contains some bugs and they do not appear to have released it officially. One LISP that looks quite nice is sold by Supersoft for $100; has anyone got any experience of it? Does anyone know of a MACLISP or INTERLISP compatible version for the TRS-80?

Leon Heller

HARWARE REVIEW - HOLMES ENGINEERING 48K IN KEYBOARD EXPANSION

I HAVE JUST FITTED A MEMORY EXPANSION KIT TO MY TRS-80 MODEL 1 KEYBOARD. THIS IS A PRINTED CIRCUIT BOARD THAT FITS INSIDE THE KEYBOARD AND ALLOWS THE MEMORY TO BE INCREASED BY 16 OR 32K. HOLMES ENGINEERING SUPPLY A SHAPED LONG PRINTED CIRCUIT BOARD FITTED WITH I.C. SOCKETS ON ONE SIDE AND ON THE OTHER SIDE SMALL STEEL PINS. THE CIRCUIT BOARD IS DESIGNED TO FIT ON THE MAIN LOGIC BOARD OF THE COMPUTER WITHOUT ANY SOLDERING OR TRACE CUTTING. THIS MEANS THAT IT CAN BE REMOVED LATER WITHOUT CAUSING ANY DAMAGE. THE INSTRUCTIONS SUPPLIED WITH THE KIT WERE VERY SIMPLE. I FITTED MY BOARD IN ABOUT FORTY FIVE MINUTES INCLUDING THE TIME FOR GETTING OUT AND PUTTING AWAY MY TOOLS. THE MAIN KEYBOARD HAS TO BE OPENED UP BY REMOVING THE SIX SCREWS FROM UNDERNEATH THE CASE. THIS INVOLVES BREAKING THE TANDY SEAL OF COURSE. THE LOGIC BOARD IS THEN TAKEN OUT GENTLY AND THE EIGHT 4116 RAM CHIPS ARE REMOVED FROM THEIR SOCKETS. THE INSTRUCTIONS SUPPLIED EXPLAIN HOW TO HANDLE THE CHIPS TO AVOID STATIC DAMAGE, HOW TO REMOVE THE CHIPS SAFELY AND WHICH CHIPS ARE TO BE ATTACKED. THE EIGHT CHIPS ARE NOW PLACED IN THE CIRCUIT BOARD TOGETHER WITH 16 MORE 4116 CHIPS IF YOU ARE GOING FOR A FULL 48K MACHINE. THE SOCKETS ON THE HOLMES ENGINEERING BOARD ARE A TIGHT FIT, BUT THIS IS AN ADVANTAGE ONCE THE CHIPS ARE IN PLACE. FOUR WIRES FROM THE HOLMES BOARD NOW HAVE TO BE FITTED TO DIFFERENT PARTS OF THE KEYBOARD. NO SOLDERING IS NEEDED AS THE WIRES HAVE CLIPS ATTACHED. THE INSTRUCTIONS MENTION THAT THE WIRES CAN BE SOLDERED IN PLACE BUT I DID NOT WANT TO SOLDER MY KEYBOARD UNIT. THE HOLMES CIRCUIT BOARD IS NOW FITTED ONTO THE TRS-80 CIRCUIT BOARD BY PLUGGING THE PINS ON THE BOARD INTO THE VACANT SPACES ON THE I.C. SOCKETS ON THE MAIN LOGIC BOARD. I FOUND THAT THIS WAS QUITE HARD TO DO. THE PINS MUST BE CAREFULLY STRAIGHTENED BEFORE INSERTION AND I HAD A LITTLE TROUBLE IN PUSHING THE PINS HOME. HOWEVER AFTER A LITLE WORRY THEY FINALLY CLICKED INTO PLACE. I CLOSED UP MY KEYBOARD CONNECTED EVERYTHING TOGETHER. TO MY RELIEF EVERYTHING WORKED FIRST TIME AND I HAVE NO TROUBLE SINCE. I RAN THE MEMORY TEST SUPPLIED WITH THE KIT FOR A SHORT TIME AND EVERYTHING SEEMED ALRIGHT SO I THEN LOADED A MORE POWERFUL MEMORY TEST AND LEFT THE PROGRAM RUNNING FOR OVER FOUR HOURS. AGAIN NO ERRORS APPEARED, AND I FINALLY BEGAN TO TRUST THE UNIT. I AM NOW RUNNING AN ACULAB FLOPPY TAPE WITH THE 48K KEYBOARD UNIT AND I FINDING IT MARVELLOUS. I AM USING @SCRIP FROM L. SHIELDS TO WRITE THIS ARTICLE, AND I HAVE USED IT FOR LONG TEXTS. THE LARGE MEMORY MEANS THAT WORD PROCESSING IS A PRACTICAL PROPOSITION. I HAVE LOADED ADVENTURES AND OTHER LARGE PROGRAMS USING THE LMOFFSET ROUTINE WHICH IS NOW PRACTICAL. I HAVE ALSO MODIFIED TDISK FROM A.J. HARDING TO WORK WITH AN ACULAB. THIS IS ABLE TO OFFSET AND SAVE TO THE ACULAB PROGRAMS WHICH DO NOT LOAD INTO MEMORY FROM TAPE IN A CONTINUOUS BLOCK. THE EXPANSION

IS A GREAT SUCCESS FOR ME. THE COST OF THE BOARD WAS $79.95 FOR THE 48K TYPE. THE CHIPS ARE EXTRA AND ARE BEST BOUGHT IN THIS COUNTRY. I FOUND THAT MY KEYBOARD RUNS AT THE SAME TEMPERATURE AND SHOWS NO SIGNS OF OVERHEATING OR STRAIN. I USED CERAMIC CASED 4116 CHIPS IN MY EXPANSION AS THEY HAVE SLIGHTLY BETTER HEAT RESISTANCE. IT IS PROBABLY WORTHWHILE TO FIT 200NS GRADE CHIPS FOR THE SMALL EXTRA COST. I WOULD RECCOMEND ANYONE WHO BUYS THIS BOARD TO ALSO BUY AND USE AN I.C. EXTRACTOR AND INSERTER TOOL. THE INSTRUCTIONS SUGGEST THIS, AND NOT HAVING HAD ONE I CAN SEE THE ADVANTAGE. THE BOARD CAN BE OBTAINED FROM:-

HOLMES ENGINEERING
6246 WEST 3705 SOUTH
WEST VALLEY CITY
UTAH
U.S.A. , 84120
TELEPHONE 801-967-2324

John Newgas

(* John sent this to me via Victor Saleh's FORUM-80 computerised bulletin board system. This is the first time anyone has sent me a contribution for the Newsletter using electronic mail! LFH *)

****
** THE WAR MACHINE **
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****

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Would you like to know which computer games these reviewers are referring to?. THE WAR MACHINE is a new magazine for all those interested in the more complex microcomputer games now coming onto the market. It also covers game-assistance programs, miniatures gaming and multi-player role-playing games. Independent reviews give you the opportunity to find out about a game before committing yourself to a purchase.

Getting hold of excellent but little-known games...converting programs to run on other micros...it's all in T H E W A R M A C H I N E , and for a sample copy by return of post, send a cheque or P.O. for £1 to:

M.W.Costello, 17 Langbank Avenue, Rise Park, Nottingham, NG5 5BU.

Notes on Workshops, not previously reported

Glasgow June 1981

This was an excuse for me to go to Scotland, and in the end just one member from down South made the journey with me, Brian Welland from Wellingborough

The main points to come from this meeting were :-

a) The Glasgow and Edingborough groups had not met before, and subsequent to this meeting they did in fact set up a joint do.

b) The level of expertise is high, and most definitely on the increase with the only problem being numbers

c) Infinite Basic has a regular user, in Jim MacPherson, and it had never occured to me that there was a regular user(in Scotland) on a business basis- this time using BINS- which again really motors.

d) Viscicalc had Jim costing his meat out,by joint and sausage, with the bakery also being a use where the supplier accepts the output as the invoice

The above indicates the enthusiasm of the members North of the Border, and both Brian Welland and myself would like to thank Jim and the others for the hospitality shown to us. Now the links have been created, why not pursue a weekend at Stirling University?

Brian Pain
York July 1981

This particular day was set up for one reason only - Fredk. Brown said OK to a workshop if on a Sunday - well this was on the 5th at a squeaky hotel in York. Who needed CPU's when they had ancient floorboards.

For those who missed this I can assure them that it was well worth the drive, with Fredk. going over the history of setting up fhe Forum-80 in the UK.

The next area he covered was the LNW80 board, just imported into Hull.From the reactions this board must sell over the next 2-3 years, either in kit or built form

Alan Redhouse popped in and covered VTOS & LDOS for the last hour or so. This was very kind as he had had a prior social engagement, which many of us seem to successfully avoid.

Once again it was proved that this sort of gathering is very enjoyable and useful.

Brian Pain

FORTH USERS are invited to a Forth meeting and "bring your own" barbeque in North London on August Bank Holiday Monday (31st).Phone John Newgas (01-348-6518 (Home after 9 pm).If you wish to come write to : J.Newgas,1 Philip Court,89 Hornsey Lane,London N.6

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

LIBRARY

Librarian L.H.Davies
Brynna Road, Pencoed
Bridgend, Mid - Glamorgan

Tel: 0656 860398

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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

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.

LEEDS

TRS-80 GROUP
Contact John Jowitt
Kings Edward Crescent, Horsforth,
Leeds. Tel: 0532-581734
or
Contact Evan Jones
Braside, Newlaywood Ave.,
Horsforth
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Meetings - Newsletter

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Newsletter

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YORK COMPUTER CLUB
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BRIGHTON

Contact John Bedford
19B Rose Walk
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Contact Peter Chapman
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BRISTOL

Contact Roger Bankin
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EDUCATIONAL SUB-GROUP

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GLASGOW AREA

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or 812797

HULL

Contact Frederick Brown,
421 Endike Lane, Hull.

Tel: 0482-859169

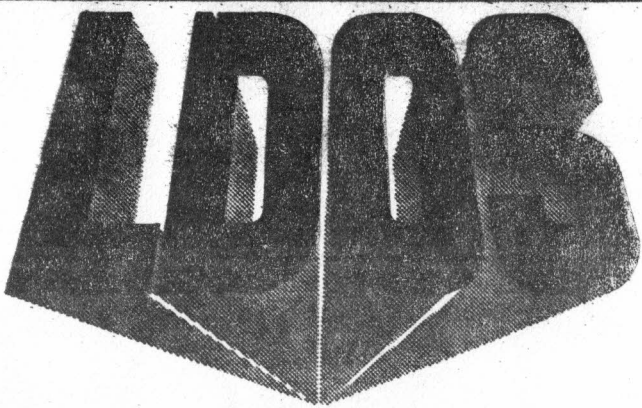
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ISLE OF WIGHT

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3 Altofts Gardens,
Ventnor 85 2008

Meetings - Newsletter

INNOVATIVE
TRS-80 SOFTWARE
FROM THE PROFESSIONALS



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 36 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	LCDMM
PATCH	RS232	KEY STROKE/MULTIPLIER	PRINTER FILTER

A Basic Reformatter 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 surprising 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 Sorgsoft. 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)
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BEXHILL-ON-SEA, EAST SUSSEX.
TEL: [0424] 220391/223636 TELEX 86736 SOTEX G

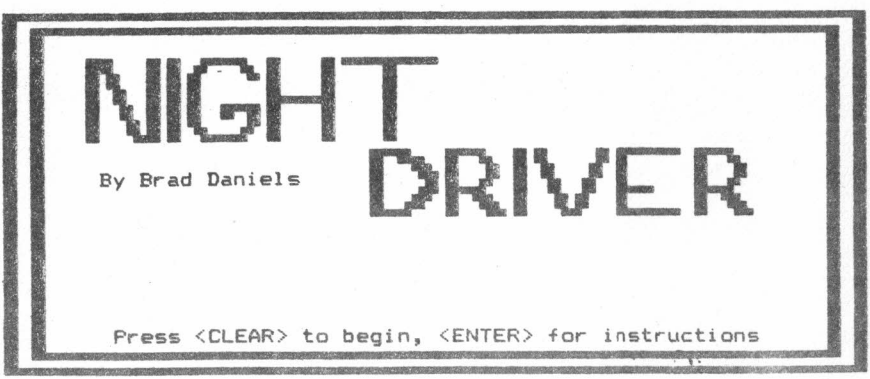
Albion Software

NIGHT DRIVER

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 [illegible]71 TELEX 27950 QUOTE REF 3635 DLY

National TRS-80 Users Group

Newsletter

VOLUME 3 ISSUE 2 AUGUST 1981

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EDITORIAL

The TRS-80 Colour computer, which has been available in the States for several months, will be launched over here in November. The reason for the delay has been the necessity to convert it to our video standards. It will be somewhat more expensive than the Commodore VIC which has just become available, and, like the VIC, is obviously aimed at the home user. It is a much better system than the VIC, by all accounts.

WHICH magazine has just been examining personal computers for use in the home. Both the TRS-80 Model I and the Acorn Atom were selected as offering the best value for money.

Leon Heller

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Membership of the TRS-80 Users Group is by subscription to the Newsletter. Contact Brian Pain at the above address for details.

PART-TIME COMPUTER SCIENCE TEACHER REQUIRED

We have a vacancy for a part-time teacher of O-level Computer Science. Anyone interested (who should be qualified teachers with TRS-80 experience) is invited to telephone me for further details.

A.J. Hennessy,
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Stowford College,
95 Brighton Road,
Sutton,
Surrey SM2 5SR.
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MEMBERS' LETTERS

I hope you can load this now, I have recently bought tape Scripsit, which is a very flexible programme, I am very impressed with it. Incidently, a Model III tape was included in the package. All I need now is a Model III!

Regarding the relay protector in a recent newsletter, the PNP transistor specified is expensive and difficult to obtain, a better solution is to use an NPN transistor, such as a 2N3055. Simply reverse the power connections (see sketch). I have built mine into a box, with an attenuator to enable me to use my other cassette recorder which only has a mic. input. I have also fitted a couple of switches to turn the recorder on and off, which I find very convenient.

The Lineprinter VII seems a nice little printer if you can stand the noise, typeface and speed. The price is pretty attractive, though. Has anyone got it working through an RS-232 ? I couldn't get the handshaking sorted out in the limited time I had available.

Refering to Dave Hobbs' letter in the July newsletter, I like the format as it is in that issue. That way I can file them and read them without turning them upside down all the time. As far as the Tandy 90 day warranty is concerned, I don't think that it can apply to retail sales, as the Sale of Goods Acts would give protection for at least the normal twelve months, and even longer if a product could be shewn to be unfit for the purpose for which it was sold. What happens if I, a non-business user buy an item at 'trade' price from a supplier? Do I lose my status as a consumer, and is the sale no longer classed as retail? Can any one with a legal knowledge enlighten us?

I must agree with Laurie Shields about Imon. I haven't got a copy myself, but I know the author and have used it several times, it is very friendly and easy to use.

Regarding the new ROMs (G & A Taylor's letter July issue), I have them and have no problems with system tapes, and I have used Mon3 and Pencil without difficulty. The only problem seems to be that Leon couldn't load Pencil tapes made on my system. Perhaps things are better now, although I'll try to get this on disk to avoid any chance of problems. The old ROM system at the local Tandy shop loads my files OK, as does a friends new ROM system. I certainly wouldn't swop my ROMs.

I enclose a note on the Tandy lower case mod. which may be of interest to members. I have done my system with no problems (after I corrected my first attempt, and got a screenful of @'s istead of blanks- I'd bent up the wrong

Pins!).

Regards,
Peter Tootill.

101 Swanside Rd., Liverpool L14 7NL.

From Derek Trayler

I have now obtained a printer and by giving up little luxuries like food and clothes, I hope to pay for it one day. I have also just received the Patch to put Scriptsit onto the Exatron Stringy floppy. This cost me eight pounds plus postage from the States. As the cassette version of Scriptsit can be obtained for 35 pounds it does make a good Word Processor for well under 50 pounds. The use of the Stringy Floppy makes it much quicker and more reliable than trying to use Cassettes.

Scriptsit takes up a considerable chunk from a 16k machines and anything longer than two pages of A4 text will require to be saved to tape. I therefore soon found that a memory extension was highly desirable. As I could not afford the Tandy version I followed Ian Sinclair's example and got the L.N.W. extension board flown in. The components were obtained locally with the exception of the rather unusual transformer. By using two transformers the problem was overcome. In all, the extension board with 32k of memory, has cost about 120 pounds. The L.N.W. board has the advantage that it can be built in modules and therfore the Disc Controller chips can be added later. The same applies to the RS 232 interface.

There is only one problem with my set up and that has already been mentioned. Unfortunatly the answers published so far do not seem to help. I am refering to the problem of sending the control codes to the printer. Superscript and other patches only work from the disc version of Scriptsit and I need something for the Cassette Version.

I have just received a Catalogue from Exatron and I have noticed that they are selling Double Density Waffers for use on the Stringy Floppy when the Speed-up conversion has been carried out on the TRS-80. This means even faster saves and more Data per foot of tape. There is also an intriguing program that 'freeze ' the program and save it to tape. This means that a game can be put away and returned later at the same point in the game. The program is also claimed to be useful with Electronic Broadsheet.

I decided to get the EPSON MX 80F/T because I wanted reasonable print quality and I could not afford a Daisy Wheel. It also had the advantage that it had a Tractor feed which is best for Sticky Labels and also could use cheap rolls of teletype paper. I found that it is not easy to get teletype paper in small quantities and it is fairly heavy on postage. I was also surprised at the price. Display Electronics wanted 3 pounds a roll yet a local printer obliged me by supplying a few rolls at the wholesale price of 65 pence a roll. I suppose firms like Display Electronics who buy old Printers for 50 pounds and sell them to the likes of us for 200 pounds expect to make a large profit on everything.

Derek Trayler

From Dave Hobbs.

I would like to thank all those who were involved in the organisation of that incredible week at Milton Keynes. Now that my mind has stopped boggling, and I have got back into a few of my old habits, like sleeping etc.. I will try to sum up my overall impressions.

Firstly I was very surprised by the depth of expertise available and the wide range of subjects covered. I was also intrigued and pleased to find that the 'experts' are still as fascinated by computers in general,and the TRS-80 in particular, as I am. I think that I got most benefit, not from the actual content of the lectures themselves although they were of a very high standard, but from the broadening of my outlook. As just two of many possible examples, I had read about the Newdos80 Chain Files but had never used them. But since Chris Cain's lecture I can see the possibilities and have done some more investigation of my own. And I would never have considered using Electric Pencil as a free form database if John Carne had not suggested it.

During the week it was suggested that the workshop would have been of no benefit to a complete novice, had there been any there. But having witnessed the amount of help and advice that a newcomer to disks was getting from all quarters, I am sure that those present would have been as happy to discuss SYNTAX ERRORS as they were to explain the mysteries of LMOFFSET and NO SYSTEM.

I hope that the formula can be repeated. But not for a while. Give me time to recover. And thanks again to Messrs.Pain, Shields, Donald, Knaggs, Cain, Heller et al.

Dave Hobbs

From Peter Drew

I have had a Video Genie for about 9 months and since I have had the machine I have done the 32K conversion as per the news letter ,fitted the right arrow key and clear key although I fitted them in the same place as the TRS 80 ,a switch to change between cass 1 and cass 2 as mentioned in the news letter and have just recently fitted the lower case mod.

The lower case mod was purchased from Buss Stop and their service was very good,as the first unit which was faulty was replaced with no question and the new unit functioned first time.

The main point of this letter is to tell about the NEW TOOLKIT 2 from Premier Publications 12 Kingscote Addiscombe,Croydon ,Surrey..TEL-01-656 6156 which I have just received and now tried out. It offers 17 new functions It can : Display a list of variables to screen or printer.
Remove all blanks and not required LET statements
Remove REM statments
Renumber Basic programs
Trace (unlike TRON it prints the line,line number,does not follow the display around the screen and does not corrupt the display)
Finds a given string to screen or printer
Search and replace string (shows to screen or printer)
...

Vision load (prints the lines to screen as they are except line numbers i.e. basic words not tokens or graphic symbols)

Machine code monitor (including a save routine,and a few other useful routines)

A trace that lists variables and their values if they change

Page (as LIST but one page at a time)

Single key entry for basic words i.e.R.= RETURN

OLD opposite of NEW

DUPL can duplicate a basic line to any other line number

The program can also add another program to the resident program

The program resides at the lower end of the RAM and you can use other M.C programs at the same time i.e. Lower case.

Although I have only had the toolkit 2 for a short time it has lived up to its manuals claims and I find it hard to imagine how I managed without it.

Now for a question?

Has any one a method for the auto start of system programs such as SPACEV uses (CASSETT) I am using Radio Shacks EDTASM and as yet have found no way to do this yet although I can get a loading program to print a message on to the screen as SPACEV does. This is done by originating the program in the video area ,then defining a 'string' (DEFM's') then you can set a new origin for the program proper,then you can assemble it.

Then when you load the program you can have it print out any message you like.

Scripsit runs lower case on the genie with no problems as you can see.

Peter Drew.

Someone mentioned garbage collection recently, and as it is a subject I've never seen explained, some words on the subject might be of use.

Garbage collection only becomes noticeable when a great deal of string allocation is being done, and then gives an unexpected pause in program execution. An easy way to demonstrate the cause is to run the following sequence in command mode (i.e. direct from the keyboard without using line numbers):

```
A$="AAAAAAAAAA"
A$="BBBBBBBBBB"
A$="AAAAAAAAAA"
```

Now, using DEBUG, find where the A$ is by looking at the top of memory. Surprisingly, they are ALL there, one after the other. The two values first typed in are not replaced when new values are given, but left there. They occupy part of the reserved string space but are not accessible to basic, and are simply garbage.

Microsoft Basic does not allocate fixed addresses to strings, but uses the first empty space in the reserved string area, and then makes a note of it. If there is no reserved space left it goes off on a garbage hunt and shuffles all the still-valid strings up in memory so as to release space for re-use. If there isn't any, you get an "Out of String Space" error.

This garbage collection can take quite a time if there is a large amount of string space in use and can give some queer results. I came across it in a program reading a lot of disk data into an array, displaying it on the screen a page at a time. After several pages, everything stopped in the middle of a line: 20 seconds later it started again leaving me scratching my head!

One thing that can be done is to reserve more string space than the program will ever need in one run - next time RUN is typed it will be cleared and reserved all over again. The only other remedy is to force the program to collect its garbage at a convenient time rather than mess up a display. This can be done by writing the statement X=FRE(A$) into the program at a place where a delay will not be noticed, such as at the bottom of a page before displaying "Press .... for next page". In order to work out how much free space there is, basic must first sort out the garbage, and this has the desired effect. Bear in mind that during garbage collection everything goes dead including the Break key - it can be very disconcerting!

Henry H. Shepherd

xxxx THE TANDY LOWER CASE MOD xxxx

I thought members might be interested in a description of the "official" Tandy lower case mod, which is similar to the one usually described, but has a couple of minor differences.
A 2102 RAM chip is "piggy-backed" onto one of the existing video RAM chips (Z46), which is now socketted, by the way, and pins 11 and 12 are bent out.(All this is the same as the "Pencil" type mods.) The narrow track between Z29 and Z30 is cut, and pin 11 of "Z46a" is connected to pin 13 of Z44; pin 12 goes to Z27, pin 13. No other hardware alterations are required.

The Tandy driver software uses shifted zero to toggle between normal typewriter mode (i.e. shifted keys for capitals, punctuation, etc., and unshifted for lower case, numerals, etc.), and capitals only. In this mode the number keys still work normally.

The new character generator chip produces very nice lower case letters with proper descenders, and is fitted as standard to recent computers. The Motorola part number is SCM 37530P, but it must be a special, as I have been told that Mototrola (UK) haven't heard of it at all. However, a recent issue of "80-Microcomputing" suggested :- EBC & Associates, 203 North Wabash, Chicago, Illinois 60601 (Tel 312-782 9750) as a source, at arround $20(dollars).

When writing BASIC programmes, all lower case input is converted to upper case automatically, except in "print", "rem", and "data" statements. This can be useful when editing, as you can see at a glance which bits you've changed and which are part of the original line.

Incidentally, it seems a pity that now, when Tandy seem to have licked all the traditional Model I problems,(I don't have keybounce, video wobble, or many cload problems), they may be forced to stop producing it and perhaps have a whole load of new teething problems with Model III. The new ROMs, by the way, fit into the two sockets on the main board; there's no extra ROM board on the recent models.

Peter Tootill

ACULAB RECOVERY OF PENCIL OR SCRIPSIT FILES AFTER A CRASH.

I am now running @SCRIPSIT as elsewhere advertised and I have had my first ever system crash. Actually my system just locked up with a long article in memory. I found that recovery was really quite easy. If the reset button is pressed the TRS-80 will return to the usual ready prompt of BASIC. I loaded a monitor (Monitor 3 in this case) in a version which loaded over the @SCRIPSIT. I knew that by loading here I would not corrupt any of my precious text. I then scanned through the memory starting from the top of @SCRIPSIT with the A command which gives an ASCII dump of memory. When I found the text in memory just above the program end. I looked forHwhere the text seemed undamaged. This meant that I lost only two words at the beginning. I noted this address down on a bit of paper. I then continued through memory looking for the end of my text. When I found the end of my text I changed the next few bytes in memory to 00 in hex with the E command of Monitor 3. I also noted this address. Finally I used the monitor to JUMP to 3000H which is the entry point to the Aculab. I now placed a wafer in the drive and @LISTed then @SAVEd the memory area containing the text. The end byte set to 00 matches the Aculab end of file marker. Finally I ran @SCRIPSIT again and reloaded the text file that I had just saved completely successfully. The moral of this is that if you use @PENCIL or @SCRIPSIT don't panic, don't switch off but do have a wafer with a lower memory monitor available. I found that my text for @SCRIPSIT began at about 7140H although it might begin earlier than that. @PENCIL text will↓8robably begin at about 5B70H. I therefore suggest keeping a Monitor which loads well below either of these addresses.

Good luck on your recovery,

John Newgas.

P.S. I have just heard the Disc Electric Pencil has a warm start re-entry point at 5361H which equals SYSTEM /21345 from level 2 basic. This re-entry point returns you to the Electric Pencil with the Text Buffer intact. (Thank-you to Jeremy San). Does anyone know the equivalent warm start entries to @Scripsit and @Pencil?

MACRO-80

MACRO-80 is a much neglected piece of software. Although Laurie Shields considers that Zen is the assembler to end all assemblers, MACRO-80 is really a much more powerful tool. It is not really suitable for beginners, however.

Its main features are a macro capability, and the ability to produce re-locatable modules that can be linked together to produce a single executable load module.

A macro is essentially a sequence of source code that can be assigned to a macro name by a macro definition. Whenever that macro name is invoked, the macro is expanded and the code is then assembled as if it had been typed in in full. Macros differ from sub-routines in that sub-routines are utilised at run-time, whereas macros are translated into object code during assembly. Judicious use of macros can speed up programming and make your programs much more legible. Here is a typical example of a macro I have written to handle error messages when using DOS calls in assembler:-

```
NOERR   MACRO     OK          ;OK IS DUMMY PARAMETER
        JR        Z,OK        ;GO TO OK IF NO DOS ERROR
        OR        0C0H        ;DISPLAY ERROR MESSAGE
        CALL      ERROR
        LD        DE,DCB      ;CLOSE FILE
        CALL      CLOSE
        ENDM                  ;END OF MACRO

;
;SUBROUTINE TO READ A TEXT FILE AND PLACE CONTENTS
;IN A RAM BUFFER
;
RFILE   EQU       $
        LD        HL,TEMP     ;OPEN FILE
        LD        DE,DCB
        LD        B,LRL
        CALL      OPEN
        NOERR     OK1         ;GO TO OK1 IF NO ERROR
        CALL      DOS         ;RETURN TO DOS
OK1:    LD        HL,BUFFER   ;POINT TO START OF BUFFER
etc. . .
```

The same macro can be used at several different points in the program by invoking it with different parameters (OK2, OK3, etc.).

Leon Heller

HOLMES EXPANSION BOARD - ANOTHER REVIEW

Perhaps some members would like to here of my experiences with the internal expansion memory board advertised in 80-Micro and produced by Holmes Engineering, Salt Lake City, Utah, (need I say), USA.
tel: 801-967-2324.

This consists of a complete circuit board with space for 16 memory devices (4116) which plugs into the eight RAM sockets inside the keyboard unit. The IM-1 costs $45, which at the time it was ordered, would have been quite reasonable. However, the considerable delay in producing the boards meant that with the falling exchange rate and paying by plastic card, it cost more than I expected. I should add that the board does not include memory devices at this price. These I obtained from Midwich Computer at the extremely low price of 72p + VAT each, £7 for 16k (vat inc).

After eight weeks the small package arrived two weeks after posting , with import duty and VAT of £7.20 to pay. The total cost amounting to about £40. Included was a complete set of instructions explaining how to open the keyboard unit, remove the eight 4116s already present, and install the board which pushes into all the vacant RAM sockets (16 X 8 pins). There are then three clip-on wires to attach to various ICs already inside the keyboard unit and replacement of the DIP shunt by one connected to the IM-1 board. The instructions seemed to indicate that there have been some changes in design from the original, since there are fewer wires than shown and the board plugs straight in without any filing or shaving as mentioned.

Powering up resulted in MEMORY SIZE?, and pressing ENTER gave, after a longer wait than had been usual, the correct prompt ">". Typing ?MEM gave 31956 bytes free. A quick memory test seemed to show that everything was okay. Unfortunately, at this stage I dropped a screw driver on the back of the TRS-80 circuit board and sparks flew! Nothing worked. No garbage on screen on power up, nothing. I took out the board and re-installed the original RAMs. Still nothing! I touched each of the RAMs in turn, since I had once read that this was not recommended, as the ICs may get rather hot (I think this was in the TRS-80 Technical Manual). One of them was quite warm and upon replacement by another IC I was back with 16K. I quickly replaced the IM-1 and got it working with 16K by using the normal DIP shunt and waited for the delivery of some extra RAMs. I blew three in total.

With 32K of RAM installed I decided to run a memory test for several hours since I had already damaged some by misuse. One location started to show a faulty bit 4 stuck

high every 5 or 6 reads. Changing RAMs did nothing to alter the faulty bit so this indicated a faulty board. After enquiring by telephone it seems the fault was due to a lack of terminating resistors on the data lines. The recommended fix made matters worse, though I am sure it shouldn't have, bits 3 and 5 started to show faults. Eventually by soldering a 1K resistor across the data out line and the earth on the offending RAM the problem went away.

The very latest boards now, so I am told, have terminating resistors on the data lines and address lines. A new board, the IM-2, with a total of 32K extra costing $75, without memory ICs is available (10% less for 3 or more).

Compared to the Microtek expansion, which I once considered, the total onboard expansion to 48K would seem quite reasonable at around £65 all in (at present exchange rates).

When I originally received the IM-1 one of my first thoughts had been about lack of resistors on the address lines, having seen them on the LNW expansion circuit. This may give the solution to the problem mentioned about the Microtek unit in past newsletters.

My problem now is one of loading reliably at a much faster rate to use my assembler and monitor programs without worrying about memory space. How is it that EDTASM and ASMPLU seem to give no indication of a full buffer. Not that I write programs so long, but dissassembled listings produced by MON3 do. (Do other monitors produce dumps that can be read in by EDTASMm type programs?)

Mike Sheridan

IMPROVEMENTS TO LOWER-CASE CONVERSION PROGRAM

I have made some improvements to the program I published a couple of issues ago for converting upper-case Scripsit files to lower-case. Some possible bugs have been disposed of, and characters following a period are left in upper-case. I shall be placing a copy of the program in the Library.

Leon Heller

Review of 80-GRAFIX board -- by Programma International

The 80-GRAFIX board is a high resolution graphics modification made by Programma International of California (2908 No. Naomi Street, Burbank, CA 91504). The advertised cost is $149.95 + shipping and both model 1 and 3 versions are avaible.

We first became interested in the board when we wanted lower-case for Scripsit. Looking around the 80-GRAFIX seemed to offer lowercase plus a lot more. After some research we found that it was just what we were looking for and so sent off for it.

Before I go further it is necessary to explain that the thing is actually a programmable character generator. It allows you to create up to 64 characters of your own choice which you can use INSTEAD of the normal 64 graphics characters available on the TRS-80. Unfortunately, Programma's advertising (look in 80-microcomputing) carefully avoids giving an exact description of the 80-GRAFIX board and rather gives the impression that it is a full screen graphics option, trying to compare the results with those obtainable from certain other computers. 80-GRAFIX does NOT give you the high resolution type of graphics that are found on the Apple but instead gives the ability to create 64 CHARACTERS of your own choosing. If you want to draw pictures then this product will not help you but when used in its true context gives you high resolution capabilities that are hard to match.

The 80-GRAFIX arrived less than a month after we sent off, in a well padded box. For your money you get the board itself, a manual, some software on cassette and a catalogue. The board is about 6 by 13 cm, double sided and well made. It fits neatly in the righthand 'well' in the base of the keyboard unit. Attached to the board are four ribbon cables and two wires which make the connections with the main circuit board. The method of installation turned out to be the only major weak point of the board. Connecting the wires is a simple soldering job but the ribbon cables are different. On the end of each is a connector designed to piggy back onto various IC's on the board. Fortunately one IC is socketed and can be removed from the main board (its not needed anymore) and the ribbon cable connecter plugged in instead. However, for the rest Programma recommend that the connector is stuck on top of the appropriate IC relying that contact between the metal prongs will give a good connection. We soon found it did'nt and soldered the connections. The best solution would be to

piggy back a socket onto the IC and then plug in. Apart from this problem (which of course didn't show up until the keyboard was completely reassembled) there were no other installation problems and no hardware trouble has occured in use. It should be noted that the warrenty is voided once the 80-GRAFIX is fitted.

The manual contains a very good section on the installation, including debugging notes and there should be no problems for any competent person.

The software included comes on a tape and consists of a demonstration program, a program to define your own characters, lower case drivers and a program which creates a very good picture of a Star Wars fighter. The manual goes through some of these in detail as well as including other programming examples.

With the board installed there are three modes of operation which are set using an OUT statement:

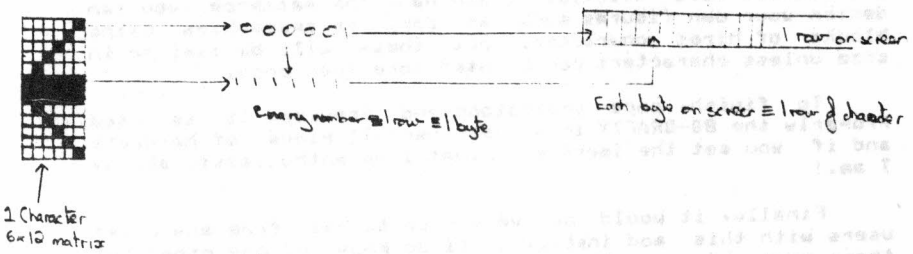
a) Ordainary Graphics --- set by OUT 255,32
b) Hires Graphics --- set by OUT 255,160
c) Programming mode --- set by OUT 255,96

Despite using output port 255, the cassette remains completely unaffected. The most important mode is the programming mode, during which the characters are defined.

To explain the process an individual character should be considered. The screen is able to display 1024 characters and if each one is examined it can be seen that they are made up of tiny little dots. Each rectangular block occupied by a character is made up of a matrix of six by twelve tiny dots. Normal numbers and letters, however, are made by using only a block of five by seven dots leaving the rest unused, while graphics use all the dots but only in blocks of three by four. The 80-GRAFIX allows any combination of the seventy-two dots to be turned on or off to create a character. This can be done for 64 different characters which can then be placed anywhere on the screen.

The 80-GRAFIX has onboard a 1k by 6 bit memory mapped to the screen during programming mode. Anything stored on the screen is also stored in the board memory. The screen is considered as being divided into blocks of 16 bytes, 12 of which are used for defining the character, the rest unused. Each byte represnts one row of a character in binary form ,1 representing a dot & 0 no dot, so that 12 bytes make a complete character. The bytes representing the characters are moved to the screen using simple POKE statements or their equivalents. Once defined the characters use no user memory at all so there is no memory

penalty paid by using high resolution.



Once defined the characters can be displayed in a number of ways. The simplest is to use the CHR$ statement (or its equivalent in other languages), so that CHR$(134) prints say a circle, instead of the normal graphic character. POKE can also be used but the best way is to write a machine code driver that displays your special characters when you use shifted letters.

The upshot of all this is that you can create character sets to your hearts content. Lower case is supplied (the board can be used with lower case mods) and the driver is not very different from normal. Just test for lower case, add on an offset so the computer thinks a graphics character is being displayed but what appears is lower case. AND...Since you are able to use the 6 by 12 matrix your lower case has real descenders.

But thats not all, how about inverse video, italics, Greek letters, thin lines for underlining.....the list ends with your imagination. Educational users should note that they can have at their fingertips all those mathematical signs, foreign alphabets, and any other character previously unavailable. All this and more, and dead easy to use --- try doing some of these things with other kinds of graphics.

There are inevitably some disadvantages, probably the most awkward is that the normal graphics can not be used with the high resolution. This can be a problem if you rely on the 80-Graphix for lower case (it is compatible with the lower case mode, however) but want to use the normal graphics. You can program the TRS-80 graphics in but you will only have a limited selection. Fortunately, Scripsit only uses some of the normal graphics blocks so there is no problem. If you want to use Scripsit or Pencil without the normal lower case mod, Programma supply a program to modify them. BASIC is rather slow in use with the board but with faster languages a lot can be done. For best results a disk

system is needed, as it allows character sets to be loaded and changed very quickly. If you have the patience you can design your own figures such as cars or spaceships using blocks of hires characters but these will be limited in size unless characters can be used more than once.

To finish, once understood and provided it is used properly the 80-GRAFIX is a very usefull piece of hardware and if you get the impression that I am enthusiastic about, I am.!

Finally, it would be very nice to hear from any other users with this mod installed. (I do know of one other but there must be more) I am sure that other people must have written some very interesting software for the 80-GRAFIX and would like to swap programs or exchange ideas and techniques. If anyone is interested I have among other things various programs to manipulate the characters, space games, inverse video routine and a version of APL fully modified to use APL characters.

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HARDWARE REVIEW - PCR-81 RS-232 INTERFACE

Frederick Brown of 3-Line Computing recently sent us one of his PCR-81 RS-232 interfaces for the TRS-80. The unit is contained in a small box and connects to the keyboard via a ribbon cable. A DIN plug on the end of a short piece of cable plugs into the TRS-80 video outlet, and the monitor is plugged into the PCR-81, which derives its power from the video lead.

Software for modem and printer operation is provided on cassette. I loaded the modem software and tried to access a mainframe using my acoustic coupler. Whilst I could receive information from the mainframe, the PCR-81 was not transmitting. I took the unit apart, found nothing obviously wrong, re-assembled it and tried again. This time it worked, but would not transmit control codes. I then tried it out on the Hull Forum-80 and had a reasonably successful session (FORUM-80 does not use control codes).

The PCR-81 uses a "software UART" similar to the circuit I recently described, but includes handshake signals which are needed for full duplex operation.

If you merely wish to access FORUM-80 or drive a serial printer the PCR-81 at £49.00 should provide an inexpensive alternative to the Tandy expansion interface and serial interface board.

Leon Heller

Lower Case With Descenders for the TRS80

Members may be interested in a lower case modification for the TRS80 which gives true descenders and an English pound sign. If you have a recent TRS80 with the new ROMS your character generator will probably have a lower case generator with descenders capability but if you have an early chip without descenders you have two options for obtaining descenders.

Option one is to purchase a recent character generator chip direct from Radio Shack in the US. This can be ordered from:
Radio Shack National Parts Department. 900 East Northside Drive, Fort Worth, Texas 76102. USA.
Order part number: AXX-3027.
Air Mail and shipping costs will bring the total charge to about £18 including duty. This chip is a plug in replacement and with the standard Electric Pencil lower case mod. will give good results.

If you are a 'do it yourself' type you may prefer option two. This is to use the 74S262 Teletext character generator. This is available from Technomatic Ltd. for about £8. Unfortunately it is not a direct plug in replacement. There are also a few characters which are different from the TRS80 chip but most of these can be corrected by the neccesary software.

The 262 chip will give a 5x9 character matrix with automatic blanking of the lower 3 lines. This was done by hardware in the TRS80.The (#) sign will produce an English pound sign (£), using this chip unless corrected by software to read the new (#) sign location in the chip.There is no underline in the 262 chip therefore the cursor character will normally be the (#) sign in BASIC. Using a suitable software patch any of the unused characters could be used as a cursor. The solid block, the last character in the table provided is a good alternative to the underline.The left arrow used by Pencil for line feed/carraige return indication is slightly different. This should cause no problems in use. Probably the only real disadvantage with the chip is the lack of a slash line through the zero. A zero is identical to the capital letter O. The full stop and colon signs are produced by a single dot instead of the groups of four dots used in the Tandy character generator. This makes them slightly less legible on a small screen.

A method of fitting the new chip is to use a 18 pin IC header to replace the original character generator. Thin wires can lead from this header to an additional 20 pin holder fitted to a small piece of Vero board to allow the cross connections required by the new chip. A small modification to the TRS80 board is required to allow the extraction of bit 6 from the data lines for use by the new chip. This was not required on the original chip.The copper track can be cut as shown in the diagram and the signal linked to the new chip as shown.The 262 chip in its holder and board can be fixed to the TRS80 board by the use of silicon rubber. This is freely available in the form

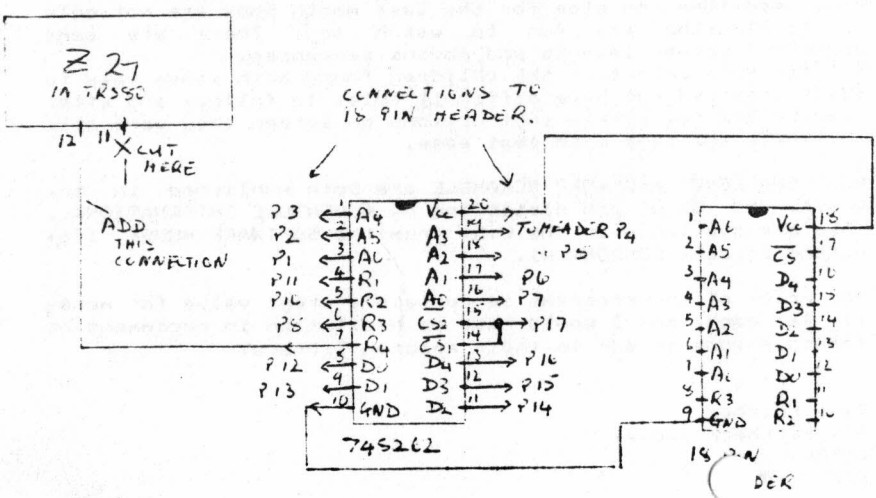
sold in hardware shops for sealing round sinks and baths. It is necessary to locate the new chip and its board directly over an existing IC but the ones used do not run hot and no problems have been encountered in my installation. There is room for the board and the new chip in its holder if the board is located about one inch to the left of the old character generator holder. This will allow the board to fit in the recess forming the foot of the case.

A further improvement can be affected if required by wiring a 74LS00 Nand gate on the Veroboard to allow automatic selection of the correct combination of bits 5 and 6. This will make the need for a switch as used in the Electric Pencil mod. redundant. This is probably similar to the modification fitted by Tandy when they instal their own lower case mod. for Scripsit.The only disadvantage with this mod. that I have found is that the left arrow prompt used by Pencil to signify a C/R L/F is no longer available. A letter M replaces it. This is a little disconcerting at first but as it is only a video prompt and does not appear in print it is only a slight inconvenience.

The circuit below shows the additional Nand gate incorporated to remove the need for a switch. Scripsit may use some other of the special characters of the original chip and cause a different display. As I do not have Scripsit I can not test this.

Given below is a table of characters in the Tandy character generator chip and the equivalant 262 device for comparison. I cannot show the exact dot locations here but the 262 places the characters one dot higher to allow for better looking descenders. This is not noticable unless the two chips are directly compared.

Replacement of Original Character Generator by the 74S262 :



Additional Nand Gate to Eliminate Need for a Lower Case Switch :

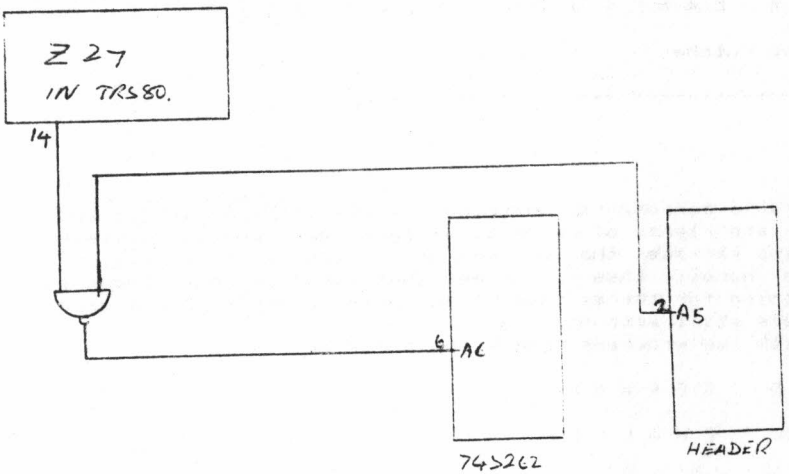
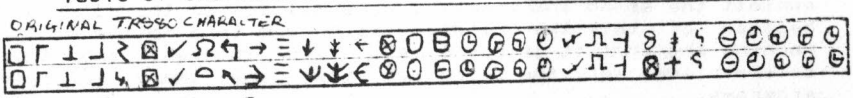
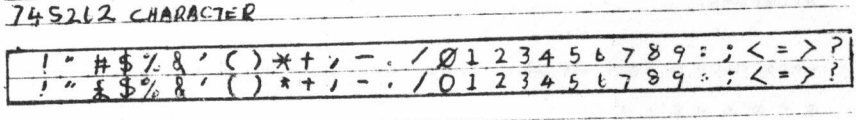


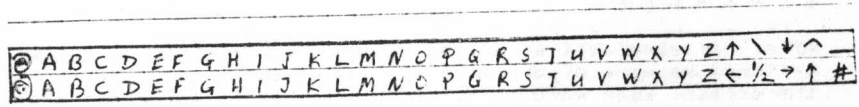
Table of Characters in the two Character Generators :

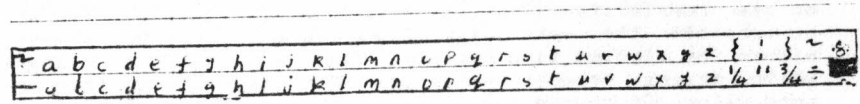
ORIGINAL TRS80 CHARACTER



74S262 CHARACTER







J.R.Barber,
44 Dallin Road,
Bexleyheath,
Kent, DA6 8EJ.

EDUCATIONAL SOFTWARE REVIEW

WORD GAMES WITH A DIFFERENCE

By Dave Futcher

What can a computer do to encourage the study of words, well their are plenty of attempts at games and computer assisted learning packages that go some of the way to doing this. But to be honest they do not get that far. They have about as much going for the as some of the dreary books of grammar that are still arround.
But with two programs from Richard Taylor

WORD SCRAMBLE
and
WORD CHALLENGE

move some of the way to using properly the power of the computer in the field of language development. Richard Taylor ha written to great programs that really zip into life from the word go. He really begins to explore and exploit the sound and graphics capabilities of the micro and because of this the children sit up and take notice of the machine and what it is doing and take interest and thus develop some of the stragies that are there in both programs.

Lets have a look at what these packages have to offer.

SCRAMBLE

After an excellent sight and sound sequence and the players setting the mode of operation, a scrambled word appears on the screen. Each word has a different points value depending on its complexity. The point value is doubled if you un-scramble the word without making any incorrect guesses within the alloted time period. When you make a mistake while trying to un-scramble one point is deducted from the word value. Of course the player with the most points at the end of the game is the winner.

CHALLENGE

The basic idea behind this game is very simple, but the game lives up to it name it is certainly challenging. The length of a particular phrase is displayed on the screen and the player has to guess the phrase one letter at a time. The

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value of the phrase starts at 50 points, and for every incorrect letter guessed, two points are deducted if its a consonant and ten points if its a vowel. There is also a facility that earns you extra points -- for those able to guess the whole phrase, -- but be careful you could loose all the points,if you get it wrong!

One of the best features of both games is the facility to play in different modes. You can play on your own against the computer, and then the computer chooses the words or phrases at random from its programmed database, or you can play with another person using the programmed words. But the best facility is the option to enter your own words or phrases before the game commences. In schol we particularly found this facility to be of greatest value as it enabled the teacher or te children to set the words arround current interests within the group.

SCRAMBLE and CHALLENGE are available as Basic programs for the TRS-80 AND THE VIDEO GENIE.

As mentioned earlier both programs have the capacity to give sound, on the TRS-80 you simply plug in the AUX jack of the cassette into a simple audio amplifer, on the VIDEO GENIE you just turn on your built in sound box. The sound that Richard Taylor has achieved is of course of the highest quality, but one has come to expect that of him, especially after his masterpiece in TRS-80 OPERA. The technique is to poke the machine code for the sound into strings and call the routine when sound is required.

These word games are great fun according to the children who have used them non stop for the last month They are not only fun to play,they are fun to watch too. There are some wonderful screen layouts and moving sequences.
But far more important the children found both games easy to play, they did not have difficult rules to follow, and after reading the few simple instructions on screen they were able to tackle the game with geat ease.

WORD CHALLENGE AND WORD SCRAMBLE are both published in the U.S.A. by 80-US and distibuted by ADVENTURE INTERNATIONAL. They are available in the U.K. from the SOFTWARE HOUSE 146, Oxford Street, LONDON, W1.

The price of the programs is certainly great value for money at $6 each, and I would have no hesitation in recommending themto anyone to add to their program library.

Dave Futcher
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ACTON,
LONDON, ( )QD.

S O F T W A R E

R E V I E W

by Dave Futcher.

V T A P E

Could this be the end of the flashing asterisks, up in the right hand corner of your screen during a CLOAD ?
At last there seems to be a serious attempt to rid us of those blinks forever. PREMIER PUBLICATIONS of CROYDON have produced a machine code program called VTAPE which gives visual loading of Basic programs on to the screen.
This program is one of a number of super utilities that Premier are marketing for the TANDY TRS-80 and the VIDEO GENIE

VTAPE is a marvelous little aid, as your cassette recorder reads your program into memory, the program is listed on to the screen.
In Vtape the basic words are not tokenized, (as they are in some similar utilities) ,everything is there with the exception of the line numbers.
VTAPE enables you to see immediately if you are getting a good load because the program appears on screen as it is read in.
If it is a bad load you adjust the volume and try again.

VTAPE is available for £7.95 on cassette. Load it in at the beginning of a session by the SYSTEM command --- it is only about 100 bytes long, it loads in seconds, then call it into action by typing VTAPE after you have prepared your cassette recorder by pressing the play button, and your program is shown on the screen as it loads.
The program has the added feature of enabling you to MERGE or APPEND Basic programs together, as long as the second one has higher line numbers

VTAPE is an excellent utility, and should prove to be extremely useful to those people who are still cassette based. PREMIER PUBLICATIONS have produced something that should be in every cassette owners library of programs.

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SOUTHERN SOFTWARE FULL SCREEN EDITOR

A review by Edward Rashbrooke

Tandy owners with access to mainframes or other microprocessors may be surprised that the TRS80 does not include full screen editing of programs. On the other hand, users with only experience of the TRS80 probably do not know what they are missing.

A full screen editor allows viewing of any section of a program text, and amendment of anything displayed on the screen. Additional facilities to move or copy text are usually provided and rapid paging backwards or forwards through the text is also helpful.

The Southern Software EDIT program(£17.95) is one of the better screen editors around, giving many useful facilities to assist speedy program development. Once used it becomes quite a shock when doing editing again with the "I"s, "D"s and "X"s of the standard ROM editor. The program is supplied on a tape and can be copied to disk for use with TRSDOS or NEWDOS if required. It is also relocatable, requiring a target address to be specified when first invoked, although relocated versions can be saved for later use. This relocatability is a great advantage because users can then shunt different utilities together in protected memory as required(in fact all Southern Software is suplied as relocatable). Together with the tape comes a 6 sided A4 dscription of the use of the program although after about 2-3 hours, use of the editor becomes second nature. Helpfully, the document does include a single sided reference summary.

Once loaded, the editor is invoked by typing /EDIT or /EDIT nnnn where nnnn is to be the first line displayed. Fifteen lines are then displayed with a vertical bar in the left and right most columns, and 5 digit line numbers in the left margin. Lines longer than 62 characters are wrapped around to the next line, and full statement lengths are allowed(not the case with all screen editors). During an edit session the left and right margins are used to display information about a particular line, and the bottom line is used for messages and commands. The whole display only takes a few minutes to get used to and is quite comprehensive in the information provided.

Once invoked, the editor provides full cursor control by the arrow keys, and automatic scrolling up and down of the program text. Moving the cursor to the top or bottom line and keeping the key depressed causes fairly rapid scrolling of the text. All keys have automatic repeat on them and the cursor is displayed as a solid block for clarity.

A number of special function keys are provided using BREAK, ENTER, CLEAR and the ∂ symbol in conjuction with other keys. In fact, for systems with a numeric keypad, each key of the keypad has been redefined in conjunction with the ∂ key. This gives a group of PF (programmed function) keys similar to those on many expensive mainframe systems.

These PF keys can be summarised as:

∂/1 jump to start of line
∂/2 jump to start of next line?∂/3 down arrow
∂/4 left arrow
∂/5 right arrow
∂/6 up arrow
∂/7 insert character
∂/8 delete character
∂/9 delete rest of line

Although some of these functions may sound simple, the increase in editing speed brought about by their use makes them very worthwhile.

Another type of special function is brought about by line commands. These can operate on single lines or blocks of lines. These can be summarised as follows:

∂/D delete line
∂/I insert line
∂/R replace line
∂/C copy line
∂/M move line
∂/A after (used with move/copy)
∂/B before (used with move/copy)
∂/P reposition line
∂/Q start of block
∂/F repeat find
∂/G global change

These commands are a pretty comprehensive set of facilities for speedily changing text, and normal text revisions are accomplished by simple overtyping of the required section of the current display. ENTER can be pressed to fix all of the changes, and unlike a number of text editors, these changes can be to all lines displayed at any time and not to just one line at a time.

Use of the block commands is particularly powerful when repetitive sections of code must be created, and the improvement in the formatting of source code can be remarkable(albeit at the expense of space). During development, however, there is much to be said for tidy source code, even if the production version is compressed to save space etc.

Having now used the EDIT for some time I have only two criticisms of it, neither of which are particularly severe. The first problem is that block moves and copies require manual renumbering. There are no facilities to use a RENUM function on the text, although for blocks of text this would be quite useful. I suppose the actual renumbering would need to be quite sophisticated to cope with the problems of repeated text in a module, and may be disproportionally large compared with the modest 3072 bytes of the existing module. The other criticism concerns the FIND/CHANGE commands, which would be nicer if they allowed longer text strings than at present.

On the positive side, once loaded into the top of memory (I have a 48k system) the program remains there most of the time that I am working in BASIC, allowing RUNs of the BASIC and then further editing without problems. On a 16k system the 3k size of the module may cause a few more problems when in use with larger programs. Editing has been greatly simplified and speeded up and the resultant source looks tidier now than my previous attempts using the ROM editor. In conclusion I would say that the editor is well worth the money for anyone involved in significant amounts of BASIC program development.

The program was originally written for TRS80 Model 1 and Video Genie, although it also works with my Model 3 with slight changes to the loading procedure.

MODEL 3 OBSERVATIONS

Edward Rashbrooke

Members of the TRS80 User Group may be interested in some observations concerning the Model 3, which I have now been using for around three months. I previously owned a Model 1 system and one of my first concerns was the conversion of software for the Model 3. The bulk of the BASIC software converted without problem, although a few BASIC programs with embedded machine code routines (either packed strings or PEEK/POKE) caused problems. This was caused by the machine code overwriting areas of memory used differently by the Model 3.

Machine code programs, on the other hand, were something of a disaster. Although figures like 80% compatible have been mentioned in this context, the machine code routines were a significant and as yet unsolved problem. Such items as EDTASM and TBUG do not work and other monitors like MDN4 seem unreliable in the tape cassette handling, presumably due to the revised timing for the different clock speed in the Model 3. The amount of time involved in getting these facilities working is prohibitive, and means instead that I shall have to wait for revised versions of the packages to become available, although there are currently no dates for these (remember the machine was released in the States last November!).

Extensive use of ROM subroutines and addresses in such utility software has also caused problems, so that RENUMs, Screen Editors, Toolkits etc. have also all collapsed in a heap. After accumulating working Level 2 software to make life easy it is a little bit of a shock when large amounts become unusable.

One useful signpost towards getting things going again (software producers please take note!) is the publication "Mod 3 Rom Commented" from Soft Sector Marketing, 6250 Middlebelt Rd, Garden City, Michegan 48135 (tel (313) 425 4020). This can be ordered by Access/Visa for around $22.50. It is a full commented disassembly of the ROM, which with the other Model 1 book by James Farvour, assists the conversion from M1 to M3.

As one of the early users of Model 3, there is a definate feeling of waiting for the market to catch up as far as the software goes.

At the time of writing there is no Editor/Assembler available for the M3 which effectively stops all of my machine code work. I have seen announcements for NEWDOS80 Release 2 in the States ($149.00) and this includes an amended EDTASM and a disk disassembler plus other assorted enhancements. Colleagues with Model 1 LDOS systems are very impressed with that and I know that the M3 version is imminent from J. Harding. Another useful bit of software to provide would be a 40 track diskette reader for 80 track drives (like the Model1 MAKE80 program). Fitting 80 track disk drives is a very attractive proposition, but compatibility with Tandy software is also important.

Hardware of the Model 3 has been well described in the August Practical Computing/Personal Computer World magazines, and I certainly appreciate the integral approach of the M3 after the slightly "birds nest" appearance of the Model 1. Having got used to the M1 cassette speed, the Model 3 is a great improvement with its 1200 baud rate.

For the interest of current M3 owners with machine code problems, I include a list of some of the significant subroutine start addresses in ROM, which goes a bit further than the list published in the Tandy M3 manual. Users with specific interests can begin disassembly at the addresses specified to find out what makes their M3 "tick".

ADDR	DESCRIPTION
0000	start of rom
00B5	print memory size
00F2	save end of memory
00F6	save end of available memory
00FC	print RADIO SHACK..
0525	check for backspace/newline etc
0B37	INT
0BA0	convert trailing 1s to 0s (Dbl precision)
0BAA	DE=DE*BC
0BC7	DE=DE-HL
0BD2	DE=DE+HL
0BF2	DE=DE*HL
0C70	Dbl prec subtract
0C77	Dbl prec add
0DA1	Dbl prec mult
0DE5	Dbl prec divide
1364	numeric data
13E7	SQRT
13F2	EXP
1541	accum=cos(accum)
1547	accum=sin(accum)
15A8	accum=tan(accum)
15BD	accum=atan(accum)
1608	function address table
1650	reserved word table
17A5	token table for embedded functions
18C9	error codes
18F7	RAM init for 4080 40A6
191D	messages
197E	check for no resume and end of prog
1991	error routine
1A19	READY
1BB3	print"?"and INPUT
1BC0	encode program line
1C90	CP HL,DE (RST 18)
1C96	RST 08
1CA1	FOR
1D1E	main program executor
1D78	RST 10
1D91	RESTORE
1D9B	pause key handler
1DA9	STOP
1DAE	END
1DE4	CONT
1DF7	TRON
1DF8	TROFF
1E00	DEFSTR
1E03	DEFINT

ADDR	DESCRIPTION
1E06	DEFSNG
1E09	DEFDBL
1E0B	set default variable types
1E45	subscript evaluation
1E4F	decode last number reference
1E7A	CLEAR
1EA3	RUN
1EB1	GOSUB
1EC2	GOTO
1EDE	RETURN
1F05	DATA/ELSE/REM skip line/stmnt
1F21	LET
1F95	ON n...
1FCD	RESUME NEXT
1FF4	ERROR
2018	AUTO
2039	LPRINT
206F	PRINT
219A	INPUT
21A9	tape input
21EF	READ
22B6	NEXT
2335	expression eval
24CF	ERR
24D9	ERL
24E7	VARPTR
25C4	NOT
25D9	RST 20
2603	DIM & locate create variable
26E9	search for array variable
27C9	MEM
27D4	FRE
27F5	POS
27FE	USR
2819	convert accum to given type
2828	check for illegal direct error
2836	STR$
2857	create a string
2865	create string descriptor
28A6	display message
28BF	alloc space for string
28DA	pack string space
298F	string addition
29C6	move string
29D7	delete workstring if necessary
29F5	delete workspace entry if last
2A03	LEN

ADDR	DESCRIPTION
2A0F	ASC
2A1F	CHR$
2A2F	STRING$
2A61	LEFT$
2A91	RIGHT$
2A9A	MID$
2AC5	VAL
2AEF	INP
2AFB	OUT
2B01	eval parm as integer
2B0E	prepare for OUT
2B29	LLIST
2B2E	LIST
2BC6	DELETE
2BF5	CSAVE
2C1F	CLOAD
2CAA	PEEK
2CB1	POKE
2CBD	USING
2E53	syntax error edit
2E60	EDIT
2F02	A routine
2F0A	space routine
2F16	K routine
2F1C	S routine
2F40	L routine
2F4A	D routine
2F65	C routine
2F75	H routine
2F78	X routine
2F7D	I routine
2FD2	backspace routine
2FE0	carriage return routine
2FE3	E routine
2FF6	O routine
3000	system ROM jump vectors
31BD	cassette on
31D1	cassette off
31F7	cassette header
325E	slow hdr write
3274	slow hdr read
329B	fast hdr write
32DA	fast hdr read
338E	keyboard input
3455	bootstrap
34AB	warm boot
35A0	TIME$
35BB	DATE$
35C2	interrupt handler
35FB	RS232 initialisation
365A	RS232 input
3680	RS232 output
3739	I/O re-routing
3799	BASIC TIME$
37B5	set cassette speed

QUERY CORNER

Regarding the 'rescue' poke in one of the newsletters, I can't make it go either. It seemed to work before I had an expansion interface, but if I use it now I get some very strange results. Firstly everything looks OK until I try to run the programme, and then most of it just dissappears, leaving a couple of lines of garbage. The machine then crashes leaving the contents of the screen displaced, so that the margin is about two inches from the right! Even the reset will not work then. Everything is OK without the interface,but with it connected, even if it's switched off, I get the above symptoms. The rescue function in 'Compak' doesn't work for me either. Any ideas anyone???????

As far as the new ROMs are concerned, I haven't any experience of the old ones, but I don't have many CLOAD problems, screen jitter, or keybounce. I'm very pleased with my machine. It seems a pity that, just when it's about sorted out, it gets superseded by a new model presumably with all the teething troubles that seem to occur with such things. Still, I suppose that's the way it goes!

Peter Tootill

I also note with interest recent correspondence relating to the MX/80 printer. I bought one of these some time ago since it was claimed to be TRS80 compatible. I find, however, that whilst it has a change-over switch to give TRS80 graphics, when it is in this mode it fails to respond to control instructions, i.e., line feed and form feed. When in the standard mode, i.e., not TRS80 selected, then all control functions respond correctly. Since I am a relative newcomer to the TRS80 I fully appreciate that there may be some factor I have overlooked, but I would be grateful for a lead.

J.A. CREASE.

Richard Waiting has a Mael 4000 electric typewriter and would like to interface it to a Video Genie. Any members who have any information on this printer and the computer that drove it, could they please contact him. It possibly uses teleprinter/Baudot code.
Richard Waiting,
80 Princes Rd.,
Teddington, Middx.
01-943 1846

A friend of mine at the York Computer Club has carried out a lower-case mod. on my keyboard which works well. But what a shock! My lower-case letters look somewhat deformed, with the 'a' higher than the other letters, and the p,q, and y looking like capitals. Also, I do not have a pound sign which is disappointing. I also have a video display wobble which I thought was due to my VDU but apparently is not.

Andrew Sefton

(* I am afraid you have one of the old character generator chips in your system. Unless you get Tandy to fit their lower-case mod. which includes a new character generator, you are stuck with the 'up in the air' a, I'm afraid. You might be able to import a new chip from the States. Someone has given details in this issue.

Tandy gave us a number of kits for the wobble problem. Contact Brian Pain for details. LFH *)

THE LAST ONE?

By now all of you must have heard of 'The Last One', a program developed by D.J.'A.I' Systems Ltd. in darkest Somerset. In some rather fanciful advertisements it has been claimed that The Last One will enable anyone to produce working, bug-free programs. However, at a recent press conference D.J.'A.I' appeared to have changed their tune, and the product is now aimed at software houses.

The only systems The Last One will run on at the moment are the Model II and one of the Ohio Scientific range. From what I can gather, the product works after a fashion, and seems ideal for doing simple things like mailing lists, but no-one appears to have seen a really complex program developed with it, like an integrated accounting package. In fact, since The Last One really only does away with the coding of the program, which is a relatively small part of the total programming task, it could be argued that there is not much point in buying it!

Even if the program does not work properly, D.J.'A.I.' can expect to make several million pounds; the program has been 'hyped' like a hit record! There are also one or two injunctions and law suits floating about, and D.J.'A.I' have been reported to the Advertising Standards Authority for misleading advertising.

On a lighter note, Frederick Brown placed a program called The Last One Version II on the Hull Forum-80 system. D.J.'A.I' got to hear about it and threatened Frederick with legal action for using their registered trademark!

Leon Heller

TRS 80 USERS GROUP(One week Workshop)

17th -24th July (inclusive)1981

A SHORT REPORT

I attended the morning lecture which was given by the Manager of the London Tandy store. He described the Tandy Corporation giving an insight into the development,history and marketing methods of the Company. They are hoping to expand into the field of Education having set up a "TEAM" of programmers to develop software for this area. The future looks promising and the NEW model III has incorporated all the units into one compact frame which avoids the use of all the wires and plugs which has been the main criticism from schools earlier.

The resident members had already set up their systems the night before and it was interesting to see their various programs running. There were machines available for use and suppliers were there to demonstrate hardware and software.

The afternoon lectures were on Basic string Handling and Advanced Machine Code. In the evening we were introduced to the Model III.

Sunday's lectures were on Zen editor Assember and the New Disc-operating system was carefully described.These were followed by a talk on Floppy Tape drives and an insight into the development of High Resolution Graphics.
(Two of the members are currently developing a system of high Resolution Graphics and they showed us some of their programs. One showed the detailed workings of an engine and the other was a set of screen graphics which were in fact a "micro movie".

File Handling using the Newdos 80 system was an excellent lecture given by an experienced business programmer.Visicalc, a powerful program which incorporates the ability to layout data and calculate this data within your own personal specified layout, was described in great detail. The organiser, an accountant described the use of the computer in an accountant's office.

More serious material on Tuesday included a lecture on structured programming (very helpful !) and according to the noticeboard a lecture on Pascal (an overview) but I attended a lecture on "Superzapping" which was intriguing. The latest disc-operating system has this facility to "zap" in and read the memory structure.

Wednesday was more light-hearted with a talk and demonstration called Orchestra 80. A non musician myself I thought I would soon be lost with talk of "B Flat Major","semi-whatsits" and the like. Several similarly uninformed members made excuses to go to their sytems and make coffee etc., but then the music began and the jumble of coded notes came to life. The audience then participated in the arrangement of a NEW musical score for the National Anthem. The musicians provided enough help to make a reasonable sound and this developed into an arrangement containing 4 'voices' (instrumental sounds). We had to stop for lunch.It would be a fantastic educational aid to the teaching of music as the actual build-up of a melody is experienced and mistakes and improvements can all be saved and replayed at will.

The afternoon talks were informal .The 'word-processing' software packages Scripsit and the Electric Pencil were discussed in considerable detail and the merits of each compared.

Thursday brought another lecture on file-handling using random access files which was an excellent lecture. This was followed in the afternoon by an introduction to several aspects of "Infinite Basic". These are specialist subroutines which can be used for rapid sort routines, string handling and Matrix functions. Obviously these routines are very powerful and useful but as in most software situations the programs have to be used and experienced before their use is readily understood. This workshop atmosphere was excellent in this respect as the people could immediately return to their machines and experiment with sections of the course whilst it was fresh in their minds. There was also the facility to seek advice from the expert for all the lecturers were members of the group and stayed to give help.

Friday's lectures were on the Model 1/II in business. Tandy certainly have built up a tremendous business software library When their educational software is prepared, if it is as good as their business software, it will be excellent.
Mother -board design and Sound synthesis were next and the final lectures were on the use of the Trs 80 as a low level development system .Applications and implementations were then discussed and this wound up the meeting.

The whole program was carefully organised and run expertly. The lecturers were all given by enthusastic members, experienced in their own field. The mood was informal and the lectures more rewarding because of this. There were no empty silences and people were not afraid to ask questions throughout.

Microcomputing is becoming very "machine personal" for want of a better explanation. It is far more useful to attend a lecture like this where references are made about your particular machine although I believe anyone interested in computing would have been inspired to take a closer look at the TRS 80.

I can only make one criticism and that was the lack of female company. I was the only woman in the lectures and initially thought I'd walked into a Masonic meeting or a strange micro-aged stag party.Despite my sexual disadvantage I found that I was soon put at ease and the officals and club members were very helpful . I found out the names of several members like myself interested in computer education and having now joined the Users Group will update my recently acquired knowledge with the Newsletters.

Silvia Hasler

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ADDITIONAL NOTES TO SILVIA HASLER'S REPORT

FRIDAY EVENING

As promised members were given a buffet at the Stony office, before setting the systems out at the college. The competition was won by David Frankland from Leeds, scoring over 132000 in 15 minutes, and he was awarded a special shield with the details engraved the next day by a local sports shop.

SATURDAY EVENING

Laurie Shields took members through the Z80 simulator, which involved them wearing funny hats eg Data Bus or Program counter, and proceeded to show how the processor worked. The session was thoroughly enjoyed with real ale passed around to refresh those parts not reached by logical thought.

Leon Heller did a long session on communications, which ended up with a log on to Hull, 80-Net in Stony, and University of Aston.This obviously inspired Dusty Miller to leave his sleep in his Maxi, and successfully log on with his 4k system - 4k rules OK!.

SUNDAY

It was with much pleasure that Fredk. Brown and Bob Macey plus Mesdames Brown made Sunday, with Fredk. running through Forum 80 and the LNW80 BOARD while I took his family down to a local spot who enjoyed the hired boats and bikes.

Laurie Shields went through his assembler for beginners, with a very appreciative room. As a result of these sessions the group will have its own publication on assembler for beginners.

TUESDAY

Chris Cain did a very detailed session on chaining in NEWDOS/80,and as a result I managed to chain the infinite basic steps eg BINS-BASIC 50000-RUN"INSERT/BAS and so on.

For those who are interested Jeremy San has a chain file builder.

THURSDAY

Steven Bird was kept awake and asked to do a short session on spool using NEWDOS/80, which confirmed to those that were there it was not quite as good as they had hoped

LDOS appears to have a much better spool and I am sure readers would like some clear examples of how to use this very powerful function.(How about it Allan,Ric,Steven or Sgt Murphy)

ALL THROUGH THE WEEK

A local member lent a model3 and as a result the group now have the patches to make SUPERZAP/BAS run on M3

The most systems set up at one go was 27, with Video Genies and 16k in evidence which I hope will encourage new members to come along and enjoy the unique atmosphere.

The library [illegible] with us again and members expressed their appreciation of Leighton's work, but judging from his comments he enjoys his priviliged position.

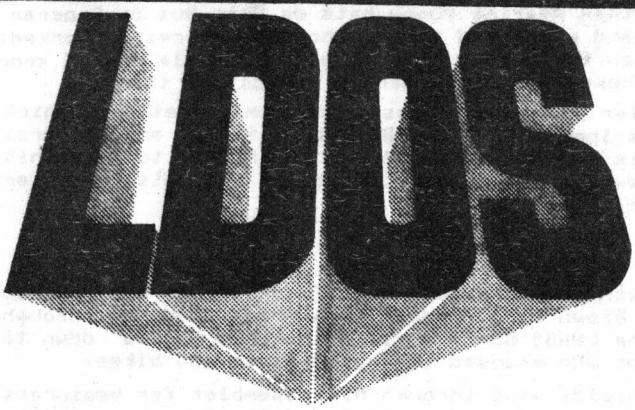
BRIAN PAIN

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.

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Also one JPC TC-8 fast-cassette system. Offers much faster LOAD and SAVE, along with greatly-improved data filing routines. Assembled, needs a.c. power unit. Total cost was £70, including duty and VAT. Offers, Please.

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National TRS-80 Users Group

Newsletter

VOLUME 3 ISSUE 3 SEPTEMBER 1981

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EDITORIAL

Thanks to the efforts of Ian Howard Wright we are able to include a complete index to Volume 2 in this issue.

As I predicted some time ago, Tandy have announced a local area network system using the Model II in conjunction with Datapoint's A.R.C. system. The hardware looks quite cheap compared with most of the alternative network arrangements, except that expensive co-axial cable is used for data transmission.

We had a small stand at the P.C.W. show, thanks to the Amateur Computer Club. We gained a lot of new members, and met many old friends. Thanks to Mike Ayres and Vince Moore of Tandy we had a Model III on the stand.

There seems to be quite a lot of interest in that MDX-2 expansion board I described recently. I am afraid I have not made a start on it yet, but I have got my 16-bit 8088 system working after a fashion, although it is not yet interfaced to my Model I.

Many members are not renewing their subscriptions because they think the Newsletter is too advanced. Can any of you help by writing a section for beginners?

Leon Heller

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Membership of the National TRS-80 Users Group is by subscription to the Newsletter. Contact Brian Pain (see above) for further details.

* Please Note That Our Librarian *
* Leighton Davies has moved to :- *

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* Mid-Glamorgan. *

MEMBERS' LETTERS

From Bob Sparling

The Swindon TRS-80 Club is still growing fast thanks to your self and the local papers (I enclose an article From one of the locals).

We have published some very good reviews and articles in our Newsletter, I have enclosed a review on Plus Basic, First Impressions of a disk operated system and an article on fund raising for local charity with the TRS-80, Computer at a Barbeque. A very interesting software review comming shortly is the new program from Nigel Dibben called COMPAK, this looks to be very interesting I will send you a copy of the review for publication in the National Newsletter when it is finnished.

We have had many such reviews and articles since starting the Newsletter, I will try to send you something from our Newsletter on a regular basis for inclusion in your Newsletter.

I still feel the local groups could benefit from other local groups, so if any member or club organiser would like to contact me perhaps we can get something going and improve our standard which will help interest more people to become members, even if getting together would only help in putting more interesting features, articles and reviews in the Newsletters, I am certain all clubs and members would benefit from this.

Bob Sparling

NEWDOS 80 VERSION 2

I have just received my NEWDOS 80 Version 2 from Apparat. It has some very good additions like being able to scroll a program 14 lines at a time (either way), keyboard repeat, step through a BASIC program a line at a time, and lower-case enabled on switch-on without having to load a routine into high memory, with all these routines being selectable through the 'System' facility as well as many others. It also supports a greater variety of disk drives as well. There are several other new facilities but it is easier to read the new manual than to write them all down.

The one thing they have fallen down on compared with LDOS is spooling; their program is quite complicated compared with the so simple LDOS one. Just like LDOS though, many of their explanations are just as incomprehensible as ever.

E.C. Kilpatrick

QUICKER DATA ENTRY.

Writing a program recently to read in a large amount of stored data from disk, I became aggravated by the time taken to do this. To test the program I had stored 2000 sets of integers N, L, A, and B on a disk. These represented the colour co-ordinates of 2000 pieces of dyed material. I wanted to enter a set of new values and find the nearest previous match.

I had expected the sort, using SRTV, to take a while, but I certainly hadn't expected my 8000 integers to take nearly a minute and a half to load!

In looking for an improvement, I reasoned that since a long PROGRAM loaded quickly, it should be possible to load an equivalent amount of data equally quickly by treating it as a program. The following method, although rather obscure, got the loading time down to 4 seconds!

1. Assign a value (e.g. 0) to EVERY variable the program is going to use. This makes basic allocate memory space for these. Unless a value is assigned it will not do so until the variable is used later in the program.

2. Dimension the array to receive the data, and any other arrays to be used. This forces basic to allocate array space in memory. Since we have already allocated space for the simple variables, the position of the data array is now fixed permanently.

3. Run the program thus far, and using VARPTR, find the start of the first array (in my case N(0)) and the end of the last array element (B(2000)). (Add 1 to this last value if it is an integer array, etc.). Make a note of these for later use.

4. Write the rest of the program. It is vital that no new variables are declared, since if they are, Basic moves the arrays up to make room for them, and the addresses found in para 3 will no longer be correct.

5. Include in the program after the array has been loaded with data, the following line to write the data to disk in the format of an object (machine language) program:

```
CMD"DUMP DATA/CMD (START) (FINISH) (ENTRY)
```

This format suits NEWDOS80 - the method will not work for NEWDOS 2.1 or TRSDOS.

The START and FINISH addresses are those obtained from the VARPTR actions in para 3 above. The ENTRY is a bit more difficult and is derived from the program that is going to read the data.

6. In the program that is going to read the data, include the following lines:

```
1 DEF FNV(A$)=PEEK(VARPTR(A$)+1)+256*PEEK(VARPTR(A$)+2)
              +65536*(PEEK(VARPTR(A$)+2)>128)
2 A$=CHR$(205)+CHR$(127)+CHR$(10)+CHR$(205)+CHR$(25)
    +CHR$(68)+CHR$(201)
3 DEFUSR0=FNV(A$)

10000 D$="DATA/CMD"
10010 X=USR0(FNV(D$+CHR$(13)))
```

Lines 1-3 need to go at the beginning of the program, lines 10000-10010 go where it is desired to read in the data.

Since this must seem impossibly obscure, I'll try to explain.

A$ becomes CD 7F 0A CD 19 44 C9, which in mnemonic form is:

```
CALL    0A7FH      ;Get USR argument into HL
CALL    4419H      ;This is DOS-CALL (Newdos80)
RET
```

Being the first string loaded, this goes into the top location in reserved string space, and does not get disturbed by subsequent string operations. Leave A$ well alone.

FNV(A$) creates in one expression the address of the first byte of A$, i.e the starting address of this short subroutine.

D$ is the name of the file containing the data, and FNV(D$) gives the address of the first byte of D$.

Line 3 defines USR0 as the subroutine formed by A$. Line 10010 calls it with a pointer to the start of D$ as data.

When executed, USR0(x) first loads HL with the address x, by calling the ROM routine at 0A7FH (refer to USRn in the disk basic manual if you're lost!). It then calls the NEWDOS80 routine at 4419H, which is DOS-CALL. DOS-CALL will now execute the (DOS) instruction pointed to by HL, and then return. The instruction pointed to by HL is "DATA/CMD", so DOS goes off and loads what it thinks is a command file into the memory block between (START) and (FINISH), and then jumps to the (ENTRY) address it finds at the end of the file.

The (ENTRY) address, of course, has to be that of the RET (C9) which is the last byte of A$. Therefore when writing the program which loads the DATA/CMD file, you need to know where the reading program is going to load A$ and then add 6 to get the (ENTRY) address. Phew!

I hope that even if I have not made the working very clear,

I have managed to get the idea over so that you can work it out. It does work, even though the explanation takes up many more lines than the code itself!

One version of this routine can be used to achieve very fast graphics or text displays direct from a disk to the screen. A full screen occupies a little over 4 sectors of a disk: as the DOS allocates disk space in Granules of 5 sectors, this is a fairly economical way of storing screen displays, and apart from disk run-up time, is almost instantaneous.

Henry H. Shepherd

Level II Disk BASIC.

Have any readers of the Newsletter suggestions for:

1 disabling the CLEAR key.

2 disabling BREAK, whilst allowing SHIFT - BREAK to function. This was mentioned in the August 1980 issue, page 25, ie POKE 16396,165 to disable and POKE 16396,233 to enable, but this does not seem to work: BREAK is disabled, but SHIFT - BREAK causes the computer to 'freeze'.

Incidentally, in the same issue a LIST disabling routine was published which works well, although it seems a little unnecessary to use the first step as the POKE'd value already exists in memory. The original routine was:

to disable
```
POKE 16863,195
POKE 16864,114
POKE 16865,0
```

to enable
```
POKE 16863,201
```

but just as effective seems to be:

to disable
```
POKE 16864,114
POKE 16865,0
```

to enable
```
POKE 16864,208
POKE 16865,87
```
which restores the original values

Alan Parr

PROGRAM LISTING SERVICE

Now that my printer is working I would be pleased to carry out my offer to print out program listings for anyone who wants it. They just need to enclose return postage and 2p per 60 lines to cover paper, ribbon and any wastage.

Ian Howard Wright,
17 Greygoran,
Sauchie,
Clackmannanshire FK10 3ET.

ANOTHER CONTROL KEY.

Someone once asked if contributors could say what printer they were using - this is an OKI Microline80.

Using a Microline 80 with Basic is easy as the print, margin, & line spacing instructions it needs can be sent by using the CHR$(n) statements in conjunction with LPRINT. However, when using Scripsit, Edtasm, or even JKL in DEBUG, it can be very irritating to have to leave what one is doing, load Basic, type LPRINT CHR$(n), and then start all over, just to get the print size right. This problem was well covered by Dennis Long in his Scripsit amendment program for the Centronics 737, but I felt a need for a way of changing the printer format irrespective of what program was being used.

I have for some time been using a machine language program at the top of memory to give me extra 1- or 2- key functions not otherwise available. This originally used the Shift-Down Arrow facility referred to recently, but I have now installed a separate key as it is much more flexible in use.

The additional key (from a 50p piece of "rubbish" picked up on a stall somewhere) is fitted to the left of the down arrow key. probably THE most difficult place to put it, but that's where I thought it ought to be, and once started I had to go on!

It is wired up in the same column as the Shift key, but whereas the Shift key produces a 1 when the column is scanned, the Control key produces a 2. This arrangement has the advantage that pressing the control key alone does nothing. Like the shift key, it only produces a code when another key is pressed at the same time. The code produced is the normal unshifted ASCII code for whatever key is produced, and it is necessary to intercept the keyboard read routines to see if loc 3880H (14464) contains a 0, 1, or 2. For a 0 or a 1, a return to the normal routines is made, for a 2 the program calls up whatever the control key is to do.

I decided not to generate the normal control codes, but to give selected keys special functions and ignore the rest. This gives a possible 50 special function keys, which ought to be enough for anybody. Using Control plus Shift and another key would give another 50 options (i.e. when loc 3880H has 3 in it)!

Using this method , I so far have the following facilities immediately available:

```
ctrl-P + H      gives HALF size print (16.5char/in)
ctrl-P + N      gives NORMAL     "      (10char/in)
ctrl-P + D      gives DOUBLE     "      ( 5char/in)
ctrl-P + S      gives SHORT line  (64 chars at 10/in)
```

```
ctrl-P + L      gives LONG  line  (80    "      "   )
ctrl-P + C      gives CLOSE line spacing (8 l/in)
ctrl-P + O      gives OPEN  line spacing (10l/in)
ctrl-P + Q      QUITS control mode (does nothing)
ctrl-P + ENTER returns to normal format (N-S-O)
ctrl-P + 1 - 0 gives 1 to 10 linefeeds
ctrl-P + ?      prints the above codes on the screen
                (in case I forget them!).

ctrl-L          selects lower case
ctrl-U          selects upper case.

ctrl-0          displays drive 0 directory.
ctrl-1            "      "  1     "

ctrl-B          Reboots - Jumps to 0000
ctrl-M          Jumps into monitor RSM2D
ctrl-Z          Jumps into ZALAMBDODONT (!)
```

ZALAMBDODONT, in case you've never heard of it, was published in the July 81 "Computing Today", described as an "All Singing all Dancing Pocket Calculator". It provides instant arithmetic on-screen between any two of the normal number bases (binary, octal, decimal, hexadecimal) in either direction and works out the answers to queries like "What is 1234H*(23H-44H), expressed in decimal?". Also"What is 36H + 10decimal?". Even "What is 800H OR (75H AND 24decimal) expressed in Binary. I find it an incredibly useful program to have around whenever I am writing programs, but only if it is instantly available whatever I am doing. As control-Z, I can call it up from DOS, DEBUG, SUPERZAP, EDTASM, Basic, or what have you. When I've finished I press shift-up-arrow to escape and I am back where I was.

The other special functions have the same instant availability and return. It is very useful to be able to have a quick look at directories in the middle of doing something else without losing one's place. In case you are wondering why I want to call up RSM2D from disk basic, primarily for its symbolic debug facility which allows on-the-spot disassembly of small bits of code, and also so that I can debug within the overlay area and low RAM which DEBUG won't touch.

Where necessary the control-"x" is displayed on the screen as an {x} inside "braces", followed by the second code character if used. (My ROM displays braces using ASCII codes 123 &125 decimal).

Since I use NEWDOS80 the program uses entry points for this, and some changes will be needed for NEWDOS 2.1 or TRSDOS. A "standard" LCDVR program (originally from "TRS80-Computing") also forms part of the program, my CPU being modified for lower case. The program is a bit long for inclusion here, but is available if anyone is interested.

Henry H. Shepherd

BITS AND PIECES

1. Correction to April newsletter p.13

I changed all the operating letters in my monitor and had forgotten that fact when I wrote the article in the April issue.

In my modification, line 80 should be,

80 FF19 2263 403E 5818 59FE 5420 13CD A84E
--

and line A0 should be,

A0 FE42 2028 CDA8 4E03 7323 0B78 B120 F9C9
--

My apologies.

2. Correction to June newsletter p.26.

The chip which may be used as a replacement for the ROMs is the 2532 and not the 2732. The connections as described are for the 2532. The information is correct if 2532 is written for 2732 throughout. The connections will be :-

-- ---

2532 A8 A9 A10 A11 OE/PGM

Replacing ROMS A and B, pin 21 should be tied to 5v. C may be replaced directly.

3. Correction to a H. Howe routine

On the subject of errors a number of people have queried the validity of the disc sector input/output routine in Hubert Howe's book. (Ch. 16 p.134).

To make this operate correctly the DSKCM subroutine requires modification.

Change it from,

```
DSKCM  LD (HL),88H
       LD DE,37EFH
       JR RDLOOP
```

to

```
DSKCM  LD (HL),88H
       LD DE,37EFH
       PUSH BC
       POP  BC
       PUSH BC
       POP  BC
       DI
       JR RDLOOP
```

Andrew Donald

(* **The seemingly redundant PUSHes and POPs are to introduce a short delay. LFH** *)

HANDY TIPS FOR THE TRS-80/VIDEO GENIE

16620-21 LAST LINE ENTERED OR EDITED
16624-25 LOCATION OF ERROR TRAPPING ROUTINE
16641-64 VARIABLE TYPE MARKERS:-
2 = INTEGER
3 = STRING
4 = SINGLE PRECISION
8 = DOUBLE PRECISION
16445 32 OR 64 CPL MODES POKE 8(32) OR 0(64)
16396 BREAK KEY DISABLE/ENABLE POKE 23(DISABLE) OR 25(ENABLE)
16405 KEYBOARD DISABLE/ENABLE POKE 0(DISABLE) 1(ENABLE)
** BEWARE USE ONLY IN PROGRAMMES OTHERWISE YOU CAN'T TYPE IN THE ENABLE POKE!
16561-62 CHANGING MEMORY SIZE WITHIN A PROGRAMME
POKE 16562,MSB WHICH IS INT((MEMSIZE-2)/256)
POKE 16561,LSB WHICH IS MEMSIZE-2-256*MSB
THEN CLEAR 50 OR REQUIRED STRING SPACE.
14312 PRINTER STATUS
63 PRINTER READY
233 PRINTER ON BUT NOT READY
255 PRINTER OFF
RETRIEVING A LOST BASIC PROGRAMME
POKE17130,1 THEN TYPE SYSTEM
REPLY TO THE *? WITH /11395 THEN
LIST AND CSAVE THE PROGRAMME.
RUNNING IT MAY CAUSE PROBLEMS.
DISABLING THE LIST COMMAND
POKE 16863,195
POKE 16864,114
POKE 16865,0
TO ENABLE POKE 16863,201
DISABLING THE SCREEN
POKE 16414,0 DISABLE
POKE 16414,88 ENABLE
YOU WILL NOT SEE ANYTHING ON THE SCREEN AFTER THE FIRST POKE,
SO BE CAREFUL WHEN TYPING

Dave Holman

RESEARCH 380Z TO TRS80 AND BACK

The Department of Industry encourages schools to buy a microcomputer by offering a subsidy of £850 on each one. One of the conditions is that the machine must be British. Many schools have taken advantage of this offer and now have the RESEARCH 380Z. The 380Z uses the standard 5 inch disk which fits my disk drives.

I have written a programme which will read a basic programme from a Research 380Z disk into my TRS80 Level II and convert it into TRS80 Basic .The excellent editing facilities of the TRS80 can now be used
(a) to correct so called syntax errors
When the programme is run certain statements such as GRAPH 0, RANDOMISE, PLOT stop the run and are picked out as syntax errors. The offending statements can be deleted or altered or replaced (the PLOT statement is replaced by a suitable POKE into the video range).
(b) to rearrange the display on the video.
This is tedious because of the diff. ently shaped video displays but is essential for good presentation.

I'm offering the following service to any of our members. If you send me a Research 380Z disk containing basic programmes saved on the A/B side and a TRS80 disk together with the postage then you should have both disks back almost by return post. The TRS80 disk containing the unedited versions of programmes.
NOTE: The TRS80 cannot read both sides of the RESEARH disk so the programmes have to be on the A/B side of the disk. Also it would be wise to use a newly formatted disk and save the programmes one at a time (there is some difficulty in reading track 40).

At the specific request of one of our members I have adapted the programme so that it will go the other way i.e. I can also save TRS80 basic programmes onto a RESEARCH disk. I would need a newly formatted RESEARCH disk as well as a TRS80 disk containing the programmes to do this.

NOTE: If the basic programme has a machine language subroutine and that subroutine uses internal calls then the programme would be very difficult to adapt.
NOTE: It is of course possible to use cassette tapes instead of the TRS80 disks. This takes up more time so naturally I would prefer to work with disks.
NOTE: I would also need an assurance that I'm not violating any copyright on any of the programmes.

P J CHAPMAN
36 Park Court Rd.,
Bridgend,
Mid-Glam, CF31 4BW
Tel. 0656 3484.

POWER SUPPLY PROBLEM

If you examine the Epson MX-80 Demonstration Program printed in the last issue of the newsletter you will see that the text in lines 150 - 200 has been corrupted in a random but regular manner. That sounds Irish maybe, but in fact random characters have had bit 0 changed from 0 to 1, changing H to I and R to S etc.

My system has had a similiar problem for some time now. Initially it only occurred after prolonged use but recently it began to occur shortly after power up. The fault only involved the Expansion Interface memory from FAC0 to FAFF. Heat seemed to be a factor so I took the power units out of the Interface. No effect.

As only bit 0 was involved RAM chip Z8 came under suspicion and a new one was fitted. No effect. This began to look dodgy, so, after discussing the matter with Leo Knaggs I went very carefully round the P.C. board checking voltages, retinning the card edges and reflowing any doubtful looking joints. There were quite a few of these. But the fault was still there. Eventually (and purely by chance) I pinned the fault down to the Power Unit. When I swapped the Keyboard and Interface power units over I got no memory corruption, but my TV monitor screen went shaky at the top.

Running the power unit without its cover brought everything back to normal. The unit is an American spec. item which has been converted by persons unknown for U.K. voltages. Obviously it is running on its limits. It has only one secondary winding which supplies both the 12v and the +/- 5v regulators with 12v half wave rectified and 12v AC respectively. My "proper" UK spec. item claims to provide 21.2v AC and 17.6v DC.

So I will have to obtain a replacement soon. Till then it can supply me with toast as well as volts. But I still can't understand why only a small area of memory was effected.

I hope that this letter may save someone else the amount of time that I have spent puzzling over this fault. But I did learn a lot about MUX, CAS and RAS in the process.

Dave Hobbs

FIRST IMPRESSIONS OF A DISK OPERATED SYSTEM.

Having considered the aquisition of a Disk operated system for a long time, it was after attending my first meeting of the Club and seeing it's possibilities that I decided to take the plunge and order the necessary bits and pieces. There followed three agonising weeks of waiting before the last piece arrived and in the mean time, the TRSDOS & DISK BASIC Reference Manual gave me my first insight of the system. There is an aweful lot to learn and I realise now that I should have bought the Manual earlier. However, having the system working does help in understanding the various instructions.

It occurred to me that it might be helpful to others considering going DISK to hear of my first impressions and a few of the problems met, so here goes.

I omitted to say that during the third week, one evening was spent installing a switch, pusbutton and one of some 2102 chips I had spare, in the C.P.U. to give me Lower Case display. This is quite simple provided you are used to handling MOS chips and a soldering iron. It's just a bit fiddly.

Instructions given with the Disk Drives (from ENSIGN) were quite clear and involved the plugging in of the ribbon cable and setting the shorting straps and D.I.L. terminating resistance, which also plug in, to the correct positions given for the number of drives used. A diagram of the printed circuit board clearly shows the positions of the straps and resistance.

Next came the unpacking of the TANDY Expansion Interface and sorting out the various parts supplied with it, including another cassette cable, a short ribbon cable for connecting the interface to the C.P.U., and several moulded plastic covers used on the ribbon cable connectors to enhance the appearance and also help in location on the edge connector. Both power supply transformers are intended to fit into the interface but my original transformer was slightly larger than the one supplied and would not fit in properly so it is in it's original position on the floor!!.

At last, all connentions made and units in position, the time had come to switch on. Going by the book, the V.D.U. was first to be swithced on, then the interface, followed by the drives. The Newdos disk was inserted in Drive 0 and with some trepidatic the C.P.U. switched on. A few clicks and buzzes later and *YEAH* . ere it was, the advertising blurb and NEWDOS Ready.

The Manual stressed the point that before anything else was attempted, a Backup copy was made of the DOS disk on to another disk. Remembering that BACKUP was a SUPERZAP instruction, I tried to call SUPERZAP but without success and decided to use COPY instead. This worked fine and I quickly stored the precious original disk away. Still more attempts to load SUPERZAP but without success. It was a few days later that my 'Guru', Bob Sparling, suggested that I go into BASIC first since it was a Basic program. Thanks Bob. During all this first period I learnt how necessary it is to use the File specification as printed in the Manual. Extra blanks if used in the Spec, bring up the message FILE NOT FOUND, etc.

After looking at the Directory and Library to see what goodies were on the disk, I went into BASIC and wrote a two line program to try out a SAVE to disk and then a LOAD from disk. This was fine so next was an attempt to CSAVE my little program to cassette. This looked as if it had worked, but no way could it be CLOADed so it was back to the Reference Manual. Of course, it is all in there if only you could remember it all. When saving, loading or Inputting to cassette, the Interrupt for the Clock must be stopped by typing ' CMD"T". After this, I put the program on tape and read it back O.K. One thing that I found was that if a CLOAD was bad, say because of wrong Volume Control setting, then it was neccesary to start all over again. That is back to DOS, stop clock, go to back to BASIC and then try again. Perhaps there is something else I have not read properly.

The next attempt was to CLOAD a program, ASTROLOG, which I use frequently and which takes three and a half minutes to load from cassette. This was then saved on disk and and it loaded back from disk in twelve seconds, and no fiddling with the volume control. There are many commands I have yet to try including the SUPERZAP commands.

There is a book called "TRS 80 Disk and other Mysteries" which is practically all about recovering lost data from disks. I think one could spend a lifetime learning how to retrieve lost disk files, but what the book does not say, is how they could have become lost in the first place. I would be glad to learn from other members, the things I should not do. Or is it the System plays up at times?

Well, I have to ask myself was it worth it and the answer must be a definite YES. The speed and accuracy is great, added to which the greater number of commands in BASIC are very useful. I have enough to learn to keep me busy for the rest of my life. There is just one snag. I have spent all my time so far learning to drive the thing and have yet to write a program with it!!!

Laurie King.

PLUS BASIC

The one thing that anyone who does any programming in basic knows, is that you cannot have too many tools to help you become faster and more proficient in your skills. Unfortunately, some utilities are clumsy to load and use but one of the inportant features of this one by Nigel Dibben, is its ease of application. You merely load and initiate it - and then forget it. In fact, it is exactly as if the new commands which it contains had been added to the Level II ROMs. Just as you enter a command in Basic When you require some task accomplished, so you do with PLUS/BASIC. Just as important is the fact that it is fully compati[illegible] with all of the Basics - Level II & III and Disk Basic ! The pro[illegible] is written in machine code and nests out of the way at the top of ram. It containes seven powerful new commands, which are all proceded by the word NAME.

It will have three versions on tape or disk dependant on what you order, suitable for 16K 32K or 48K machines. Memory reservations are as follows :-

16K	31387
32K	47771
48K	64155

Hence if you trade up in memory it is not necessary to either relocate or get a new program.

Loading from tape is under the normal SYSTEM command. On the first * type in PLUSnn, where nn is the memory size program. On the second * type a /. Thereafter you will receive a READY prompt and the program is available to you.

For DISC

Whilst in DOS type LOAD PLUSnnK/OBJ where nn is the amount of memory you have

All of the commands in this program are preceded by the word NAME. The commands and their functions are :-

NAME CLOSE

When this is typed any BASIC program resident in RAM is closed off - a block is put at the end of it. You are then free to input a new program from the keyboard, tape, disc or to carry out any other commands, just as if the previous program did not exist.

NAME OPEN

This command removes the block inserted under the previous command and the program lines added whilst the block was present will be automatically appended. It is of course necessary to ensure that any new lines have line numbers larger than the old program. To merge lines, i.e. those not higher than the previous program, you can use the next command.

NAME LINE aa-bb

This command takes line aa and renumbers it to bb and thus merges it into the resident program. Line aa is unaffected and if not required must be deleted

NAME LOF and LOC

These functions allow you to search any Basic program for literally anything. LOF searches for the Line Of First occurrence and LOC does similar by Continuing the search from the current line position in the program. All you do is put whatever you need to search for in line 0 of the program, and entering LINE LOF will then display the first line in which whatever you entered in line 0 occurs. The search key can be a number, word or command.

e.g. search for Weekly Payroll enter 0 "Weekly Payroll" followed by the command.

After the line has been displayed you have three options :-

1, Press any key will move you to the next line of occurrence
2, Press ENTER will put you into Edit mode
3, Press BREAK will discontinue the search

NAME TRON and NAME TROFF

These commands are principally for debugging. When NAME TRON is activated the program will pause every time a > is printed. Used in conjunction with the bsic TRON command it overcomes the problem of not stopping by pausing. It also allows the application of additional breakpoints purely by typing Line nn PRINT ">" for when the program hits that line it will pause and give you control. NAME TROFF disables the original command.

NAME SET

This function and those following are related to the entry of Basic words purely by a SHIFT KEY entry. This command employs the Shift Key entry mode.

NAME RESET

This command disables the Shift Key entry mode.

NAME LIST

This command displays all of the commands togethe with their Shift Key.

NAME LETTER

When you type the word NAME followed by any letter the program wiil respond by displaying the letter typed together with = and the cursor. You may then type in the string or command that you wish the letter to represent. The placing of an up-arrow at the end of the entry will force a carriage return when the entry is used.

Swindon TRS-80 Club

COMPUTER AT A BARBEQUE

By Rod Bullard

This is a narrative of a recent experience which brought home to me the incredible mystique with which the general public give to the computer, & yet are very quick to respond to the opportunity

Every year my daughter's school has a barbeque & fete in order to raise funds for charity. As a dutiful parent I have attended every year & like most of the male visitors have generally experienced a degree of boredom, for everything was either on the standard fete attractions or predominantly centred on the likes of schoolgirls.

Last December it came to me, what was needed was a new attraction, especially one for the young boys, & what better than the microcomputer. At a committee meeting the concept was accepted most enthusiastically, & after discussions it was resolved that a game of the SPACE INVADERS ilk would be appropriate - I had begun to notice a more than casual interest by the committee on the mystical world surround the computer.

On July 11th the big day had arsived. A visit to the school in the morning was necessary, in essence to identify the facilities & requirements. The tent was ideal, being of the continental style, allowing very good access for players, viewers, & myself & daughter,- & all this with perfect cover from the weather. So ideal were the facilities & location of the tent, that soon the table & chairs were suitably situaued & the over-riding problem of protecting the electricity supply cable from accidental tripping by passers duly solved. Wandering anonymously around the grounds I again experienced the computer fever as it was a major topic of conversation with many peopme expressing an air of hallowed expectancy. Finally all was set pending the delivery of the all important equipment in time for the opening at 7.30 p.m.

The time 6.30 p.m. & it seemed hours transporting all the various pieces of equipment from the car, & the mass of cables at the back of the table. However a crowd had arrived, & I thought that an early switch on, would work wonders.

Snag 1. We couldn't open the school window to plug in the electricity supply. A quick re-route & in through another.

Snag 2. Cassette loading, what an eternity! The crowd was getting thinner, but some intelligent person was heard to say -"It's working, see it flashing on & off in the corner." At last loaded - nobody about.

We sat for about 15 minutes, awaiting the general opening of the fete, & the arrival of the people -always 15 to 30 minutes after the official start. In the end my daughter played the first game, the reward was that the noise & flashing lights had gained attention.

The first few games were hard work for all concerned - explaining the controls & objectives to the player, & he in turn achieving an acceptabme score. The average score was about 3000, until a self declared expert came & scored over 7000. Remarkably this score remained for a long period in spite of a good queue of players, not forgetting an enormous number of viewers -the crowd was large & included many parents. Some parents were enticed to indulge, but all died of embarrassment in failing to reach a respectable score, & quietly slid back into the shadows of the crowd.

Within the hour I noticed that two boys in particular were becoming addicted & were no longer afraid of the 'computer', for they managed to move their scores from 400 to 6000, until at last one took uhe record - 7130. From this moment on they both became entirely different people. Their faces & eyes became the perfect example of total concentration, & the co-ordination of their fingers in deftly moving the base & firing was superb. Quickly the score moved to 11000, & their names figured in all 10 places. So much at ease were the boys that they even assumed MY role of instructing any new players.

One boy suddenly scored 13080 only to find on the very next go the other boy scored 13630. The first boy then on his next go scored 23130 & promptly celebrated this unbeatable score. (Grown ups were definitely not having a game.) On his next go however he achieved 23660 at was so confident that he departed from the arena.The other boy then indulged in several consecutive goes only to find a dramatic loss of form, only reaching very pitiful scores. At last the skill returned & after some good scores manaaged 27020. Not wishing to lose a perfect sales pitch I sent a messengar to the other boy informing him of his 2nd place. True to form he returned bu[illegible] to no avail, neither boy could improve on their best score.

These high scores had rendered the prize competition over, & play although continuous, was never subject to queueing. The boys were obviously spent out & were waiting for their prizes, when just before I could declare the game over, a lone girl arrived. Sitting at the controls, with the boys watching, she commenced the game. Shrieks of horror, hands of the keyboard in terror as the invaders attackee. To the boys' amazement they looked at a rapidly increasing score in spite of such uncontrolled playing. Fortunately to the boys' relief the game was over, but only after she had achieved the 7th highest score & was the only other name on the scoreboard.

Upon switching off & awarding the prizes I loaded other games, which were open to everybody for free. The crowd & the parents soon re-appeared. The parents still did not play but had begun to ask searching questions about computers & the games so demonstrated (one parent stated that I was plugged into PRESTEL - & it was very hard for me to clarify for her that I was not). From across the tent I heard several questions being directed to my daughter & was amazed to hear answers including "floppy discs" - something I know very little about. However I am assured that the general level of enquiry was that of what the equipment consists of, & how I had acquired it. This session confirmed to me that there is a tremendous interest in this micro-wonder which fully blossoms in a totally informal atmosphere.

However I shall always remember with great satisfaction the first hand experience of seeing the immense concentration, the quickness of learning, & the removal of a certain amount of mysterious prejudice against the computer by the players & viewers alike, & this was brought about by my wishing to upgrade the fete amenities. I look forward to next year.

Rod Bullard
Swindon TRS-80 Club

LINE COMPARE PROGRAM

I have found the Line Compare program,provided with TRS DOS, quite useful from time to time when checking on the state of various copies of a program but it is considerably less valuable than it might be because of its inability to deal with the state of affairs where an extra line has been added to a program.

I enclose a print of a revised version which can cope with this state of affairs by printing out all lines which do not occur in both programs. It also prints out lines which differ and it labels all the lines to show which program they are in.

```
10 CLEAR1000:DEFINTA-Z:CLS:PRINTTAB(15)"## LINE COMPARE PROGRAM ##":PRINT
20 LINEINPUT") FILESPEC1: ";F1$
30 LINEINPUT") FILESPEC2: ";F2$
40 LPRINTCHR$(14);"A=  ";F1$;"      B=  ";F2$;CHR$(20);CHR$(15):LPRINT
50 ONERRORGOTO170:OPEN"I",1,F1$:OPEN"I",2,F2$
60 IFEOF(1)ANDEOF(2)THENPRINT@320,CHR$(31)"END OF FILE ENCOUNTERED ON BOTH
   FILES!":PRINT:CLOSE:END
70 IFEOF(1)THENPRINT@320,CHR$(31)"EOF ON "F1$" ONLY!":CLOSE:END
80 IFEOF(2)THENPRINT@320,CHR$(31)"EOF ON "F2$" ONLY!":CLOSE:END
90 LINEINPUT£1,A$:LINEINPUT£2,B$:PRINT@320,CHR$(31);A$:PRINT@704,B$
100 IFVAL(A$)<>VAL(B$)THENIFVAL(A$)>VAL(B$)THENPRINT@320,CHR$(31);A$:PRINT@704,B$:
   GOSUB130:LPRINT:LINEINPUT£2,B$:GOTO100:ELSEPRINT@320,CHR$(31);A$:PRINT@704,B$:
   GOSUB150:LINEINPUT£1,A$:GOTO100
110 IFA$<>B$THENPRINT:GOSUB150:GOSUB130:LPRINT
120 GOTO60
130 IFLEN(B$)<10[illegible]LPRINT"B "B$:ELSEB1$=LEFT$(B$,100):LPRINT"B "B1$:
   B1$=RIGHT$([illegible](B$)-100):LPRINT"   "B1$
```

```
140 RETURN
150 IFLEN(A$)<100THENLPRINT"A "A$:ELSEA1$=LEFT$(A$,100):LPRINT"A "A1$:
    A1$=RIGHT$(A$,LEN(A$)-100):LPRINT"  "A1$
160 RETURN
170 PRINT:PRINT"DOS ERROR: ";CMD"E"
180 CLOSE:ONERRORGOTO0:END
```

NOTE:- The character -^- denotes an imbedded line feed

M.C. Matthews

PLOTTER-PRINTER

I can't understand why the introduction of Tandy's new Plotter-printer has been so quiet. It is quite incredible and unlike anything else on the market. Unlike any other printer I've come across, this printer uses a ball-point pen to print rather than dot-matrix or golf balls or whatever. This does mean that as printers go, it is pretty slow (10 cps) and it doesn't even support lower case, but as you will see this machine is well worth every penny of the &650.00 it costs ! The reason for this is it's versatility. As a plotter it is quite remarkable. It has many built in functions which are accessed by simple but powerful commands to the printer. These commands are available when the printer is in "plotter mode" - the switch being LPRINT CHR$(2) and the function and coordinate information found in the following LPRINT text is intepreted by it's own internal ROM. These commands not only move the pen but also have circle, arc, triangle, rectangle and dotted line functions. Curving lines are perfect - ragged edges and joins being very difficult to detect. The resolution being what it is, on the first day of buying my machine I was able to invent a lower case set of characters using the plot routines, enabling me to use it with my text processing program. It also allows 4 sizes and rotation of the characters - excellent features for naming graph axses etc. The machine seems primarily designed for the education market but I'm sure most TRS-80 users could find plenty of uses for it.

The Newsletter is much appreciated, keep up the good work,

yours etc

Andrew Pritchard

AUTOSTART WHEN LOADING FROM SYSTEM COMMAND

The following text is in answer to your question about getting a machine language program to AUTOSTART when loading from the SYSTEM command.

I have tried to lay the instructions out in a step by step method :-

1. Make sure that you have a fully finished and debugged machine language program.
2. Insert at the beggining of your source file the following 2 lines.

```
00010  ORG 41E2H
00020  JP  START
```

3. Make sure that the JP instruction in line 20 actually jumps to the Entry point in your own program.
4. Assemble the program as normal.
5. When loaded, the program will execute automatically with needing the / to be typed in from the keyboard.

How it works.

At certain strategic points inside Level II basic, are Jumps to knowhere called "DOS Exits" because they were designed for the DOS to use if it needed them. Most DOS exits are used, such as the 41C1H I/O dos exit, But some are not!

Normally when there is an untouched DOS exit, There will be a C9H or RET byte sitting comfortably inside, But if we were to put a Jump inside there branching to another address, then when the DOS exit was casually called from inside the ROM, our program would execute instead.

The bottom line is just that the DOS exit at 41E2H is called just before the *? is printed in the SYSTEM command.

At the moment I am busy patching all the popular Arcade type games to run with the new Atari joystick. If anyone has a game that they would like patched then I would be happy to do it for them!

Goodludk to Peter Drew and happy Autostarting,

Jeremy E San
(01-959-0114)

* * * FLOPPY TAPE CORNER * * *

Here we go again (at last!!), after a couple of months of absence I am back with a new utility and the news that Bob has finally deserted the ranks of the F-Tapers.

A listing of Autofile follows. This program allows you to àLIST, àRUN or àLOAD a program with a single keystroke (or three if there are more than 10 files on the tape). It runs quite well in its present BASIC form but if some kind soul could re-write it in machine code and locate it in the CMD area it would be a great deal more useful. So all you MC fanatics have got a new project, just one request, when you have done it please publish the source code in the newslet( ).

```
1 'BY ADRIAN C. HANCOCK,11/7/81    -20-
2 'DIRECTORY PEEK ROUTINE DEVELOPED BY ANTHONY ROBSON AND BOB JAMES
3 CLEAR1000
4 ON ERROR GOTO 41
5 CLS
6 DIMZ$(32,3)
7 PRINT"     xxx ACULAB FLOPPY TAPE AUTO FILE SELECTOR UTILITY xxx"
8 T=128
9 O=1
10 P=17408+((O-1)*16) : IF PEEK(P+15)=0 THEN 14
11 IF PEEK(P)<65 OR PEEK(P)>122 THEN PRINT : GOTO 16
12 C=C+1 : FOR N=PTOP+10 : Z$(C,0)=Z$(C,0)+CHR$(PEEK(N)) : NEXTN
13 Z$(C,1)=STR$(C) : Z$(C,2)=LEFT$(Z$(C,0),8) : Z$(C,0)=RIGHT$(Z$(C,0),3) : Z$(
,3)=Z$(C,2)+"/"+Z$(C,0) : PRINTàT,Z$(C,1);") ";Z$(C,3) : T=T+32
14 O=O+1
15 GOTO 10
16 PRINT"SELECT FILENAME BY NUMBER (OR 'L' TO àLIST)"; : IF C>9 THEN GOSUB 30 E
SE GOSUB 28
17 IF D$="L" : àLIST : GOTO 1
18 IF ASC(D$)<48 THEN 16
19 IF ASC(D$)>57 THEN 16
20 FOR C=0 TO 32 : IFVAL(Z$(C,1))=VAL(D$) THEN 22 ELSE NEXT C
21 PRINT"FILE NOT IN DIRECTORY" : GOTO 16
22 GOSUB 31 :GOSUB 36 : PRINT : PRINT"RUN, LOAD OR ABORT ";Z$(C,3);"?":GOSUB2
23 IF D$="A" THEN END
24 IF D$="R" : àRUN Z$(C,3)
25 IF D$<>"L" THEN 27
26 àLOAD Z$(C,3)
27 GOTO 22
28 D$=INKEY$ : IFD$="" THEN 28
29 RETURN
30 PRINT" HIT ENTER WHEN READY"; : INPUT D$ : RETURN
31 IF RIGHT$(Z$(C,2),1)=" " THEN 32 ELSE RETURN
32 Z$(C,2)=LEFT$(Z$(C,2),LEN(Z$(C,2))-1)
33 Z$(C,3)=Z$(C,2)+"/"+Z$(C,0)
34 GOTO 31
35 END
36 IF LEFT$(Z$(C,0),1)=" " THEN 37 ELSE RETURN
37 Z$(C,0)=LEFT$(Z$(C,0),LEN(Z$(C,0))-1)
38 Z$(C,3)=Z$(C,2)+"/"+Z$(C,0)
39 GOTO 36
40 END
41 IFERR/2+1=22 THEN A=PEEK(17396) ELSE A=0
42 IF A=16 THEN PRINT"SECTOR NOT FOUND" : RESUME 16
43 IF A=4 THEN PRINT"CHECKSUM ERROR" : RESUME 16
44 IF A=8 THEN PRINT"PARITY ERROR" : RESUME 16
45 IF A=160 THEN PRINT"INSUFFICIENT MEMORY" : RESUME 16
46 IF A=192 THEN RESUME 21
47 IF A=144 THEN PRINT"LOAD FILE FORMAT ERROR" : RESUME 16
48 IF A=0 THEN PRINT"ERROR ";ERR/2+1;"IN LINE ";ERL : END
```

Thats all for now, have fun with Autofile!

Adrian C. Hancock

xxx FT-MENU SOFTWARE REVIEW xxx

I have just written a new utility for the Aculab Floppy Tape which enables you to store tape directories as random access data files which can be searched in various ways thus eliminating the need for the grubby little note books which we tend to use at present. As most F-Tapers are adopting card index boxes for tape storage this program will output data to a printer in a format which will fit these boxes thus providing instant reference cards.

The options available are:

UPDATE: This is used to store the directory on the data tape and to update it when files are added to or deleted from a tape. The program asks for a tape to be inserted and for a reference No. to be entered, this will be the reference for the tape in all subsequent operations. The tape is then àLISTed and the data put into the buffer. The user is then prompted to insert the data tape which has previously been set up using the àSET routine. The data is then stored on the data tape.

SEARCH ROUTINES: There are three different search routines avaliable: Specific Directory Search allows an individual directory to be displayed on the screen called up by No., this is the fastest search as it uses true random access. Specific Filename Search searches for a filename amongst the data on the data tape. This and the next routine are a little slower than the previous one as they use pseudo sequential access. The third search routine is Incomplete Filename search this searches for all occurrences of a part of a filename of any length from a single letter to a full name, this is very useful when you can't remember which extension you have used. This is similar to the previous routine except that it is a little slower in that it has to search through all the data on the data tape for all occurrences of the part filename rather than jumping out when the specific filename has been found. The Incomplete Filename Search can also be used to list all programs on file by entering "/" as the part filename, all entries contain a "/" and hence they are listed.

PRINTER ROUTINES: There are two printer routines, the second outputs all directories to to printer and is used to give a complete set of filing cards when initialising the program. The first routine outputs a specific directory to the printer and is used to produce a new filing card after UPDATE has been used.

The program runs in 16K under XBAS and stores one directory to a sector with a maximum of 21 entries to a directory, however I know of very few people who cram more than 21 files to a tape and this should not be much of a problem.

The program is available on cassette (to avoid F-Tape speed problems) at £2.50 (£2.00 if you send your own cassette) from:

A.C.Hancock,
97,Buckingham Rd,
Bletchley,
Milton Keynes,
MK3 5HP.

USING CONTROL CODES WITH CASSETTE SCRIPSIT

To answer Derek Trayler's plea for help in the August newsletter I have produced the following mods.
I have tried it on my machine and it appears to work but it has not been fully tested. If any problems arise, let me know.

You will need a monitor which loads above 7000H and is capable of producing system tapes. The mods. apply to the lower case version of the cassette based SCRIPSIT.

1. Load but do not enter SCRIPSIT via SYSTEM
2. Load and enter the monitor
3. Change bytes 66E1 from 2C to C6
   66E2 65 to 69
4. Enter the following extra code,

```
69C6  FE 50 C2 2C 65 13 1A FE 3D 20 F7 13 1A 4F 3E 1B
69D6  CD DF 69 79 CD DF 69 13 C9 F5 3A E8 37 CB 7F 20
69E6  F9 F1 32 E8 37 C9
```

5. Save as a SYSTEM tape the block 4300H to 69EBH.

This revised version of SCRIPSIT will now output printer control codes as printer format.

The format is PP=x where x is any single ASCII character which may be output to the printer after the escape character (1B).

Do note that all characters output will be preceded by 1B.

```
Example -
 >PP=J                    Will output the character stream,
Single                    1B 4A 'Single'
 >PP=@                    1B 40 'Double'
Double                    1B 4A 'Single'
 >PP=J
Single
```

On my Base 2 printer the character 4A resets the system and 40 produces elongated characters. The result would be to elongate the word 'Double'.

Andrew Donald

FOR SALE

Aculab Floppy Tape - Offers please.

Wanted - Disk drive(s).

Roger Bampkin,
19 Wood Street,
Eastville,
Bristol



TRS-80 EDUCATIONAL USERS

GROWTH CONTINUES

The Educational Users Group continues to grow. Over 70 people have now made contact with us, one of our members does have 10 Model Ones in a network, and a directory listing interests will shortly be compiled. All contacts will shortly receive a pro-forma - do complete so that the expertise that the group has can be shared.

However, when one considers that Educational Computing established that there are over 1000 known schools with TRS-80, we are only scratching the surface. In one LEA in the Midlands every Primary School has a machine but we only have contact with 3 of them!

Do pass on the message about the Users Group. It could benefit you and those who have yet to hear about it.

Remember too, that you don't have to work in Education to be an educational user. Plenty of users use the machines at home with their children.

CONTRIBUTIONS WANTED

It is great in this second edition of the newsletter to have contributions from others. Keep them coming, tell us what you are doing and your successes and problems.

Contributions that follow are from:

Chris Butlin of Dunstable

Peter Dowdle of Runcorn

Allen Kaye of Solihull

Chris raises some disturbing points in his letter about the School Council "Curriculum in Schools" project and their Physics programs.

ALL MEMBERS OF TRS-80 EDUCATIONAL GROUP SHOULD SUPPORT A CAMPAIGN ALONG THESE LINES.

SOFTWARE LIBRARY

We always knew that there was lots of software around that people were willing to share. It is coming in still. Do keep it that way. Some people have been particularly generous in their contributions to the library.

Peter Green from Bristol has contributed over 40 programs. His demonstration tape for P.T.A. functions could be useful for convincing parents for a second or third TRS-80!

John Deft from Hartlepool has also contributed a course he uses in Computer appreciation which has lots of potential. In addition, he has sent a dozen other programs including a Lemonade Shop simulation.

Jerry Weintraub of El Cajon in the U.S.A. has sent us 7 programs.I especially like his addition of fractions drill.

Phil Quatermain of Crawley has contributed some fine American educational games including Perquakey and Saucer Shoot Percentage which he typed in from Creative Computing.

Tom Drake has sent us a great Australian Tables program from MICRO-80. It's got an Android that tells you when you are right!

Do please send a blank cassette for your program dumps, with at least 25 pence so I can return it. If you are contributing programs to the library, it's great when you give us the tape, it saves our own expenses!

We hope to produce a library list before the end of September. If you want one 50 pence to cover cost of printing would be appreciated

A PLEA FOR HELP - IMAGINATIVE PROGRAMS FOR ENGLISH

Daniel Chandler of Milton Keynes is writing a paper for a book on Teaching English to schools, and he intends to recommend imaginative programs suitable for mixed-ability groups in the English classroom. He has used Scott Adams Adventure Series, and is certainly <u>not</u> interested in "programmed instruction" packages. If you know of and use simulation games, imaginative language games, drop Daniel a line at

8 Burnet
Stantonbury 2
Milton Keynes
Bucks MK14 6AD

LONGMAN'S MICRO SOFTWARE

For some months now Longmans have been marketing educational software. Some important programs are being marketed by them, including

- the Warwick Science Simulation with Biology and Physic packs

- ITMA Project material with Jane Plus and Pirates units

I've seen Jane Plus and the program, it's functions and documentation are of the highest quality. It covers suitable material across the Middle and High School range. It's also extremely reasonably priced at £9.50. BUT Longman's, in their wisdom, are ignoring the TRS-80. Versions are only available for PET and RM380-Z with versions for the APPLE under consideration. Members are being denied some of the best software available by this decision. Why not write and tell Duncan Beal at Longman Group Resources Unit, Tanner Row, York, YO1 1JP. Tell us what he has to say about a TANDY version!!

EDUCATIONAL SOFTWARE FOR SALE!

Another little educational software house has started up.

BRYANTS EDUCATIONAL SOFTWARE

It's run by Bryan Etherington of

1 The Hollies
Chalcroft Lane
North Bersted
BOGNOR REGIS

Bryan's marketing a number of programs which should be of interest to Educational Users.

CLAWS - is a graphical arithmetic program which offers practise in addition, subtraction and multiplication with the users being able to set the perameters. A problem is set and you have to answer it before the CLAW travels across the screen and threatens to wipe out the question.

ONGUARD - is a game set around decimal and vulgar fractions. After some introduction the game is played with a burglar entering onto the screen and threatening to steal the treasure boxes which contain the questions. The burglar does move up the screen and robs you if you are wrong. (Bryan is at present working on an update of this program with 8 options including percentage work).

MASTERCAB - is a game like Mastermind but you enter your own words and then have to work out which one the computer has chosen. The set of words is listed at the top of the screen and the game has been designed to promote better spelling and logic. The usua black and white clueing and scoring system is used. These 3 games are sold for £7 and are well worth the money

Bryan is working on two more projects -

DATA-QUIZ and ROYAL WEDDING

more details next month'

The Cambridgeshire Software House have recently joined the scene offering some educational programs for TRS-80. Their most interesting offering is

ISLAND ADVENTURE

which is not a Scott Adams game! The aim of the program is to help children in groups to appreciate and discuss problems on a Desert Island Given the opportunity to take items with them, the children are placed in a variety of situations. When I actually get the program I'll describe more details.

They produce an excellent catalogue which is available from:

B Richardson
6 Station Road
St Ives
Huntingdon
Cambridgeshire.

Gail Dowdle of Frodsham has written a whole batch of software for schools. She will also write programs to your specification. A recent production is a great game/CAL package on Angles called LUNAR ANGLES. Also just out is

FIZZ BUZZ

and

WHAT'S THE TEMPERATURE

more details in the next newsletter.

PROGRAM CONVERSION

Thanks to Brian Tongue of Tenbury Wells and his son Gareth, the conversion of a super new educational program called

MATHS DECATHLON

is under way. The program originally published in softside for Apple consists of 7 mathematics games:

FIND THE MISSING NUMBER
GUESS A NUMBER
SPEED MATHS
STARRY STARRY NIGHT
LOWEST COMMON DENOMINATOR
MAGIC SQUARES
CLOCK MATHS

The first two events are done! Five more to do.

Tom Drake of Ickenham has recently completed two useful probability simulations that should be useful for work in Upper Junior Classes or High Schools.

DICE THROW and COIN TOSS

Two more conversions of the NEWCOPS software for RM380-Z have been done and we have to thank Steve Moss of Streetly for DIAGRAM which has lots of possibilities for Compass Work, and a school in Coventry for GRIDREF.

STOCKPORT TEACHERS USERS GROUP

In early July a Stockport TRS-80 Teachers' Users Group was formed. The main purpose of the group is to exchange software and ideas. Steve Lucas at Cheadle Hulme High School is organizing.

They are intending to establish a library and set about writing programs in areas of need. The group's second meeting is on 15 September at Stockport Teachers Centre.

READING A RESEARCH MACHINES 380-Z DISC ON A TRS-80

I have been very keen in recent months to see the transfer of various items of Educational Software from one make of machine to another.

It seemed to be a great waste of time to have to type in long programs that had been converted.

Peter Chapman of Bridgend seems to have hit on the answer!

He has written a program that will read a basic program from a 380-Z disc into a TRS-80 Level 2 machine and convert it into a TRS-80 Basic Program using the TRS-80 internal codes. It is then possible using the excellent editing of the TRS-80 to correct the so-called syntax errors, and to rearrange the display on the video. The latter is essential because of the differently shaped video displays. Of course serious problems will be encountered when graphics are included but these could be

entirely rewritten.

The program is up and running and in the first few conversions, seems to work well. Thorough tests are under way. Peter Chapman is confident the concept will work

READER

A recent donation to the Users Group Library by Alun Evans of Swansea is READER. a wonderful program that is based on the Spache Readability Formula The program saves a lot of work and time for the teacher who wishes to estimate the reading skill a child needs to have in order to read a given book.

Alun has put together a pack on the reasons for using the program and some of the limitation too. He has also produced a list of over150 books he has already produced a Readability Score for.

I'll be glad to send a photo-copy of the pack to anyone interested if they cover the cost of photo-copies

EXPERTS

Dr Locke of the Kings School, Gloucester, has written briefly about some of the exciting work he is doing at Kings. I hope he will write for use on line, real time control of experiments in a later edition.

Andy Wood would like to get in touch with other structural engineers who are using the TRS-80 in connection with their work. Andy can be contacted on (021) 777 2901.

FLOPPY TAPE FOR SALE

Aculab Floppy Tape master and slave drives, supply of tapes, bus extender, EXBAS, PENCIL etc. £300 o.n.o the lot.

John Carne
Tel. 01-993 1462

A Disturbing Note - Schools Council Withdraws "Support" for TRS-80 by Chris Butlin

About a year ago I inquired of the Schools Council Project "Computers in the Curriculum" when, and if, their Physics programs and the Chelsea Science Simulations would be available for TRS-80. This was confirmed in the form of "available shortly", a comment also seen on the published support materials from Edward Arnold. In the March 1981 issue of CALNEWS (issue 16) Mr. J.M. Harrison of Schools Council informs us that the Council's project "Computers in the Curriculum" received a grant of £144,500 from MEP. He comments that "..... the major part of the grant from the MEP will be put towards revision of the project's existing software, to make it compatible with most of the popular microcomputers such as the Apple, Pet and TRS-80 systems .. ..".

However, on purchasing the support materials for the above mentioned software on this year's budget, I 'phoned the project headquarters for details of when "available shortly" would be. The answer was never! I wrote for confirmation of this and now have it in writing. So now many schools have hardware and support materials not backed up by promised software from Schools Council.

They did provide some excuses, ones which I cannot see the justification of at such a late date following marketing of the TRS-80 All the problems they mention should have been well known to them. I hope that the many TRS-80 and Video Genie users will now set up correspondence with Edward Arnold and the Schools Council. They should keep faith with their published comments, otherwise none of their information is worth trusting. I wonder what they will change their minds on next.

SOFTWARE REVIEW "AUTO-GRAPHICS '81" by Chris Butlin

Buttercraft Software,
14 Western Avenue.
Riddlesden,
Keighley,
Yorkshire BD20 5DJ.

This is certainly a time saver for the inexperienced user. It enables you to construct images on the screen using graphics blocks, keyboard letters or symbols, but not numbers, directly from the keyboard Each picture, or part of the picture if it is large. is saved as a string and then used directly in your own program.

Movement around the screen is achieved with the number keys, hence their non-use within the picture. However, if numbers are needed they can of course be added easily with "print" statements

Teachers will find it a boon for adding diagrams to their

programs or for animation. Moving gas syringes, delivery burettes, changing graphs and the like are quickly organised. The animation is achieved by displaying successive strings or, for movement up/down or left/right, by a "copy-up/copy across" function This allows direct copying of a previous diagram displaced by one or more pixels.

The program takes up around 7K of level 11 while assembling your images, but you then delete all bar your retained image strings. Thus the memory needs depend on the number and size of your pictures. Marvellous value at £3.50 inclusive of notes on use

BOOK REVIEW by Chris Butlin

Circuit design Programs for the TRS-80
Howard M. Berlin
Howard W Sams & Co. Inc.

I would not want everyone put off by the title, the most useful programs have nothing directly to do with circuit design!

It commences with a series of programs for VDU which allows the plotting of histograms, cartesian plots of discrete data points or of continuous functions, semi-logarithmic plots of discrete data points and continuous functions. log-log plots and polar plots. Each one takes up very little store - maximum is 3.4K, minimum is 1.6K

They display the axes with scales, the plots and a chosen title. The scales for the graphs are chosen following display of the maximum and minimum X-axis and Y-axis values. The scales are indefinitely changeable after initial display thus allowing children to see the sensible selection of a scale.

A series of line printer versions are also given.

The rest of the book details programs for analysing signals, statistical analysis, attenuator pad design, filter design, 555 timer design. amplifier design and heat sink design. Few directly useful in my job as a science teacher. However, it does include an excellent Tee to Pi (and vice versa) program which calculates and displays the equivalent resistive networks - useful in the Nuffield Advanced Physics Unit 2 on puzzle boxes. There is also a program for finding the solution of simultaneous linear equations - very handy for dealing with Kirchoff's Law problems.

Cost £8.40.

A C.A.L. session for local schools organized by Heath Comprehensive School in Runcorn by
Peter Dowdle.

During recent visits from our Primary intake schools, the staff and pupils from each school spent the last quarter of the day investigating computer studies and looking at our Tandy computers The children showed considerable enthusiasm and knowledge, but many of the staff confessed that they knew little about computing and were not aware of the computers potential for them

With this in mind, it was decided to put on a short course at the end of term on "Computer Assisted Learning", with special emphasis on "Uses across the Curriculum". The response was quite good, and twenty two people visited our school for the afternoon, including seven headteachers from primary schools.

The theme of the course was to enable the teachers to see examples of programs suitable for primary school children, in as many subject areas as possible. Thirty five educational programs were selected. These covered English, Mathematics, Geography, History, French, Science, Music and Art. All the software had been written by my wife, who is a computer professional. With this in mind, she was also invited to attend, so that expert advice would be on hand, and also she was interested in people's opinions of her work.

We managed to set up five 16K Level II TRS-80's in a laboratory, and after a short introduction by myself, we allowed people to use the programs informally, and invited them to write down any comments or criticisms. We also asked for ideas for programs which they might have.

The initial difficulty was that of ensuring five programs were always loaded on cassette based systems. This was soon overcome and an interesting and helpful afternoon was had by all, with some of our visitors loathe to give up machines once their interest had been aroused. We had some computing material available, including "Educational Computing", "Microscope" by Newman College, Birmingham, and copies of "Computer Assisted Teaching" by Philip Crookall, a Cheshire County Adviser.

There seems to be no reason, providing suitable software is available, why other schools in the secondary age range, could, and should not provide a similar service for the primary schools in their area.

The setting up of such a course is not easy and perhaps I should mention some of the pitfalls which one should try to avoid.

Firstly, I feel we attempted too much in a short session. Some of the people involved knew nothing of the computer whatsoever, and even less about it's possible uses in the classroom. Someone even expressed doubt as to it's use at all, which seems to be a little shortsighted. It is therefore suggested that an introduction session would be needed just to explain the set up of a small system and how it works.

Secondly, although I always had three other members of staff available, they needed more briefing on the programs being shown in order to answer questions and queries. This obviously takes time which may not of course be available.

Thirdly, we felt that the use of pupils in the program demonstration might have been useful, as comments were made that some programs appeared a bit trivial, even though all had been tried and tested in schools. They were thinking on their own level and not at the childrens.

Finally, some seemed prepared to make criticisms, but not to write them down, which would have been helpful, neither were they prepared to follow instructions within program documentation.

One thing was blatantly obvious, that primary teachers are very interested in computing, and are looking for help. Supply does not appear to be meeting demand, despite many courses being put on by our local authority.

Use of the TRS-80 Micro Movie Program at Bartley Green School, Birmingham, by
Allen Kaye.

The use of 8 mm film loops is widespread in schools. They have been shown to be an easily organised enrichment to the teaching situation especially suitable for topics which involve the use of apparatus not normally found in schools and for animated descriptions of processes that are difficult or impossible to see or describe easily.

There are however two main drawbacks to their use. Firstly the cost per lesson of individual loops and secondly the difficulty of finding a loop which covers the subject need at the right level.

The TRS-80 micro-movie, although not a complete solution, can provide a cheap (about £6) and adaptable alternative to at least the second type of loop as described above. Basically it enables a series of individual frames to be 'drawn' quickly using key letters, labelled and saved. When run the frames are displayed sequentially, giving the illusion of movement. There are a number of useful refinements including pauses, repeats, speed changes and an edit facility. The latter has to be used with some care because the system remembers on a 'net change' principle, after the first frame only changes are recorded; this can be irritating when editing but has the advantage of reducing the memory needed and thus making longer sequences possible. As with all good programming, it is better to design first on paper. At least a 16K machine is needed. The basic program uses about 4K and the remaining 12 can be used to develop a useful 5 - 10 minute loop

There are a number of minor drawbacks to the system. A normal sized monitor is far too small to be used and an organised circle of pupils round a normal TV set is essential. Also, unlike film loops, it requires time to load both basic program and stored movie (up to 10 minutes). Finally it cannot hope to compete with the real life of films, although in some senses this could be seen as advantageous because the simplified and sty ised diagrams reinforce those seen in textbooks and drawn by pupils in their notebooks.

Suitable topics within my subject area (Physics) that I have found lend themselves to this technique are:

Electrostatics (induction was never easier)

Kinetic Theory concepts

Action of various instruments e.g. the Wilson Cloud Chamber or the Geiger counter (secondary ionisation can be fun to watch)

The most frequently heard negative comment concerning the use of micros in schools is that they can only be used effectively with very small groups; this is an example of how one can be used albeit non-interactively as a versatile visual aid suitable for normal sized class groups in a traditionalteaching situation.

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
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Skelton,
York, YO3 6YR

Meetings - Mondays (Holgate
WMC,New Lane, Acomb, York)

NORTH EAST LONDON '80' USERS GROUP,
P.O.BOX 71,
Chingford,
London E4 7QX.

Contact Alan Greenhalgh

01 524 2765 or 01 520 0218

CHELMSFORD
Meetings generally at :-
38 Britten Crescent,
Great Baddow,
Chelmsford.

Contact Mr R. Hamlett,
Pine Lodge
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Loughton,Essex

ROCHDALE

Melvyn Palmer,
28 Rooley Moor Road,
Rochdale,Lancs.
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****
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80-US £3.00 or £9.00 for 6 months
ring for past index's
****

CONTACT

Do make contact with the Users Group for help and advice.

Let us know what you are doing out there.

Write or ring

Dave Futcher or Les McLean
at
Beaconsfield First and Middle School,
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01-574-3506

****
MKSS of MILTON KEYNES
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MILTON KEYNES.

DOES YOUR TRS-80 TALK TO YOU?
FOR LOW COST SPEECH SYNTHESISER
RING THE ABOVE
****

Manchester Sub-Group
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Contact: Francis Glenister
13 Pridmouth Road
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Phone: (061) - 445 - 7191

Fareham (Hants) Sub-Group
==========
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203 West Street
Fareham,Hants
Phone: Fareham 289114

Meetings

****
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STONY STRATFORD,
MILTON KEYNES.

FOR SORTING/SEARCHING IN ASSEMBLER
BUT USING BASIC
UP TO 15 fields/DATA or FILES

RING THE ABOVE for further details
****

Southampton Sub-Group
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Group Meetings

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Notes on Workshops at Bolton,Blandford Forum,London,PCW Show.

BOLTON

The disapointing feature was the lack of numbers and the distance between the lectures and systems. The main point for me was the emergence of Eric Hartley's expertise on the Video Genie which is always available to members(at the moment !)
Eric showed the LNW board working on the VG and I am sure this will be of interest to others.

Leon did a long session on Assembler for beginners, which Judging from the reactions helped many of those present. A mention must be made of Steve Hall (VG) who advised me at York that he had worked previously in machine code, and found BASIC a challenge ! Whenever Leon paused for an example to explain a point Steve was on hand to assist- I had advised Leon earlier.
Leon also showed how communications are now just routine by logging on to Hull Forum-80 & the University of Aston,with me filling in with sorting & searching in assembler using INFINITE BASIC

BLANDFORD FORUM

Here a local member Norman Baust went through a package for the newsagency business, which has now been in use for over a year. The TRS-80 sits on the counter giving out receipts, up todate accounts on query, adjusts for ons/offs due to holidays, and generally works 7 to 7 at least six days a week. What is always enjoyable for my part is the interest shown by others, where the programmer answers a wide range of questions some bordering on the incredulous.

Steven Bird very kindly did sessions on assembler for beginners,LDOS main features, and Voice synthesis.
Assembler- here a program was first entered in using EDT/ASM, the deliberate error found, then corrected, then saved first as source and finally as the object code. The program was first run from DOS, followed by DEBUG, then in a very short BASIC program. As a result of this sesion members thanked Steven for helping out on several points and giving them some confidence to try for themselves.
LDOS-here comparisions were made between LDOS and NEWDOS/80 to help members make up there own minds. There was a unknown factor, that being Henry Shepherd having received 2.0 the day before! Nevertheless from the ensuing session it was a very worthwhile idea and several members picked up some ideas from Steven and others around in the room.

The voice synthesis was great fun and a fine way of finishing off the day, with members suggesting alternative ideas for the computer to "say". For anybody interested please give Steven Bird a call and I am sure this add-on should now become a more popular for our systems.

LONDON

The first session was LDOS with Steven Bird reviewing the features he had found so far, with Ric Ingram following with others he had used or considered eg. communications.
Alaistair Caie then showed members some of the applications in his company which are essentially number crunching. For those who would like further ideas or examples of the programs contact Alaistair through my office.

In the afternoon Derrick Rowe very kindly went through various applications in his company using the model one & more extensively model two. Derrick has been involved for quite some time using the TRS in the big company league, and has helped many members with hints on trouble shooting over the past two years. For those model 2 and business users we could do with a business sub-group which maintains a software list, and current project schedule to avoid the wheel being reinvented.

John Newgas did a short session on the floppy tape and I know from comments that the band of floppy tape users welcome this sort of help. John has said he is quite happy to answer queries over the phone, which again shows the depth of the expertise available to members during the day and evening **** SEVEN DAYS A WEEK *******

Finally Leon showed some assembler for beginners, although by titling it "for tyros" some members actually missed it. As a result of doing a similar session at Bolton, Leon found that by restructuring the presentation the feedback from members was better and others confirmed this at the PCW show.

For those of you running the sub-groups please give us a call for some ideas on talks etc, and I am sure the local members can benefit from this pool of expertise. Outside of the workshop one or two members had a look at the "Last One" Documentation. Again, if you would like an opinion just ring us for the member who can help out.

Finally just as we had over 50 come to the London meeting, so over 50 came to the Birmingham Poly on the 19th of September. This confirms that the group will have to concentrate on the main cities when going it alone, or visit the other areas 'piggy back' with other micros.

PCW SHOW
========

This consisted of the group being allowed one table by the ACC, alongside the LEVEL 1 group run by Nick Rushton. The table was manned on Thursday by Clive and Trevor from my office, Friday by Leon and the Saturday by myself with some help from my mother and Nick. The whole idea was quite excellent from the group's standpoint, with over 60 members joining and many others seeing us for the first time. From the above members can see that the stand was manned by different members and that the group's affairs are not resting on one person's shoulders. Many potential purchasers came to the user group stands to establish opinions on the equipment to assist in the decision what to buy, what extras and whether the backup realy exists.
Robin Bradbeer has invited the group to the North London Poly for their FAYRE or is it FAIR, which will include seminars on various micros on the lines of our own workshops. This must be the way that the group runs meetings in the future, piggyback with other micros to share the costs of halls and sundries.

BRISTOL

Again the numbers were disapointing but the facilities were superb with excellent rooms,power points and boards for lecturing notes. Here Leon did a structured session on Assembler for beginners, which was appreciated by several members in the room, again giving them confidence and a chance to ask numerous questions. If Leon could not answer in 5 seconds, then Leo helped from the rear of the room!- which once again reinforces the point some of our best sessions are by two members

Leo Knaggs very kindly went through SUPERZAP and its uses, with DOS detail taking up most of the time. If anybody wants some help on this - please ask Leo - if possible put a recorder on the phone to be played back until the message has sunk in.

John Craig showed those left his progress on VISICALC where the accountants' extended trial balance has been taken and entered into the worksheet. Various figures were then changed to show how VISICALC can handle this situation. For those members using this superb program Laurie Shields has written some code to allow the user to consolidate files from disc either in the same currency or in different currencies which will give the user true gross figures for an enterprise, for a year, quarter or just a month. At the time of writing this facility for VISICALC appears unique.(It was my design and Laurie's code).

Once Leon had borrowed a phone from the hotel, he demonstrated how easy communications can be using a TRS-80, and members may notice that this topic has been shown for over a year using various hotels in the UK - from Glasgow to Bristol !. From a 80-NET viewpoint members are not buying the hardware to enjoy this branch of the equipment, and it appears that the recession and a reluctance to buy add-ons in this price range are the prime causes.

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INNOVATIVE

TRS-80 SOFTWARE

FROM THE PROFESSIONALS



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.

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National TRS-80 Users Group

Newsletter

VOLUME 3 ISSUE 4 OCTOBER 1981

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INFORMATION ON THE GROUP

Membership of the group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from Brian Pain, the group secretary and publisher of the Newsletter. Membership of the group is open to anyone with an interest in the TRS-80 range of microcomputers, and compatible systems such as the Video Genie.

Details of the group accounts and the constitution of the group are obtainable from the secretary.

Members requiring assistance with problems related to the TRS-80 may call the secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Sub-groups exist in many areas. A list is provided at the back of the Newsletter. Sub-groups also exist for medical and educational users.

The group maintains a software library which is free to members. A library list is obtainable from the secretary (price 50p). The medical and educational sub-groups maintain their own libraries.

A membership list is available from the secretary (price 50p).

Please send all contributions for the newsletter to the Editor.

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EDITORIAL

Yet another excellent collection of articles (in my opinion, anyway). Thanks to all who have contributed.

Our membership is now well over 600 and should increase still more as a result of an advertisement that will be appearing soon in PCW.

The workshops arranged by Brian during the summer were extremely successful on the whole. At least, plenty of people turned up at most of them, and they seemed to enjoy themselves.

The TRS-80 Colour will be with us shortly. Can someone send in a review of it as soon as possible, please?

In spite of several requests, we are still not getting any articles for beginners. It might help if members could let me know what sort of articles they would like. I can publish the requests and, hopefully, someone will come up with the goods.

Leon Heller

MEMBERS' LETTERS

I have just received my third newsletter, being a new member (one who joined at the PCW show) and I have noted your editorial comments.

Although much of the content of the newsletter is undeniably way above me, I have at this moment in time every intention of renewing my subscription - if only because I do want to understand all those mysterious articles ! I began playing with my TRS-80 in February, and in June I 'conned' my employer into buying the interface, printer, and two disk drives. I feel that I have had reasonable success in writing two or three business programs, in BASIC, and indeed am performing the intended task of daily analysis of sales invoices against my sales representative's objectives. (but whilst the said analysis, of around 100 invoices per day against 400 customers via 4 reps, and the subsequent printout takes less than an hour compared to six hours manually, I am under the impression that a machine language program would take even less time !). Like most beginners at anything, I would like to run before I can walk and I suppose that I also could say that I would like to see articles for beginners.

However, if I have learnt anything in my few months of computing, it must be that nothing, books, articles, or lectures, can beat actual hands on experience. The times that I have taken my units back to the very tolerant Tandy men, convinced that the cpu or disk was 'duff' - only to find that the problem was down to my ignorance or inexperience (although I'm not completely convinced about the disk I/O errors !).

I have the Howe book, the Barden book, Monitor 4, and EDTASM - but apart from reading a little every night, I just haven't had the time to practise that which I read. I also feel that none of the forementioned really gives the pure beginner a soft introduction into the subject, and therefore feel that the prospects are somewhat daunting. No doubt I shall feel differently in a year's time !

I am drifting from what I intended to say. As a newcomer to both you and the TRS-80, I feel that the main reason for non-retention of new members may well be the layout of your newsletter rather than the lack of relevant guidance for beginners. I have also now received the library catalogue, and in all honesty that also is pretty confusing !

May I be so bold as to make the following suggestions :

The first page of the newsletter appears to be always blank - it is naturally a pre-designed frontispiece added to the actual letter after the index is typed in. Why not have this pre-printed with a "beginners start here" which, apart from a welcoming comment, could state the aims and policies of the association ? Conditions for library use could be included, and if space permits you could follow the example of one of the many monthly magazines and repeat a glossary of terms used. However, I feel that the Newsletter should be seen as supplementary to other magazines and if you feel similarly, then this also could be stated. In talking to various people, the Howe book seems to respected as a 'bible' ; if this is so in your view, why not limit your proposed beginner's articles to an introduction to that work ?

My criticsm of the library catalogue, apart from the confusing layout probably caused by the method of reproduction, is that the opening comments do not make it clear (from the remarks about packaging) whether I can borrow a disk or cassette or whether I send these to have programs recorded onto ! I am writing to Mr. Davies to clarify this point. I think that it is fairly obvious that my entire dis-satisfaction (if that is not too strong a word) emanates because the long-term members of the Group have grown up with your publications and know exactly what is meant and where to find what they want. Newcomers like myself find a slight difficulty in distinguishing between an article and an advertisement !

Now to prove that I am not totally disillusioned, can I purchase back numbers ? (and if so, why isn't that fact mentioned !). And having been so rude, may I now humbly seek your advice ? I have not yet progressed beyond TRSDOS (hence the I/O's ?) and now wish to move forward ( ) am very attracted by the advertisements for DOSPLUS, yet

I have not seen any article in any magazine or newsletter referring to it. Everyone seems to be hooked on NEWDOS, LDOS, or VTOS !

I do appreciate that you cannot make any libellious statements, but can you offer me any advice on DOSPLUS, or is there any positive benefit from one of the others that I should consider.

David Washford

I read with great amusement Laurie King's "First impressions of a disk operated system" and it could have been written by myself.

I expanded my Video Genie system to 48K and twin Teac 40 track disks hoping all would be sweetness and light. I found the sound routines on my games programs when run under disk were distorted and had some form of ripple and burble on them, I soon discovered that using the IMoffset on Newdos80 I should have disabled the interrupts. Now all is well in that direction. I have had other odd problems in getting programs onto disk for example the Scott Adams adventures require (on my system anyway) the following routine starting at 42F6..... F3 21 B3 03 22 16 40 C3 50 43. This disables interrupts and restores the L2 keyboard then jumps into the program at 4350. Otherwise the flashing cursor doesn't !!!!! The program just sits there defying me and refusing to move.

One other "oddball" is that some programs run faster under my TRSDOS 2.3 than under NEWDOS80 anyone know why? If anyone has Pinball and the two DOS try it.

Finaly may I congatulate the National TRS80 Users Group for producing a very interesting and most informative news letter.Also may Iask if you could publish details for we newer members on the facilities of tne group eg. the program library forum 80 etc.

Happy Computing

Ken Grey

I am writing to thank you for publishing the letter from Peter Tootill detailing the Tandy lower case mod. As you can see from this letter my keyboard had the newer character generator chip installed. So for 1x2102 RAM, 20 minutes work with a soldering iron, and 6 inches of wire I have now got L/C with proper descenders. This works with Scripsit and LCDVR in NEWDOS80. It is annoying to think that Tandy would have charged me £20.00 plus to do the same thing, and I would counsel everyone to check their keyboards out. Mine was bought in April 1980 and had the chip fitted.

In the same issue there was a query from J.A.Crease about the Epson MX80 and loss of printer control codes in TRS80 configuration. While the Level 2 manual does list control codes for Form Feed etc. the Epson manual does not have these in the TRS coding table (Table 7). When set up like this you can only get CR/LF with CHR$(10 or 13). However when configured for standard coding table the full range of control codes as listed in table 6 is available, and accessible with the Basic LPRINT CHR$ statement, but you do not have TRS80 graphics.

John Newgas was asking in the same issue about reentry points for @SCRIPSIT. I have not seen the Acculab version but on the disk version the programme reenters at 52D2H where it lays a return address of 52C0H into the stack and then goes off to do some housekeeping eventually returning to 52C0H where reinitialises the text buffer and goes on to display the cursor again. I hope that the addresses are the same in his version. It is however easier to save the document regularly as it is being written.

For those who might have used my modification to SCRIPSIT for the MX80-

it works with the lower case version as well.

Using the same addresses as in the UC version.

Regards,

Nick Hendel.

Since I wrote to you applying for membership I have expanded my system and if you would like to update your records it now is as follows:-

VIDEO GENIE EG3003. EXPANSION INTERFACE EG3013(WITH EXTRA 32K AND RS232):TWIN SHUGART 40 TRACK DISK DRIVES: TANDY GREEN (and it is REAL green) MONITOR.

As I indicated in my application my main interest is Amateur Radio and using my computer as a means of communication with other Radio Amateurs Worldwide. If any other members are interested in a set of the best TRS80 manuals orientated towards amateur r adio may I recommend "The Disassembled Handbook for The TRS80" vols 1 to 4 available from "GNOMIC" (General Northern Microcomputers) of 40Middle St. Blackhall Nr. Hartlepool Cleveland. The proprieter Colin Owens is more than helpful, and knowledgeable which is more than I can say about some other places I have had the misfortune to deal with (EG Tandy).

Ken Gray

From Paul Boscott

I have recently joined the Group, having purchased a TRS-80 Level II 16K machine with monitor and CRS-80 Cassette, and have already found the club to be very useful. I have contected two other members locally and obtained details about the modification on the cassette recorder from Leon that Tandy were unable to provide. As the first newsletter I received was Vol.3 Issue 1, I sent for all the back copies which I found very interesting.

There is, as regular readers must know, a running discussion about where to start from to inform beginners such as myself about the finer points of the TRS-80's capabilities. From the newsletters I have read the concensus of opinion seems to be that actually having to find out how to solve a problem to make a programme provide the required results is the key to progression from games player to competent programmer.

To this end, to which I aspire, I have written a program called "Newsletter Index", the idea coming from Leon's letter in which he said he had not the time to write one out. The program covers every relevent heading in Volumes 1 and 2 of the Newsletter. These I have made into data statements (351 of them) under 26 headings. The decoding program I have written is where I hope other members could help by suggesting, through the Newsletter, better methods of programming. In return, they get 351 data statements to give them a Newsletter Index (for those who would like a copy to work on or use, I have sent a copy to the Library). So far, the part of the programming that has eluded me is to enter data statements from the program so as to keep it up to date easily.

One final request - please would anyone helping with this program restrict themselves to 16K Level II cassette-based programs, as this is what I think most beginners like myself have.

Paul Boscott

From A. Robinson

I do not wish to renew my subscription as I find the newsletter too advanced for me, and being in Germany I am unable to attend your meetings.

I have therefore subscribed to "Micro-80" which is more in line with my limitmd knowledge.

A. Robinson

Sorry my subs are so late but I seem to leave everything too late these days.I have thoroughly enjoyed reading the back issues I received as my intro to the group and hope eventually to own them all as there is something of use in every one.

I have had aGENIE now for 8 months and am very happy with it .Using the ideas suggested in one of the back issues I added the extra 16K onboard (total cost £11-50) and it has worked OK ,I did fit a heatsink to the 12V reg XXXXX as it was running hot but that was prevention not cure.

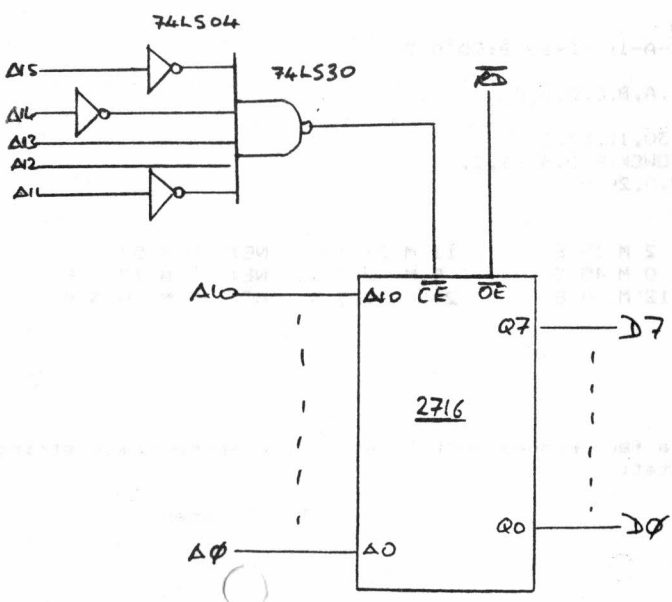
I have got to the stage now where I would like to add Discs but the extra cost of the interface is in my opinion exhorbitant to say the least.I have seen in BYTE a couple of articles and ads for the DISC80 but comparing these to the board that Leon is building there is no comparison especially as the P&P is 12 dolars making a total of ~~XXX~~ 70 dollars,almost as much as the Micro Design board with less facilities offered.The review that Leon has promised will be most welcome and I hope to construct one myself as soon as possible aftrwards.I have one main problem to overcome and that is the incompatibility of the TRS80 edge connector with the Genie edge connector.If anyone has any experience of this "tweak" I would like to hear from them especially ref buffering as I have been told that the Genie is sensitive to additions other than the exp intrface. .

Many thanks for a useful newsletter,keep it up.

Bob Thompson.

USING EXTERNAL FIRMWARE WITH THE TRS80/VIDEO GENIE

The following circuit outline indicates how to install a 16K EPROM on the Model I or Video Genie bus. The EPROM is located at 3000-37FF hexadecimal. This section of memory is normally unused. The EPROM could be placed in a small box together with a suitable 5V power supply, and connected to the system bus via a ribbon cable. I have not tried this out - the circuit was filched from a recent issue of Byte.



Leon Heller

POWERFUL PRINTUSING

I'm quite sure that many of our members are ignorant of the power of the PRINTUSING statement. They will be surprised and delighted when they examine it thoroughly. The following two simple programmes may make them aware of the possibilities.

```
10 K$="VOLUME ####.#  % %  MASS #####.#  %%  DENSITY #####.# %   %"
20 FOR N=1 TO 6
30 READ V,V$,M,M$
40 D$=M$+"/"+V$
50 PRINTUSINGK$;V,V$,M,M$,M/V,D$
60 NEXT N
70 DATA 60,CM3,150,G
80 DATA 50,CM3,345,G
90 DATA 145,CM3,37,G
100 DATA 7.5,CM3,85.3,G
110 DATA 527,CM3,4321,G
120 DATA 5.3,M3,27386,KG

RUN
VOLUME   60.0  CM3  MASS   150.0  G   DENSITY     2.5 G/CM3
VOLUME   50.0  CM3  MASS   345.0  G   DENSITY     6.9 G/CM3
VOLUME  145.0  CM3  MASS    37.0  G   DENSITY     0.3 G/CM3
VOLUME    7.5  CM3  MASS    85.3  G   DENSITY    11.4 G/CM3
VOLUME  527.0  CM3  MASS  4321.0  G   DENSITY     8.2 G/CM3
VOLUME    5.3  M3   MASS 27386.0  KG  DENSITY  5167.2 KG/M3
READY
>_
```

```
10 REM *** MUMBLES CYCLE HILL CLIMB ***
20 K$="%          % HDCP ## M ## S       ## M ##.# S   NET ## M ##.# S"
30 FOR N=1 TO 3
40 READ N$,A,B,C,D
50 IF B>D THEN E=C-A-1:F=D+60-B:GOTO 70
60 E=C-A:F=D-B
70 PRINTUSINGK$;N$,A,B,C,D,E,F
80 NEXTN
90 DATA J.SMITH,2,30,11,27.3
100 DATA M.B.WAJAKOWSKIE,0,45,9,2.7
110 DATA B.PAIN,12,0,20,0.3

RUN
J.SMITH       HDCP  2 M 30 S      11 M 27.3 S   NET  8 M 57.3 S
M.B.WAJAKOWS HDCP  0 M 45 S       9 M  2.7 S   NET  8 M 17.7 S
B.PAIN        HDCP 12 M  0 S      20 M  0.3 S   NET  8 M  0.3 S
READY
>_
```

It is only a few seconds work to edit the appropriate string and adjust the presentation.

P.J.Chapman.

MORE ON THE 80-GRAPHIX BOARD

I have a few updates on my article on the 80-Graphix board that may be of interest:

1. Reviews. For more information look in February 1981 80-microcomputing and subsequent issues containing letters. (The reviewer was rather negative about Graphix-80, but did'nt seem to understand it properly).
Also, try June 1981 Creative Computing for a good review.

2. Programma (who make it) haven't advertised in any magazines that I have seen for the past few months. Make of that what you will ..... (Does anybody know if they are still healthy or have they just stopped advertising?).

3. There is a British alternative !! Microware Computing Services Ltd (57 Queen Charlotte Street Bristol BS1 4HQ Tel. (0272) 279560) also manufacture a programmable character generator. This has, in fact, received vague mentions in the Newsletter from time to time and probably many have seen it action anyway. (Molimerx had one at the PCW show, for instance)

For the uninformed, the Microware board offers 128 user defined characters at a cost of 150 pounds, installed by them. Although quite a bit more expensive than the Programma version, don't forget get it has twice as many characters and includes fitting. Also being British you avoid the hassle of sending off to the States.

Further on the subject of high-resolution, my father is currently constructing a board following the design given in July 1981 80-Microcomputing. This will give a resolution of 384 by 192 with each dot individually addressable. Perhaps anybody else making this would care to make contact, so that we could eventually swap programs. (Or any other Hires user for that matter.)
Address: 38 Oakwood Ave. , Purley, Surrey CR2 1AQ

Graham Roberts,
38 Oakwood Avenue,
Purley,
Surrey CR2 1AQ

* * * HELP * * *

The Medical Sub-group has a requirement for a program to transfer Apple BASIC programs (on an Apple disk) to a TRSDOS disk.

We do not wish to 're-invent the wheel' so if anyone has already done this could they please get in touch with me. If we can do this it would also be of interest to the Educational Sub-Group.

Leon Heller

HOW I WROTE MY FIRST ASSEMBLY LANGUAGE PROGRAM DESPITE EDTASM+

I had been studying Assembler on and off and making notes without feeling that I was making much progress, and I had been looking at EDTASM+ with little comprehension. It seemed to me that the best way to get into Assembler was to find a specific project that required it. this occurred when i decided to write martian adventure, a complex example of an adventure-type game.

on the one hand i had to offer purchasers response-times at machine-code speed, but on the other hand I was thoroughly familiar with BASIC and my time would be used more cost-effectively by writing as much code as possible in it. In the end I decided to write a hybrid program, part Assembler, part basic, to get the best of both worlds. i had already decided to devise a method of data compaction to cram the maximum number of messages into 16k, and i was going to have to use machine code to expand and display them at run time.

The routine I chose for my first program in Assembler was the utility COMPAC which would compact strings to 5 bits per character and store them in high memory. A core-dump utility would then be employed to make a SYSTEM tape out of the appropriate area of RAM and this tape would later be incorporated in the rest of the program, which would include the BASIC part of the coding as well as a number of short machine-code routines, each of which either speeds execution of lengthy algorithms or unpacks compressed data of some kind. compac, therefore, would not be in the final program and i would not have to worry about optimising it either for speed or for length.

Probably the most suitable length for someone's first Assembly-language program is about 30 bytes and in my innocence I estimated that COMPAC would be about this length; it turned out to be 198 and became a bit daunting. EDTASM+ was another part of the problem; Barden's Manual for this makes a faint pretence of introducing the user to Assembler but in fact it is written solely for people who are thoroughly familiar with the old r.s. edtasm and just want to know what extra features edtasm+ has. this is a bit shortsighted; in effect, microsoft can only expect to sell the thing to people who have already bought the rival product or are experienced Assembly-language programmers (and know enough to get a pirate copy).

I started by conscientiously writing down a draft of the whole program, and of course I needed a table showing the equivalence between the values 0 to 31 and the letters and punctuation they represented. I also made up a crib sheet showing the basic details of the Z80 instruction set, and used this, referring to Barden, Howe and Zaks when necessary.
the data-generating program that uses compac is itself in basic, and the original messages are in data statements, so the method is of course to use usr to access the machine-code routine with varptr(a$) as the argument, put that value in a, change it to a value 0-31 and store it in the next 5 bits following the 5 bits that were used to store the last letter, ignoring byte-

divisions altogether. The main program needs to know not only the address of a particular string but its length, and can then pass this argument to a decoder routine which expands the data to the original message and dumps it to the screen. One problem was the need to use 8 set instructions, one for each bit; Barden uses self-modifying code in one of his examples to get around this, whereas Zaks seems to find the idea faintly immoral. At any rate I thought I would steer clear of the concept for my first program, as I expected enough problems with error-chasing as it was. In retrospect, my real difficulty was my tendency to think in BASIC; one enormous advantage of BASIC is that you don't have to worry about how to store values that aren't needed just now but which you will want to call upon later; you just use another variable. In Assembler you are supposed to keep track of what you have put in each register and if you tend to use registers as symbol tables, you will very quickly run out of available registers. This gets especially bad if you use ROM CALLS which themselves use multiple registers, or if the register you're using to hold a particular value is the only one that can be accessed by the instruction you want to use next. rather than blaming the z80 chip, however, it seems that one has to rethink one's ideas before planning the structure of such a program.

My main complaint about EDTASM+ is not about the unnecessary plethora of editing options and so on but rather that the overall system does not seem to work in the way the Manual suggests it does. First you type in source, then you save it to tape, then you assemble (this program had an ORG), then you can save the object code to tape. What the Manual fails to mention is that this object code appears to be incompatible with the Level II SYSTEM routine, which fails to recognise it, although Z-BUG is capable of loading it. I've had the same experience with two versions of edtasm+ released at different dates so it seems unlikely i have a faulty copy. what you have to do (and what the manual suggests you should do as the normal method of using EDTASM+) is (a) delete the ORG, (b) use D to select your USRORG, (c) A/IM/MD having noted the last RAM location used by the program, (d) enter Z-BUG, (e) P the appropriate area of RAM to tape. Now you have a SYSTEM tape and can load it and test it with a BASIC program, which of course is the only way you can really test programs of this kind.

It took me some time to work all this out as the explanation in the Manual of the four different methods of Assembly is poor. Indeed, it was only on the third reading that I realised that EDTASM+ includes a comprehensive number-base converter, since the Manual presents its operation in such a confused way. The sheer number of options in EDTASM+ means that the system makes trouble for itself. For example, you can declare in advance how much room you will allocate to the object code by the USRORG utility, and this has the advantage that you will be warned if your source is too long by the 'BUFFER FULL' message. The way to find out how much room is left in the edit buffer, for anyone who has not figured it out, is to access D and subtract the FIRST figure from the LAST figure. If you manage to squeeze everything in you should be able to count on a successful assembly...but it doesn't actually work that way, because FIRST means the first location after the edit buffer, making no allowance for the symbol table, so you get SYMBOL table overflow and have to re-assemble with the ns switch. it's

not that these problems are insuperable but that no-one should be required to bother about them in the first place, and certainly not the beginner. but it's difficult to say what options, if any, should be cut out of the system to simplify it. for example, not many people will use the facility to define byte values in terms of a value plus a number of bit shifts, but it happened that i needed that facility for some of the routines i was writing.

anyway, i finally made some object code, deleted edtasm+, system-loaded, typed in a test routine in basic (incorporating a routine to put the bit-pattern of the compacted bytes on the screen) and sat back to see what happened. To my amazement the damned thing ran first time. It performed the necessary compactions at the speed of light, of course, thus deepening my sense of superstitious awe about machine-language. On examination it turned out that there was one bug, a missing instruction. After patching the source and re-assembling, I was left with a functioning machine-code program that had needed very little debugging. i ought to stress that it is not, to put it mildly, optimised; any expert in these matters could probably reduce it to 80 bytes or less.

Here are some conclusions, and I would be interested to know if other people agree with them:
1. If you want to learn Assembly language, wait until you are forced into it. Don't spend too much time studying other people's listings: this is usually more confusing than working out the routine for yourself.
2. edtasm+ is rather like an iron glove; it's powerful once you have figured out how to wield it, and if it happens to fit your style you will feel comfortable in it, but it does not adapt itself at all to different user requirements.
3. A beginner should probably use a simpler Assembler to start with, but it won't solve his main problem, which is to find a clear explanation of Assembly language written for people who want to use it for real-world problems. What is really needed is a series of interactive Teach Yourself Assembly Language programs. Various offerings have been advertised in magazines in the past but I've never heard of anyone who successfully learned Assembler from one of them. Certainly, someone who managed to produce a self-tuition course which actually managed to explain the concepts involved could really clean up the market. As for books, some have their good points, but they introduce the subject to the beginner in entirely the wrong way, and worst of all, tend to perpetuate the illusion that computing has something to do with mathematics.
4. if you can stand the idea of writing your whole program down on paper before typing it in as source, you have a sporting chance of getting it right first time. once you get used to the idea of programming in Assembler, it seems to be actually less error-prone than BASIC.

by the way, if anyone actually wants a listing of the annotated source of compac, i will happily provide one; it should be a source of great amusement to any experienced assembly-language programmer. I have subsequently written the decoding routines and the other short machine-language routines that the main program needs, and by the time you read this, Martian Adventure should be finished. Write to: Mike Costello, 1 Langsbank Avenue, Rise Park, Nottingham NG5 5BU, or 'phone 751753.

RESET BUTTON ANSWER

HAVING BOUGHT THE EXPANSION INTERFACE WHILE ON SPECIAL OFFER EARLIER IN THE YEAR (IN ORDER TO TAKE ADVANTAGE OF THE ADVICE YOU HAVE GIVEN FROM TIME TO TIME ON CHEAP MEMORIES) I ENCOUNTERED THE SAME PROBLEM AS DESCRIBED BY PETER TOOTILL AND OTHERS RECENTLY. THE PROBLEM THAT ARISES WHEN THE EXPANSION INTERFACE IS CONNECTED IS THAT BASIC PROGRAMS ARE LOST WHEN THE RESET BUTTON IS PRESSED, AND THESE ARE NOT RECOVERABLE BY POKE 17301, 1 FOLLOWED BY SYSTEM /11395.

IN FACT PART OF THE BASIC TEXT IS OVERWRITTEN DURING RESETTING, MAKING RECOVERY A BIT MORE DIFFICULT. HOWEVER I HAVE DEVELOPED A PROGRAM TO OVERCOME THIS HANDICAP AND I ENCLOSE A TAPE. PERHAPS YOU WOULD CARE TO TRY IT OUT OR PROBABLY PETER TOOTILL WOULD APPRECIATE IT IF YOU COULD PASS IT TO HIM. I SHOULD MENTION THAT I AM ABOUT TO MARKET IT IN THE HOPES OF EARNING SOME ASSISTANCE TOWARDS THE POSSESION OF DISK DRIVES.

SOMETHING ELSE CROPPED UP RECENTLY IN THE NEWS LETTER. THE PRINTING OF THE FOUR ARROWS AND THE CURSOR FROM THE KEY BOARD. AS DISCLOSED SOME TIME AGO IN THE NEWSLETTER, (V2/ISS2/P20), IF YOU HOLD DOWN KEYS Z AND 2, BACKSPACE TWICE TO DELETE THESE FROM THE SCREEN, THEN GIVE A SHORT TAP ON THE FOLLOWING KEYS - 3 4 5 6 AND 7 YOU CAN PRINT THE REQUIRED SYMBOLS.

THE NEWSLETTER IS MUCH APPRECIATED NO MATTER HOW YOU DECIDE TO FORMAT THE SHEETS. SORRY FOR THE RAGGED EDGE AT THE R.H.S. AND FOR THE ABSENCE OF LOWER CASE (NO WORRIES ABOUT NOT HAVING TRUE DESCENDERS) BUT THIS IS PRINTED ON THE GOOD OLD CREED 7E TELEPRINTER (CONNECTED VIA THE CASSETTE DIN PLUG). FURTHER DETAILS ON THIS IF REQUESTED BY THE WAY.

MAC RANDLE.
17 LANGDALE CLOSE, LEAMINGTON SPA WARWICKSHIRE CV32 7PU.

(* I tried Mac's program out with my sytem and it worked fine. LFH *)

FOR SALE

INTERFACE KIT BETWEEN EPSON MX-80 OR TX-80
AND TRS-80 MODEL I KEYBOARD
Comprises bus interface cable (cat.no. 8221) and
interface board (cat no.8120) to fit in printer.

(Normal cost £49 + VAT)
SALE PRICE £25 including fitting instructions.

Contact: R.E.Wiggins, 'Dilkhush', North Bank,
Hassocks, West Sussex, BN6 8JG.

USING PRINTER CODES

I have found that sending printer codes for the printers with enhansed print modes (MX-80. Centronics 737) by LPRINT CHR$(n) can generate a line feed. This may be useful in reminding you if the printer is not on line but is no guaranty that the codes were correct It can also play havoc with carefully aligned printing.

It is possible to transmit the codes by POKEing the line printer address (14312) with the code. POKE 14312,15 will print 'Condensed'. POKE 14312,27:POKE14312,71 will 'Double Strike'. The only problem is that there is no indication as to whether the printer received the command. At least by LPRINTING the CHR$, the commands would be sent as soon as the printer was switched on line. I have found that the best way is to use the following routines for the MX-80.

```
10 IF PEEK(14312)=143 then print@330"PRINTER NOT ON LINE":GOTO10

20 FORN=1TO5:READA:POKE14312,A:NEXT

30DATA18,27,70,27,72
```

This checks to see if the printer is on line and as soon as it detects that is ready to receive, it will clear the three main control codes. There are other print commands that set up TABS and variable line feeds. They can be operated in the same way. It is a good practise to clear previous control codes because some will interfere with new codes eg. Emphasized will cancel Condensed.

Changing the DATA Statements in line 30 will allow other modes to be initiaalised (27,71,27,71) should print 'Double' and 'Emphasized'.

Derek Trayler

Although the following quotation dates back to long before there were such thing as computers, it does seem to relate to the situation as we know it.

"We may not have succeed in answering all your problems. In fact the answers that we have found, have only served to raise a whole new set of questions. In some ways we are more confused than ever but we do believe that we are now confused on a higher plane."

Derek Trayler,

INDEXING PROGRAM

```
10 DIM X$(26)
20 GOTO 60
25 REM SUB FOR STOPING PRINT AT 12 LINES
30 N=0:PRINTTAB(6)"TOUCH (SPACE BAR) TO CONTINUE (ENTER) FOR MENU"
40 Y$=INKEY$:IF Y$=CHR$(13)THEN 60 ELSE IF Y$=CHR$(32) THEN 50 ELSE 40
45 REM SUB TO PLACE HEADINGS AT THE TOP OF EACH PAGE
50 CLS:PRINTTAB(6)X$(ASC(A$)-64);TAB(30)"VOLUME";TAB(40)"ISSUE";TAB(50)"PAGE":RE
TURN
60 CLS:RESTORE
70 FORA=1 TO 26
80 READ X$(A)
90 NEXT A
100 PRINTTAB(13)"TRS-80 USERS GROUP NEWSLETTER INDEX"
110 FOR A=1 TO 13
120 PRINTTAB(6)CHR$(A+64);TAB(11)X$(A);TAB(35) CHR$(A+77);TAB(40)X$(A+13)
130 NEXT A
140 PRINTTAB(19)"TYPE RELEVANT LETTER"
150 A$=INKEY$:IFA$<"A" OR A$>"Z" THEN 150
160 CLS
170 GOSUB 50
175 REM Q=LETTERS LINE 200 USES SECOND DATA BIT FOR SUBJECT
180 FOR A=1 TO 351:REM NUMBER OF DATA STATMENTS
190 READ C$,D$,T$,V,I,P
200 IFA$="Q" THEN  IFC$="Q" THEN PRINTT$;TAB(13)X$(ASC(D$)-64);TAB(33)V;TAB(41)I
;TAB(50)P:N=N+1:IFN=12 THEN GOSUB 30
210 IFA$="Q"THEN GOTO 220 ELSEIFA$=C$ OR A$=D$ THEN PRINTTAB(3)T$;TAB(32)V;TAB(4
1)I;TAB(50)P:N=N+1:IFN=12 THEN GOSUB 30
220 NEXT A
230 PRINT"TOUCH (ENTER) FOR MENU"
240 A$=INKEY$:IFA$=CHR$(13) THEN RUN ELSE 240 RUN
245 REM DATA LIST FOR INDEX HEADINGS USED IN LINE 80 AS X$
250 DATA APPLICATIONS,CASSETTE HARDWARE,CASSETTE SOFTWARE,COMMUNICATIONS,CONSTRU
CTION PRODJECTS,DISK HARDWARE,DISK SOFTWARE
260 DATA EDITING,ENTERTAINMENT,EXPANSION,FILES,FLOPPY TAPE HARDWARE,FLOPPY TAPE
SOFTWARE,GRAPHICS,HARDWARE  REVIEWS
270 DATA INTREFACING,LETTERS,LIBRARY,M/C CODE PROGRAMING,MISCELLANEOUS,PEEK - PO
KE,PROGRAMMES,RS-232,SOFTWARE REVIEWS,SUBROUTINES,WORKSHOP REPORTS
```


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TAPETYPE

This program displays the type of material that is recorded on a cassette tape. That is, it will tell you if a tape contains a BASIC program, data or machine language, etc.

TAPE TYPE

```
0000            00100 REBOOT  EQU   0
0033            00110 VIDEO   EQU   33H
0049            00120 INPUT   EQU   49H
01F8            00130 CASOFF  EQU   1F8H
0212            00140 DEFDRV  EQU   212H
0296            00150 RSYNC   EQU   296H
0235            00160 RBYTE   EQU   235H
01C9            00170 CLS     EQU   1C9H
7E00            00180         ORG   7E00H      ;NEAR TOP OF 16K
7E00            00190 START   EQU   $
7E00 F3         00200         DI
7E01 CDC901     00210         CALL  CLS         ;CLEAR SCREEN AT START
7E04            00220 READY   EQU   $
7E04 21677E     00230         LD    HL,FREADY   ;PRINT "READY CASSETTE"
7E07 CD577E     00240         CALL  PRINT
7E0A CD4900     00250         CALL  INPUT       ;WAIT FOR KEYIN
7E0D AF         00260         XOR   A           ;CASSETTE 1
7E0E CD1202     00270         CALL  DEFDRV
7E11 CD9602     00280         CALL  RSYNC       ;GET LEADER AND SYNC BYTE
7E14 CD3502     00290         CALL  RBYTE       ;GET FIRST BYTE
7E17 FE55       00300         CP    55H         ;IS IT OBJECT TAPE
7E19 2008       00310         JR    NZ,OTHER    ;NO - TEST OTHER
7E1B 21767E     00320         LD    HL,FMACH    ;PRINT "MACHINE TAPE"
7E1E CD577E     00330         CALL  PRINT
7E21 1821       00340         JR    CEND
7E23            00350 OTHER   EQU   $
7E23 FED3       00360         CP    0D3H        ;IS IT BASIC OR EDTASM
7E25 200F       00370         JR    NZ,DATAT
7E27 CD3502     00380         CALL  RBYTE
7E2A FED3       00390         CP    0D3H        ;IS IT BASIC TAPE
7E2C 2010       00400         JR    NZ,EDTAS    ;NO THEN EDTASM SRC
7E2E 21837E     00410         LD    HL,FBAS     ;PRINT "BASIC TAPE"
7E31 CD577E     00420         CALL  PRINT
7E34 180E       00430         JR    CEND
7E36            00440 DATAT   EQU   $
7E36 218E7E     00450         LD    HL,FDATA    ;PRINT "DATA TAPE"
7E39 CD577E     00460         CALL  PRINT
7E3C 1806       00470         JR    CEND
7E3E            00480 EDTAS   EQU   $
7E3E 21987E     00490         LD    HL,FEDTS    ;PRINT "EDTASM SOURCE"
7E41 CD577E     00500         CALL  PRINT
7E44            00510 CEND    EQU   $
7E44 CDF801     00520         CALL  CASOFF      ;TURN OFF TAPE
7E47 21AB7E     00530         LD    HL,FIN
7E4A CD577E     00540         CALL  PRINT
7E4D            00550 ENT     EQU   $
7E4D CD4900     00560         CALL  INPUT       ;WAIT FOR ENTER
7E50 FE0D       00570         CP    13
7E52 20F9       00580         JR    NZ,ENT      ;IF NOT ENTER
7E54 C30000     00590         JP    REBOOT
```

```
                00600 ;
                00610 ;SUBROUTINES
7E57            00620 PRINT   EQU     $
7E57 7E         00630         LD      A,(HL)          ;PRINT MESSAGE
7E58 E67F       00640         AND     7FH             ;MASK PARITY
7E5A CD637E     00650         CALL    DISP
7E5D CB7E       00660         BIT     7,(HL)          ;DONE IF NZ
7E5F C0         00670         RET     NZ
7E60 23         00680         INC     HL
7E61 18F4       00690         JR      PRINT           ;NEXT LOCATION
                00700 ;
7E63            00710 DISP    EQU     $
7E63 CD3300     00720         CALL    VIDEO
7E66 C9         00730         RET
                00740 ;
                00750 ;FORMATS
7E67 52         00760 FREADY  DEFM    'READY CASSETTE'
7E75 8D         00770         DEFB    8DH
7E76 4F         00780 FMACH   DEFM    'OBJECT TAPE"
7E82 8D         00790         DEFB    8DH
7E83 42         00800 FBAS    DEFM    'BASIC TAPE'
7E8D 8D         00810         DEFB    8DH
7E8E 44         00820 FDATA   DEFM    'DATA TAPE'
7E97 8D         00830         DEFB    8DH
7E98 45         00840 FEDTS   DEFM    'EDTASM SOURCE TAPE'
7EAA 8D         00850         DEFB    8DH
7EAB 46         00860 FIN     DEFM    'FINISHED PRESS ENTER'
7EBF 8D         00870         DEFB    8DH
                00880 ;
7E00            00890         END     START
00000 TOTAL ERRORS
```

```
CASOFF  01F8 00130   00520
CEND    7E44 00510   00340 00430 00470
CLS     01C9 00170   00210
DATAT   7E36 00440   00370
DEFDRV  0212 00140   00270
DISP    7E63 00710   00650
EDTAS   7E3E 00480   00400
ENT     7E4D 00550   00580
FBAS    7E83 00800   00410
FDATA   7E8E 00820   00450
FEDTS   7E98 00840   00490
FIN     7EAB 00860   00530
FMACH   7E76 00780   00320
FREADY  7E67 00760   00230
INPUT   0049 00120   00250 00560
OTHER   7E23 00350   00310
PRINT   7E57 00620   00240 00330 00420 00460 00500 00540 00690
RBYTE   0235 00160   00290 00380
READY   7E04 00220
REBOOT  0000 00100   00590
RSYNC   0296 00150   00280
START   7E00 00190   00890
VIDEO   0033 00110   00720
```

Jeremy Sm...

Tandy's ARCNET - How to grow a big computer.

Tandy have just released details of their 'Hard Discs' for the Model 2 together with news about the proposed Datapoint ARCNET micro network. These are really linked developments in that the real benefits of hard discs only appears when this large but expensive data store can be shared by other systems. However, ARCNET appears to be far more than a simple sharing of expensive devices. It claims to be in the big league alongside Xerox's Ethernet developments.

Given that every Model 2 user can now bank on this development the medium term implications are immense - Quo Vadis IBM.

I continue to be surprised by the stability of the Model 2. DOS 2.0a appears to be very robust and the days of Model 1 reboots are far gone. The most significant gains lie in the protection provided by the system's ability to recognise disc changes and to maintain a backup copy of the directory.

There is a slight problem is that the big 8" disc drives have to be treated with respect in terms of regular cleaning and maintenance. In addition it appears that swapping discs between drives may be damaging in terms of creating different surface patterns. If possible, the word is to format and use discs consistently on the same drive (My thanks to Jim Norris for this advice).

VCFORMAT - a review by the writer!

Brian has asked me to provide a write up on my program to produce smart output from Visicalc. This program owes its creation to the fact that I am a treasurer for a local motor club. As I already used my own Model 1 to produce regulations for our events (an absolute must for Scripsit/Pencil) it seemed good sense to use the '80 to produce the accounts. The conventional accounting packages were a) too expensive and b) too unwieldy for our simple analysis requirements. Visicalc with its row & column arithmetic seemed to be an effective solution. Two evenings later the analysis was all done but then came the problem of a) how to print out with my serial printer and b) how to print both the wide narrative and narrow value columns within a 132 character line. As a result VCFORMAT appeared and it is now available for the complete 1,2&3 range.

VCFORMAT - what it does

Take the following Visicalc screen:-

Description	1981	1980	% inc
Sales	1100.00	1000.00	10.00
Wages	500.00	400.00	25.00
Rent & Rates	110.00	100.00	10.00
General expenses	60.00	50.00	20.00
Total Expenses	670.00	550.00	21.82
Total Profit	330.00	450.00	-26.67

Now in Visicalc the Window facility can allow the value columns to be displayed in a narrower width but unfortunately for printing all columns have to be at the same width which explains why Visicalc generated reports would normally have 'Gen Exp' instead of as above - not exactly the sort of report for your M.D. or clients.

VCFORMAT uses the visicalc DIF file to provide reformatting for column widths. Once this problem had been solved then other facilities were built in:-

a) Specified decimal places 0-9
b) Commas in numbers
c) Left, Right or Centring of text
d) Simple swapping of characters such as to replace a dollar by pound sign.
e) Text can be written to the screen, printer or a word processing file. The Model 2 version links to Scripsit by the merge file facility - This provides automatic mailing with calculations.
f) Print formats can be saved to disc for recall.

Ussing VCFORMAT the above example could be reformatted as follows.

Description	1981	1980	% inc
Sales	1,100.00	1,000.00	10.0
Wages	500.00	400.00	25.0
Rent & Rates	110.00	100.00	10.0
General expenses	60.00	50.00	20.0
Total Expenses	670.00	550.00	21.8

Total Profit 330.00 450.00 -26.7

Changes 1) Variable column widths
2) One decimal place
3) Commas in numeric values

The more columns involved then the more dramatic will be the savings in terms of the required print width.

How good is it

If you require quality reports then this program would be very useful. However in order to use this program you have to save the VISICALC DIF file and then reload this data with VCFORMAT in BASIC. In addition definition of the exact layout may well be a trial and error process (although reasonable defaults are calculated by the program) with the result that there is a delay factor which for ad hoc work may not be very acceptable. However this criticism is only valid if you are able to directly print from Visicalc and the report does not overflow the available print width. Users of serial printers will almost certainly benefit from using VCFORMAT.

For regular reports the delays are reduced by the ability to recall a pre-defined layout and if a daisywheel printer is used then a top quality appearance can be obtained in all aspects. The link to word processing packages opens the door to a much wider use of Visicalc in businesss applications.

Support

This program can be obtained from Freddie Nicholls of Optronics - 50 Holly Road, Twickenham 01 892 8455.

As part of the purchase price Optronics have agreed to provide a reasonable amount of advice on how to use this facility together with a user manual. Their support is available for the complete Tandy range.

Derrick Rowe

A NEW LIST COMMAND FOR THE MODEL I

It is difficult to examine a long BASIC program using the Level II LIST command. Fourteen lines at most can be displayed by entering line numbers or 15 lines can be seen if the fast scrolling is interrupted. Scrolling is so fast that it is impossible to predict which 15 lines will be shown.

I have written a program which displays a listing 16 lines at a time. The program is designed for tape-based systems and uses the key word LSET normally reserved for disc BASIC. I chose to use the word LSET because of its superficial similarity to the word LIST - it has four letters, begins with 'L', ends with 'T' and has an 'S' in it!

Typing LSET line-number <ENTER> clears the screen and displays 16 lines of the program starting at the specified line or at the beginning of the program if no line number is entered. If the program cannot find the specified line it will start the listing at the first line it can find which has a number greater then the one entered.

Pressing any key (except <BREAK>, <Down Arrow> or SHIFT<Up Arrow>) then clears the screen and shows the next 'page' of 16 lines. Pressing the Down-Arrow key scrolls the display by one line. Pressing SHIFT<Up arrow> restarts the listing at the specified line. Pressing the BREAK key returns control to BASIC.

The program picks up the starting line-number (if specified) from the keyboard input buffer and then works through the BASIC program text, decoding and displaying the text as it goes along. A list of the BASIC key words in ROM is used to decode the 'tokens' used in the stored text. Decoding is complicated by the fact that the key word ELSE is always stored as :ELSE and the abbreviation for REM (') is stored as :REM'.

This approach to scroll control avoids any alteration of the video display device-control-block. There is no difficulty in using a driver for upper- and lower-case letters if required. Scrolling is controlled for program listings only, other output to the screen scrolls normally. Examining the program text byte-by-byte allows long program lines and the line-feed character to contribute to the line count.

This is an important feature of the program - its ability to stop the display when 16 lines have been shown regardless of the length of the program lines or the number of line-feed characters incorporated. For example, the

line:

```
1020 IF B>=0 THEN\
       X1=(-B+S)/(2*A)\
     ELSE\
       X1=(-B-S)/(2*A)
```

(\ denotes the line-feed character/Down-Arrow key)

is one line as far as BASIC is concerned but it counts as 4 lines on the screen. Similarly, a program line (for example) 200 bytes long without line-feed characters takes 4 lines on the screen.

The program is presented here in two forms; as the assembly language program and as as a BASIC program which loads the machine code into memory of a 16K system. Both versions automatically set the appropriate MEMORY SIZE? The assembly language version is self-starting, there is no need to type /<ENTER> after the object file has loaded.

The program uses several of the subroutines in the Level II rom. James Farvour's book 'Microsoft BASIC Decoded & Other Mysteries' was the main source of information about these routines. The assembler I use is the Microsoft Editor/Assembler-Plus. If your assembler does not support macros, simply replace the macro names in the program with the body of the code appearing in the macro definitions. After all, that's all the macro assembler does.

```
John Couch
;A NEW LIST COMMAND FOR A TAPE-BASED MODEL I.
;WRITTEN BY JOHN COUCH.  SEPTEMBER 1981.
;
;SUPPORTING SUBROUTINES (ROM ADDRESSES).
KBWAIT  EQU 73          ;WAIT FOR A KEYBOARD CHARACTER.
INIT    EQU 192         ;INITIALISE LEVEL II.
BASIC   EQU 1740        ;BASIC 'READY'.
VDCLS   EQU 457         ;CLEAR THE SCREEN.
VDCHAR  EQU 51          ;DISPLAY AN ASCII CHARACTER.
VDINT   EQU 4015        ;DISPLAY AN INTEGER.
ASCINT  EQU 7770        ;CONVERT ASCII TO INTEGER.
FINDLN  EQU 6956        ;FIND A SPECIFIED PROGRAM LINE.
;
;MACROS.
GETCNT  MACRO
        PUSH IX         ;GET THE LINE/CHARACTER
        POP BC          ;  COUNT INTO BC.
        ENDM
;
SAVCNT  MACRO
        PUSH BC         ;SAVE THE LINE/CHARACTER
        POP IX          ;  COUNT IN IX.
        ENDM
```

```
;
TEST16  MACRO
        LD A,16         ;IS THIS
        CP B            ;  THE 16TH LINE?
        JR Z,T1£$YM     ;JUMP IF YES.
        JR T2£$YM
T1£$YM  CALL KBWAIT     ;GET A KEYBOARD CHARACTER.
        CP 1            ;IS IT <BREAK>?
        JP Z,BASIC      ;JUMP IF YES.
        CP 10           ;IS IT A DOWN ARROW?
        JR Z,T3£$YM     ;JUMP IS YES.
        CP 27           ;IS SHIFT<UP ARROW>?
        JP Z,LSET       ;JUMP IF YES.
        CALL VDCLS
        LD IX,0         ;CLEAR THE LINE/CHARACTER COUNT.
        RET
T3£$YM  DEC B           ;SUBTRACT ONE FROM THE LINE COUNT.
T2£$YM  LD C,0          ;CLEAR THE CHARACTER COUNT.
        ENDM
;
START   EQU 32767-334   ;FOR 16K SYSTEMS.
;
        ORG 16872       ;LOAD THE INPUT BUFFER
        DEFM '32455'    ;  WITH MEMORY SIZE?
        DEFB 0
;
        ORG 16406       ;LOAD KEYBOARD DCB
        DEFW START      ;  WITH THE START ADDRESS.
;
        ORG START
        LD HL,LSET      ;LINK THE PROGRAM TO
        LD (16792),HL   ;  THE KEY WORD 'LSET'.
        LD HL,995       ;RESTORE THE DRIVER
        LD (16406),HL   ;  TO KEYBOARD DCB.
        CALL VDCLS
        XOR A           ;INITIALISE
        LD HL,16871     ;  LEVEL II.
        JP INIT
;
LSET:   LD SP,17032     ;SET UP A STACK.
        LD HL,16871     ;START OF THE INPUT BUFFER.
        CALL ASCINT     ;CONVERT LINE NUMBER TO INTEGER.
        CALL FINDLN     ;FOUND THE FIRST LINE?
        JR C,L10        ;JUMP IF YES.
        JP Z,BASIC      ;LINE OUT OF RANGE, OR NO PROGRAM.
L10:    PUSH HL         ;SAVE THE ADDRESS OF NEXT LINE.
        PUSH BC         ;MOVE THE ADDRESS OF THE FIRST
        POP HL          ;  LINE INTO HL AND
        INC HL          ;    ADVANCE THE POINTER.
        CALL VDCLS
        LD IX,0         ;CLEAR THE LINE/CHARACTER COUNT.
;
LINUMR: INC HL          ;GET
        LD E,(HL)       ;  THE
        INC HL          ;    LINE
```

```
        LD D,(HL)       ;       NUMBER.
        PUSH HL         ;SAVE THE TEXT POINTER.
        GETCNT          ;GET THE LINE/CHARACTER COUNT.
        EX DE,HL        ;MOVE THE LINE NUMBER INTO HL.
        CALL DIGITS     ;COUNT THE NUMBER OF DIGITS.
        INC C           ;ADD 1 FOR THE SPACE THAT FOLLOWS.
        SAVCNT          ;SAVE THE LINE/CHARACTER COUNT.
        CALL VDINT      ;PRINT THE LINE NUMBER.
        LD A,' '        ;PRINT
        CALL VDCHAR     ;  A SPACE.
        POP HL          ;GET THE TEXT POINTER.
;
TEXT:   INC HL          ;GET A BYTE
        LD A,(HL)       ;  FROM THE PROGRAM TEXT.
        OR A            ;IS IT 0? - THE END OF A LINE.
        JR Z,NEWLN      ;JUMP IF YES.
        CP 10           ;IS IT A LINE-FEED CHARACTER?
        JR Z,T10        ;JUMP IF YES.
        CP ':'          ;IS IT A STATEMENT SEPARATOR?
        JR Z,T20        ;JUMP IF YES.
        JR T30
T10:    CALL LCOUNT     ;INCREASE THE LINE COUNT.
        JR TEXT
T20:    INC HL          ;IS THE
        LD A,(HL)       ;  NEXT BYTE
        CP 149          ;     AN 'ELSE' TOKEN?
        JR Z,T30        ;JUMP IF YES.
        CP 147          ;IS IT A 'REM' TOKEN?
        JR Z,T40        ;JUMP IF YES.
        JR T50
T40:    INC HL          ;IS THE
        LD A,(HL)       ;  NEXT BYTE
        CP 251          ;     A ()?
        JR Z,T30        ;JUMP IF YES.
        DEC HL          ;BACK UP THE TEXT POINTER.
T50:    DEC HL          ;BACK UP THE TEXT POINTER.
        LD A,(HL)       ;GET THE BYTE.
T30:    CP 128          ;IS IT A TOKEN?
        JR NC,TOKEN     ;JUMP IF YES.
        CALL VDCHAR     ;PRINT THE CHARACTER.
        CALL CCOUNT     ;INCREASE THE CHARACTER COUNT.
        JR TEXT
;
TOKEN:  PUSH HL         ;SAVE THE TEXT POINTER.
        LD HL,5711      ;START OF THE KEY-WORDS LIST.
        SUB 127         ;POSITION OF THE WANTED KEY WORD.
        LD B,A          ;MOVE THIS 'INDEX' INTO B.
        LD C,0          ;CLEAR THE KEY-WORD COUNT.
SCAN:   INC HL          ;NEXY BYTE FROM LIST OF KEY WORDS.
        BIT 7,(HL)      ;IS THIS THE START OF A KEY WORD?
        JR NZ,S10       JUMP IF YES.
        JR SCAN
S10:    INC C           ;INCREMENT THE KEY-WORD COUNT.
        LD A,B          ;IS THIS THE
        CP C            ;  WANTED KEY WORD?
```

```
        JR Z,PRINT      ;JUMP IF YES.
        JR SCAN
PRINT:  LD A,(HL)       ;THE FIRST CHARACTER.
        RES 7,A         ;RESET BIT 7.
P10:    CALL VDCHAR     ;PRINT THE CHARACTER.
        CALL CCOUNT     ;INCREASE THE CHARACTER COUNT.
        INC HL          ;NEXT
        LD A,(HL)       ;  CHARACTER.
        BIT 7,A         ;IS THIS THE NEXT KEY WORD?
        JR NZ,P20       ;JUMP IF YES.
        JR P10
P20:    POP HL          ;GET THE TEXT POINTER.
        JR TEXT
;
NEWLN:  POP HL          ;START OF THE NEW LINE.
        LD E,(HL)       ;GET THE ADDRESS OF
        INC HL          ;  THE START OF
        LD D,(HL)       ;    THE NEXT LINE.
        LD A,D          ;IS IT 0? - THE
        OR E            ;  END OF THE PROGRAM TEXT.
        JR Z,N10        ;JUMP IF YES.
        PUSH DE         ;SAVE THE ADDRESS.
        CALL LCOUNT     ;INCREASE THE LINE COUNT.
        JP LINUMR
N10:    CALL KBWAIT     ;GET A KEYBOARD CHARACTER.
        CP 27           ;IS IT SHIFT<UP ARROW>?
        JP Z,LSET       ;JUMP IF YES.
        JP BASIC
;
;SUBROUTINE TO INCREASE THE LINE COUNT.
LCOUNT: GETCNT          ;GET THE LINE/CHARACTER COUNT.
        INC B           ;ADD ONE.
        TEST16          ;TEST FOR THE BOTTOM OF A 'PAGE'.
        SAVCNT          ;SAVE THE COUNT.
        LD A,13         ;PRINT A
        CALL VDCHAR     ;  CARRIAGE RETURN.
        RET
;
;SUBROUTINE TO INCREASE THE CHARACTER COUNT.
CCOUNT: GETCNT          ;GET THE LINE/CHARACTER COUNT.
        INC C           ;ADD ONE.
        LD A,63         ;IS THIS LINE
        CP C            ;  63 CHARACTERS LONG?
        JR Z,C10        ;JUMP IF YES.
        JR C20
C10:    INC HL          ;EXAMINE
        LD A,(HL)       ;  THE
        DEC HL          ;    NEXT BYTE.
        OR A            ;IS IT 0? - THE END OF A LINE?
        JR Z,C30        ;JUMP IF YES.
        CP 10           ;IS IT A LINE-FEED CHARACTER?
        JR Z,C30        ;JUMP IF YES.
        INC B           ;INCREASE THE LINE COUNT.
C30:    TEST16          ;TEST FOR THE BOTTOM OF A 'PAGE'.
C20:    SAVCNT          ;SAVE THE COUNT.
```

```
        RET
;
;SUBROUTINE TO COUNT THE NUMBER OF DECIMAL DIGITS OF AN
;UNSIGNED INTEGER.
;
;INPUT:  HL=THE NUMBER BEING EXAMINED.
;OUTPUT: C=THE NUMBER OF DIGITS.
;USES:   AF AND DE.
;
DTEST   MACRO   £LIMIT
        LD DE,£LIMIT    ;10,100,1000 OR 10000.
        RST 24          ;COMPARE DE AND HL.
        INC C
        ENDM
;
DIGITS: LD C,0          ;CLEAR THE COUNT.
        DTEST 10        ;IS THE NUMBER <10?
        RET C           ;RETURN IF YES.
        DTEST 100       ;IS THE NUMBER <100?
        RET C           ;RETURN IF YES.
        DTEST 1000      ;IS THE NUMBER <1000?
        RET C           ;RETURN IF YES.
        DTEST 10000     ;IS THE NUMBER <10000?
        RET C           ;RETURN IF YES.
        INC C
        RET
;
        END
10 ' 'LSET' - a new LIST command for a tape-based 16K Model
I.
15 'Written by John Couch.  September 1981.
20 '
25 '---------------- OPERATING  INSTRUCTIONS
-----------------
30 'Type:  LSET line-number <ENTER> for 16 lines then
35 '       <Down Arrow> for the next line,
40 '       SHIFT <Up Arrow> to restart the listing,
45 '       <BREAK> to end the listing or
50 '       <any other key> for the next 'page' (16 lines).
55
'-------------------------------------------------------------
60 '
65 'Note: the following machine code is not relocatable.
The
70 'source code has been assembled for location at
addresses
75 '32455 to 32766, i.e. for a 16K machine.  The program
80 'automatically sets the appropriate MEMORY SIZE? to
protect
85 'the code.
90 '
100 DATA
31,88,42,21,E7,41,CD,5A,1E,CD,2C,1B,38,03,CA,CC,06,E5
105 DATA
C5,E1,23,CD,C9,01,DD,21,00,00,23,5E,23,56,E5,DD,E5,C1
```

```
110 DATA
EB,CD,E3,7F,0C,C5,DD,E1,CD,AF,0F,3E,20,CD,33,00,E1,23
115 DATA
7E,B7,28,5B,FE,0A,28,06,FE,3A,28,07,18,1A,CD,76,7F,18
120 DATA
EC,23,7E,FE,95,28,0F,FE,93,28,02,18,07,23,7E,FE,FB,28
125 DATA
03,2B,2B,7E,FE,80,30,08,CD,33,00,CD,A6,7F,18,CB,E5,21
130 DATA
4F,16,D6,7F,47,0E,00,23,CB,7E,20,02,18,F9,0C,78,B9,28
135 DATA
02,18,F2,7E,CB,BF,CD,33,00,CD,A6,7F,23,7E,CB,7F,20,02
140 DATA
18,F2,E1,18,A0,E1,5E,23,56,7A,B3,28,07,D5,CD,76,7F,C3
145 DATA
E3,7E,CD,49,00,FE,1B,CA,C7,7E,C3,CC,06,DD,E5,C1,04,3E
150 DATA
10,B8,28,02,18,1A,CD,49,00,FE,01,CA,CC,06,FE,0A,28,0D
155 DATA
FE,1B,CA,C7,7E,CD,C9,01,DD,21,00,00,C9,05,0E,00,C5,DD
160 DATA
E1,3E,0D,CD,33,00,C9,DD,E5,C1,0C,3E,3F,B9,28,02,18,2E
165 DATA
23,7E,2B,B7,28,05,FE,0A,28,01,04,3E,10,B8,28,02,18,1A
170 DATA
CD,49,00,FE,01,CA,CC,06,FE,0A,28,0D,FE,1B,CA,C7,7E,CD
175 DATA
C9,01,DD,21,00,00,C9,05,0E,00,C5,DD,E1,C9,0E,00,11,0A
180 DATA
00,DF,0C,D8,11,64,00,DF,0C,D8,11,E8,03,DF,0C,D8,11,10
185 DATA 27,DF,0C,D8,0C,C9
190 '
195 POKE 16561,197:POKE 16562,126  'Set MEMORY SIZE?
200 CLEAR 50:DEFINT A-Z
205 CLS:PRINT "PLEASE WAIT, 'LSET' IS LOADING."
210 CHECK!=-33519
215 FOR ADDR=32455 TO 32766
220   READ HEX$:GOSUB 1010
225   POKE ADDR,DEC
230   CHECK!=CHECK!+DEC
235 NEXT
240 IF CHECK! THEN PRINT "ERROR: BAD DATA STATEMENT.":END
245 POKE 16792,199:POKE 16793,126  'Link code to the word
LSET
250 END
1000 '
1005 'Convert a two digit hexadecimal number (HEX$) to
decimal
1006 '(DEC).
1010 N=ASC(HEX$)-48:IF N>9 THEN N=N-7
1015 DEC=N*16
1020 N=ASC(RIGHT$(HEX$,1))-48:IF N>9 THEN N=N-7
1025 DEC=DEC+N
1030 RETURN
```

NEW HARDWARE AND SOFTWARE FROM TANDY

Thanks to Nick Robinson sending me a copy of the U.S. computer catalogue, I can give you some idea of what is likely to become available over here before long.

An 8.4 MByte Winchester disk system for the Model II has arrived at last. Up to four of these may be added to the Model II. Unfortunately, Tandy do not appear to have developed a reliable method of backing-up the data on the hard disks. Using floppies for this purpose is not really satisfactory, and something like a "streaming" tape drive using data cassettes is really needed.

Super SCRIPSIT for the Model I and III looks very nice. It appears to have most of the features of the Model II SCRIPSIT, together with user-defined keys. Unfortunately it costs $199 and I do not think that you will get anything off for already having purchased the original SCRIPSIT.

Also coming are a new colour plotter and a digitiser.

The TRS-80 Colour will be launched at a three day extravaganza at a London hotel. Your local Tandy store should have all the details if you wish to attend.

Leon Heller

A 'QUICK AND DIRTY' CROSS-ASSEMBLER USING MACRO-80

One way of implementing a cross-assembler for another processor is to utilise Macro-80 by using macros to translate the assembler mnemonics for the target processor into the appropriate binary machine language instructions.

For instance, the macro:-

```
AAA     MACRO
        DB      37H
        ENDM
```

will produce the correct object code for the 8086 assembler instruction AAA (Adjust Result of ASCII Addition). Things get more difficult if you have to calculate relative offsets and things of that sort, but it is a lot easier than writing an assembler from scratch. I am investigating this technique as a means to implement an 8086/8088 cross-assembler.

One thing you have to watch is attempting to re-define existing Z80 instructions. Macro-80 doesn't like it! One

way round the problem would be to put an X or something after every instruction that is common to both processors. ADD, for instance, would have to be changed in this way.

Leon Heller

16-BIT PROCESSOR - LATEST NEWS

I now have the small 8088 system I have been playing with interfaced to my Model I via the RS-232 interface and echoing back characters typed in on the TRS-80. I have translated a Z-80 monitor program (similar to TBUG) into 8088 code and placed it in EPROM using the EPROM programming facility on the Model I. The monitor has a few bugs in it (hand assembly is not too difficult for a simple device like the Z80, but is rather tricky with the 8088) but it should be working before long. I will then be able to load small machine language programs into the 8088 system RAM and execute them.

The next stage will be to add some more RAM to the 8088 and write some software to enable high speed parallel communication between the two systems.

Leon Heller

PROBLEM SECTION

Could someone give me a complete rundown on the full disk based implementations of Pascal available on the TRS-80. (CP/M included) I would like to know about any restrictions, advantages or problems they may have, as well as their cost and suppliers.

Thankyou in anticipation

Graham Roberts
38, Oakwood Ave.
Purley
Surrey
CR2 1AG

I am writing to you as Editor of the TRS-80 Users' Group newsletter in hopes that perhaps you, or one of the members of the group, can help us with a problem. It is something that I feel other people must have come up against and yet we have so far been unable to find a solution.

Let me explain. We have a model one, level II, disc based, 32K system with a serial printer, specifically a Teletype 43. It is the printer that is the source of our present problems. We have a Small System Hardware TRS232 printer interface and this works fine in normal circumstances with our own programs or with Electric Pencil. But when we have tried to use some of the Tandy programs, notably the database management system Profile, it is impossible to get the printer to work.

As far as we can see, this is because the program is designed to operate with a parallel printer and we clearly need some kind of "patch" to convert from parallel to serial. But what? And where can we get it? We have asked around but seem to have drawn a blank; all we have gathered is that it could be a hardware or a software patch but which is better?

Any guidance on this that you can give us we should much appreciate. Meanwhile our thanks for all the hard work that you and others put into the newsletter. There is often a lot that we don't understand in it but it stimulates us to try to learn more and things do become clearer.

Sandra Mason.

DISK BASIC &H MODIFICATION

At the expence of not being able to use octal arithmetic (disk Basic), I have modified the code to accept any string variable (except H$!) after '&' for conversions from hex to decimal.

Examples:-

```
PRINT &HA000   Prints the decimal equivalent
A$="A000":PRINT &A$     does the same
```

A string variable can be used in any statement which would normally have a hex number.:-

```
DEFUSR5=&A$ : PRINT PEEK(&A$)  etc.
```

The octal part will not work:- !

```
PRINT &O(number) and PRINT &(number) gives SYNTAX ERROR.
```

Here is the 'Basic' routine modification with explanations for those interested or unfamiliar with machine code.

```
00100 ;COMES HERE AFTER '&' IN BASIC
00110           ORG     5887H
00115 WRA1      EQU     4121H   ;WORKING REGISTER ADDRESS 1
00120           RST     10H     ;GET NEXT CHR IN INPUT STRING
00130           CP      'H'
00140           JR      NZ,VARBLE  ;JUMP IF NO 'H' AFTER '&'
00150           CALL    CONVRT  ;CONVERT ASCII STRING TO HEX
00160 STORE     CALL    0A9AH   ;RESULT IN WORKING REGISTER AREA 1
00165           EX      DE,HL   ;HL = NEXT CHR IN INPUT STRING.
00170           RET             ;CONTINUE BASIC
00180 ;
00190 VARBLE    CALL    2540H   ;PUT ADDRESS OF VARIABLE IN WRA1
00200           JP      NZ,1997H  ;SYNTAX ERROR IF NOT $ VARIABLE
00210           PUSH    HL      ;HL = NEXT CHR IN INPUT STRING
00220           LD      HL,(WRA1)  ;HL = ADDRESS OF VARIABLE
00230           LD      C,(HL)  ;LEGTH OF STRING
00240           INC     C       ;JUST IN CASE IT'S '0'  ( LDIR !
00250           INC     HL
00260           LD      A,(HL)  ;LOAD HL
00270           INC     HL      ; WITH
00280           LD      H,(HL)  ; ADDRESS
00290           LD      L,A     ; OF STRING
00300           XOR     A       ;ZERO REG A
00310           LD      B,A     ; AND REG B
00320           LD      DE,5C90H  ;( AT END OF KEYBOARD BUFFER )
00330           PUSH    DE      ;SAVE START
00340           LDIR            ;MOVE STRING
00350           DEC     DE      ;BECAUSE OF 'INC C' ABOVE
00360           LD      (DE),A  ;MARK THE END OF STRING WITH '0'
00370           POP     HL      ;START OF STRING
00380           DEC     HL      ;'INC HL' LATER
00390           CALL    CONVRT  ;CONVERT TO HEX
00400           POP     DE      ;NEXT CHR IN INPUT STRING
00410           JR      STORE
00420 ;
00430 CONVRT    LD      DE,0    ;CLEAR RESULT REGISTER
00440           LD      B,5     ;STRING COUNT
00450 CONT      INC     HL      ;LOAD REG A
00460           LD      A,(HL)  ; WITH ASCII CHR.
00470           EX      DE,HL   ;HL = RESULT.
00480           CP      'G'     ;CHR MUST NOT
00490           RET     NC      ; BE MORE THAN 'F'
00500           SUB     30H     ; OR LESS
00510           RET     C       ; THAN '0'.
00520           CP      0AH     ;JUMP IF LESS
00530           JR      C,NUMBER  ; THAN HEX A.
00540           CP      11H     ;RETURN IF NOT
00550           RET     C       ; A LETTER.
```

```
00560           SUB     7       ;IT IS A - F.
00570 NUMBER    ADD     HL,HL   ;* 2
00580           ADD     HL,HL   ;* 4
00590           ADD     HL,HL   ;* 8
00600           ADD     HL,HL   ;* 16
00610           OR      L       ;ADD REG A
00620           LD      L,A     ; TO RESULT SO FAR.
00630           DEC     B       ;UP TO 4 TIMES
00640           JP      Z,7B2H  ;OVERFLOW IF MORE THAN 4 CHRS
00650           EX      DE,HL   ;HL = STRING ADDRESS, DE = RESULT
00660           JR      CONT    ;CONTINUE
00670           END
```

Hex code from 58B7H to 5906H

```
58B7:  D7 FE 48 20 08 CD E7 58 CD 9A 0R EB C9 CD 40 25
58C7:  C2 97 19 E5 2A 21 41 4E 0C 23 7E 23 66 6F AF 47
58D7:  11 90 5C D5 ED B0 1B 12 E1 2B CD E7 58 D1 18 D8
58E7:  11 00 00 06 05 23 7E EB FE 47 D0 D6 30 D8 FE 0A
58F7:  38 05 FE 11 D8 D6 07 29 29 29 29 B5 6F 05 CA B2
5907:  07 EB 18 E1 00 00
```

Here is a Basic program by Ken Shillito printed in MICRO 80, modified to use disk basic:-

```
1 DATA 205,127,10,229,42,249,64,237,91,164,64,237,82,229,193,235,217,209,217,62,
147,237,177,192,126,254,35,32,246,229,217,225,1,170,0,27,26,128,18,19,35,126,183
,40,229,254,58,56,2,214,7,214,48,203,9,56,236,135,135,135,135,71,24,232
2 REMW%="A000":INPUT"ENTER HEX ADDRESS OF WORKSPACE,
OR PRESS <ENTER> IF A000H IS OK ";W$:W%=&W$:FORI%=W%TOW%+&H3F:READK%:POKEI%,K%:N
EXT:DEFUSR0=W%
3 REMINPUT"ENTER HEX ADDRESS OF WHERE TO DUMP CODE ";A$:K%=&A$:I%=USR0(K%)
4 DEFINT@-Z:CLS:PRINTTAB(14)"*** MEMORY DUMPER ***":PRINT
5 PRINT"THIS PROGRAM GRABS UP TO 4000H BYTES FROM MEMORY, IN 40H BYTE
BLOCKS, AND DUMPS THE CODE INTO LINES, (STARTING AT LINE 4)

LEAVING A PROGRAM THAT FINDS THOSE LINES, AND DUMPS THE CODE.
"
6 W$="A000":INPUT"ENTER HEX ADDRESS OF WORKSPACE,
OR PRESS <ENTER> IF A000H IS OK ";W$:W=&W$
7 INPUT"HEX ADDRESS OF FIRST BYTE TO BE GRABBED";A$:J=&A$
8 INPUT"LAST BYTE ";A$:I=&A$:Z=(I-J)/64+1:IFZ<1THENPRINT"ERROR":GOTO7
9 POKE 16612,Z
10 FOR I=W TO W+63:READK:POKEI,K:NEXT
11 PRINT:PRINT:PRINT"IF YOU SAVE THE NEW PROGRAM IN ASCII MODE,
IT CAN BE MERGED WITH ANOTHER"
12 DEFUSR0=W:I=USR0(W+64)
13 DEFUSR0=W+64:I=USR0(J)
14 REM#CD7F0AE5116200CD2C1B1313193620C5E1193620CD2C1BC5E14BD1232371
32336232306401A13F50F0F0FE60FFE0A3807C607C6307723F1E6
15 REM#0FFE0A3802C607C63077231
```

Do not renumber the program, because the machine code looks for line 2 and 3, and changes the 'REM' to a space for the new program. If either line is edited for some reason, then also edit out the 'REM', leaving a space instead. When finished POKE 93 (decimal compressed code for 'REM') in place of the space This is because Basic does not compress any line starting with 'REM' and when running the new program, SYNTAX ERROR would result.

John Cardiff,
14, Bolton Gdns.,
London, SW5 0AL 01 373 2920

Getting the Pound Sign in Superscript with Daisy Wheel II

One of the major disadvantages with the use of 'Superscript' with 'Scripsit' for ordinary business and private use is that it is impossible to print the English pound sign £. It occurred to me that I rarely use the slashed zero described in page 22 of the 'Superscript' Manual, which is obtained by using 'Control Y' followed by a zero '0'. It is therefore possible to change the zero (30H) into a space (20H) and to change the slash (2FH) into the pound sign (A3H) on the Daisy Wheel II. Thus using 'ZAP', the 'slash' can be found at F02E53 and the zero at F02E45, and one changes them in the usual way using MOD. Obviously, one can change the slashed zero into any character on the Daisy Wheel up to FEH: but in my case it has been the missing pound sign ffff which has been my greatest lack.

Bill Cowhig

JKL WITH TANDY'S LOWER CASE MOD.

Although the JKL routine adapted for ACULAB in the Feb. Newsletter is OK for unmodified Model 1's it will not work with the Tandy Upper/lower case modification. The short BASIC program listed below will work with the U/L mod. and is also modified to print graphics with the Epson MX80 printer. To use as a module with Aculab's Extended BASIC, load and run XBAS, then type in and run the progrm. Type

SSAVE"JKL/CMD",1,18688 (ENTER)

This will save the program as an Aculab module, activated by CMD, pressing JKL keys simultaneously will print the screen contents, pressing BREAK will stop the printing. For those of you with other printers, changing the two underlined bytes to 0,0 will allow printing of graphics on machines such as the Microline i.e. the ASCII codes are the same as the TRS-80. Changing these two bytes to 62,46 will print a period when any graphic characters are encountered as in the original program. For those who might wish to relocate the program, bytes 5 and 6 should be changed to the new origin + 31 and bytes 7 and 8 to the new origin +15, in Hex of course and back to front.

JKL DATA STATEMENTS

```
1000 Y= 18688
1010 FOR X= Y TO Y + 82
1020 READ Z% : POKE X,Z% :T=T+Z%
1030 NEXT
1035 IF T <> 7301 THEN PRINT "CHECKSUM ERROR
     IN DATA STATEMENTS"
1040 DATA 42,30,64,34,31,73,33,15,73,34,30,
     64,195,25,26,245
1050 DATA 229,213,197,58,2,56,254,28,40,7,
     193,209,225,241,195
1060 DATA 0,0,33,0,60,6,64,14,16,58,64,56,
     254,4,40,235,126,254
1070 DATA 128,56,4,198,32,24,6,254,32,48,2,
     198,64,205,59,0,35
1080 DATA 16,228,62,13,205,59,0,6,64,13,121,
     254,0,32,215,24
1090 DATA 199
```

BEOF. SMITH

WARRANTY PROBLEMS

As Secretary of the North West TRS-80 Users Group I feel that members should be informed of a recent problem that one of our members has experienced with Tandy, in relation to their after sales service.

It was pointed out to our member, by their Burnley store manager, that because his C.P.U. was six months old it was no longer within Tandy's warranty, and that Tandy do not give more than 90 days warranty on their computers.

Firstly, I should like to bring to the attention of prospective purchasers, that TRS-80s purchased from sources other than Tandy, of which their are numerous, thay can get a full 12 month's warranty.

Secondly, that the apparent attitude of Tandy, on after sales service, seems to have gone full circle. As in the past I personally have had very good after sales service, but with Tandy's recent attitude this seems to have disappeared.

I am, on behalf of the group and the member, mentioned above, taking steps to find out whether Tandy have a legal right, under the Sale of Goods Act, to actually reduce a purchaser's rights to a 90 day period.

Melvin D. F. Franklin.

Reprinted from REM 80, The newsletter of the North West TRS-80 Users Group.

40 Cowlees,
Westhoughton,
Bolton,
BL5 3EG

(* Tandy now appear to be including, with all goods, a slip of paper stating that the purchasers rights under (Sale of Goods Act are not affected by any other statemen , or words to that effect. LFH *)

USING CONTROL CODES WITH CASSETTE SCRIPSIT

To answer Derek Trayler's plea for help in the August newsletter I have produced the following mods.
I have tried it on my machine and it appears to work but it has not been fully tested. If any problems arise, let me know.

You will need a monitor which loads above 7000H and is capable of producing system tapes. The mods. apply to the lower case version of the cassette based SCRIPSIT.

1. Load but do not enter SCRIPSIT via SYSTEM
2. Load and enter the monitor
3. Change bytes 66E1 from 2C to C6
   66E2 65 to 69
4. Enter the following extra code,

```
69C6  FE 50 C2 2C 65 13 1A FE 3D 20 F7 13 1A 4F 3E 1B
69D6  CD DF 69 79 CD DF 69 13 C9 F5 3A E8 37 CB 7F 20
69E6  F9 F1 32 E8 37 C9
```

5. Save as a SYSTEM tape the block 4300H to 69EBH.

This revised version of SCRIPSIT will now output printer control codes as printer format.

The format is PP=x where x is any single ASCII character which may be output to the printer after the escape character (1B).

Do note that all characters output will be preceded by 1B.

Example -

```
>PP=J                       Will output the character stream,
Single                      1B 4A 'Single'
>PP=@                       1B 40 'Double'
Double                      1B 4A 'Single'
>PP=J
Single
```

On my Base 2 printer the character 4A resets the system and 40 produces elongated characters. The result would be to elongate the word 'Double'.

Andrew Donald

FOR SALE

48K 1 Drive Model I system plus software (20 disks) including Newdos 80, LDOS and MON4. Many games etc.
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EXTRA SCRIPSIT FACILITIES

As a new member, I have just finished reading through the last nine issues of your newsletter. One item stood out more than any, and this deals with problems relating to SCRIPSIT, particularly when used with TANDY'S DAISYWHEEL PRINTER, and the lack of facilities to print the pounds sign and many other characters.

I too had this problem, and i approached a small firm quite close to me. They do a remarkable modification to SCRIPIT, which allows printing of the pounds sign, single underline, double underline, subscript, superscript, reverse line feed, backspace, and practicaly all the characters available on the daisywheel. Not only this, but it also allows one to print continuous vertical lines, and even things like Tick Boxes and rectanglar shapes.

The modification is simplicity itself to use, and the instruction manual is very clear and easy to follow. I belive they also have a version for the MODEL THREE SCRIPIT, and several other types of printer.

Other members may be intrested, so I enclose one of their advertising sheets.

S. Hargeaves.

(* The company is: B. & H. Micros, 53 Micklefield Rd. High Wycombe, Bucks. LFH *)

PI IN THE SKY

It is now many years since scientists seeking to make contact with other civilizations in the universe sent out radio signals containing the values of the universal constants. It would be disturbing to receive a return signal but even more disturbing to fail to make contact for this would probably mean that all other advanced civilizations had passed the self destruct stage.

However there is still hope for a signal has been received from the direction of Sirius. Picked up by a local lad Stuart Payne from Pencoed Comprehensive School the message could be put as follows:-

00000 01010 00000 01010 00000 00000 01110 01110 01110 00000
00000 01110 01110 01110 00000 00100 00100 00000 00000 00100
00000 01010 00000 00000 00000

If you cannot make head nor tail of this then phone 0656 3484 .

P.J.Chapman

SOFTWARE REVIEW - HDBS FROM MICRO DATA BASE SYSTEMS, INC

There are many software products on the market that are described as data base management systems. For instance, Molimerx sells several programs that are so described. In fact, these products are really only simple file handling systems. They only permit the very simplest of data stuctures, and are quite unsuitable for handling complex data such as a medical patient records system with several doctors each being responsible for many patients - an hierarchical or tree structure, in fact.

A data base management system that can handle such tree structures is HDBS, obtainable from Micro Data Base Systems, INC. It is broadly in line with the CODASYL recommendations - CODASYL was a task group set up to standardise generalised DBM systems using based on COBOL, the language widely used for business programming. However, HDBS can be used with a variety of host languages; BASIC, FORTRAN, Pascal, COBOL and assembler. It is available for most of the popular micros including the TRS-80 Model I, II and III. I am using the Newdos version on a Model I.

HDBS consists basically of two modules. A data definition language (DDL) analyser, and a massive machine language program that resides in high memory and handles all interactions with the data base, via BASIC programs using machine language sub-routine calls. Using the DDL the data base is described in a form of high level language according to the desired relationships between records and data items. These relationships are described using the terminology of set theory, but the process is not particularly difficult. The DDL is then used to create the data base. All the programmer then has to do is write a the programs to act as an interface between the end-user and the data base. All the sorting and searching is done for the programmer.

The product is supported by excellent documentation, but is really only suitable for an experienced programmer.

Although one is left with only 10K of RAM (a 48K system is needed) this is not really much of a disadvantage, as you merely write your program as a series of modules that are loaded when required. This slows things up a bit, of course.

The cost is around $300 from:-

Micro Data Base Systems, Inc.,
P.O. Box 248,
Lafayette, IN 47902,
U.S.A.

ELECTRIC ACCOUNTANT by Martin MILLER, marketed by MOLIMERX Ltd, Sussex.

This program has been in the office some time for review in this newsletter, and I have apologised personally to Martin for the delay.

The program will always be available for review at any workshops I attend, and can be demonstrated by myself, on the understanding that it is for review and not copy !

To my knowledge it is being used by a Scottish business and found to be useful for that business, and had not been at that date.

The program is month orientated and allows the user to build-up files which can be interrogated e.g. cheque No., Supplier name. On use the prompts were friendly and meaningful, with inputs being both alpha & numeric, and comments and notes allowed if required with those inputs.

For those who would like to know more, drop me a line and those queries can be tried out on the program on your behalf, or Martin could answer them direct.

Brian Pain.

Infinite Basic - Business - Bins

The above routine inserts a new item into an already sorted array, which can then be saved to disk or tape.

It appears ideal for subscription records with separate files for each letter (A - Z) or block of letters (A - D, E - G etc).

The current menu is:-

INS - Insert a new item
DEL - Delete the existing file
LDE - Delete just one line
DIS - Display the existing file
LIS - List the existing file
EDI - Edit an entry in file
LOA - Load from disk
SAV - Save to disk

The sort is on the first letter of the input, but with some string handling the above will output a simple statement for a small business. One feature to be explored further is that separate files can be merged, and then resorted. It must be emphasised that this is all in memory sort , and the above development is due to the visit to Glasgow and the assistance received from Jim McPherson there, and from Stephen Bird and Trevor Grover in Milton Keynes.

Brian Pain

AN ARTICLE FOR BEGINNERS

Brian Pain has said in a recent newsletter that he would welcome an aritcle for beginners, since he has found that many beginners do not renew their subscription to the newsletter because they find it too advanced.

I started with a level II keyboard nearly two years ago and my system has grown since then. I found little difficulty in grasping BASIC, provided I did not turn to the Tandy Level II Basic Reference Manual, which came with the machine. To my way of thinking this book is really hard going and is useful more as a reference book than a "learning" book, primarily because it does not include enough examples in enough detail. As a textbook I found the book called Learning Level II, by David A Lien, published in America very helpful. If there is an equivalent book published in this country, which is just as good I have yet to find it.

As far as magazines go, the best I have found is 80 Microcomputing again published in the States. The magazine which is published monthly, is over 300 pages long and articles are included for enthusiasts of all abilities. The advertisments make enticing reading because of the cheaper prices and I often try and work out how much I would have to buy in the States, to justify a flight over there. Magazines in this country also have some useful articles but beware of any author who includes the phrases "..... although this program has been written for the PET, it can readily be converted to run on other micros....". Clearly the author would have no difficulty, but I do. I would ask anyone who finds this in a future article to write to the author (care of the editor) and ask "How?". After the editor has received the first hundred requests, he may ensure that he cuts it out of all future manuscripts.

Naturally I have found that in any magazine I read and particularly this newsletter there are many articles, which are above my head. However I often find that later on I want to refer to them after talking to another enthusiast. In my opinion it is not easy to increase one's knowledge without some study and it is unrealistic to expect to be able to use even BASIC to the full, without a lot of practice. I admit there are several commands that I have yet to come to terms with and I just do not understand.

Whereas it often possible to puzzle out a problem in BASIC, I consider machine code to be much more complex and if there is a single book which explains it clearly, I have yet to find it. (Maybe the answer is to attend a few of the lectures run at the workshops?) Additonal software is needed such as Editor-Assembler and much patience

If your experience with using cassettes is similar to mine, you will have found them very frustrating and slow. Stringy floppies (a specially developed cassettes which works much faster than normal cassettes but not as fast as discs) both have their advocates. I believe that the TCB has its place particularly since it costs only $120 in the States (built) or less as a kit. This is a box slightly larger than a packet of cigarettes which is connected between the expansion interface socket at the back of the keyboard and the cassette recorder. To use it, it is necessary to connect it to a 9 volt supply and to first load a small program in to the computer. Then it is possible to save and load programs at about 5 times the normal speed, but what is more important it will work successfully over a wide level range and errors occur only rarely.

Richard Creak

(This has been typed on an Oki Microline 82A printer, but as you can see the 'i' and 'j' are poor and if anyone knows how I can alter the character generator to improve them, I should be most grateful for the information.)

WORKSHOP REPORT BIRMINGHAM

THIS WAS AGAIN HELD AT THE POLYTECHNIC OFF HAGLEY ROAD IN COMFORTABLE SURROUNDINGS - THE REFECTORY WAS FIRST CLASS, AND THE SYSTEMS ROOM WAS THE MAIN HALL, WITH OVER 20 SYSTEMS. MENTION MUST BE MADE OF THE APPEARANCE OF A 100% HOME BUILT TRS-80 ON ONE BOARD, BY A MEMBER FROM COVENTRY PROVING ONCE AGAIN THAT IF YOU HAVE PATIENCE ANYTHING IS POSSIBLE- ANOTHER HAS BEEN COMPLETED IN ONE WORKING DAY.

THE DAY'S FEATURE WAS LAURIE SHIELDS SESSION ON ASSEMBLER FOR BEGINNERS, SO MUCH SO THAT 3 CAME FROM LONDON FOR THIS! OVER THE PAST FEW WEEKS LAURIE HAS WRITTEN OUT A SERIES OF NOTES FOR A NEWCOMER, AND THESE ARE NOW AVAILABLE FROM HIM DIRECT OR THE OFFICE. THE INITIAL REACTION IS MOST FAVOURABLE AND IT IS HOPED THAT MEMBERS START TO USE THESE NOTES, AS WELL AS THE FORTHCOMING NOTES FROM STEPHEN BIRD ON DOS, AND FROM KEN ROBINSON ON THE VIDEO GENIE.

LAURIE'S SESSION LASTED A FULL 3 HOURS WITH CONSIDERABLE PARTICIPATION, SHOWING THAT THIS CAN BE BENEFICIALLY EXPANDED TO 5 HOURS AT MILTON KEYNES. THE EARLY PART DEALT WITH A SIMPLE IDEA - DUMP THE SCREEN CONTENTS TO PRINTER - FOLLOWED BY USING THE ROUTINE IN BASIC VIA THE DEFUSR/USR TECHNIQUE. THIS LOST SOME FOLK AS IT REALLY REQUIRED MORE TIME.

THE OTHER SESSIONS WERE:-

LEON HELLER ON GETTING STARTED IN COMMUNICATIONS - A RESUME ON HOW EASY IT IS TO START IN USING THE TRS-80 AS A TERMINAL

STEPHEN BIRD ON LDOS AND ANSWERING A VARIETY OF QUESTIONS ON DOS

BRIAN PAIN

I have used this package to develop a massive data base system for maintaining a large number of building records, and I am currently using it to implement a TV rental records system for a local dealer.

Leon Heller

SOFTWARE REVIEW - MAILBOX FROM 3-LINE COMPUTING

Frederick Brown, of 3-Line Computing, Hull, has sent us a copy of an electronic mail program which he has written, called Mailbox. Electronic mail, for the uninitiated, is the transmission of documents via some form of communication channel from one location to another. In our case it refers to the transmission of documents from one computer to another via the Public Switched Telephone Network (usually abreviated to PSTN for obvious reasons).

Mailbox can best be described as a poor man's Forum-80, in that it provides most of the essential features of Forum-80 at considerably less cost (£45).

Whereas Forum-80 needs a three drive system, Mailbox runs quite happily on two drives, and could at a pinch be used with one drive. Of course, you still need an auto-answer modem, but it should enable someone who wishes to set up a computerised bulletin board system to get going at a relatively low cost.

It would also be suitable for business purposes, although since no error/checking or correction is incorporated it might not be suitable for important information like accounting data.

The program is still being developed. In spite of this the package seems to work quite well, although I did not find it as 'user friendly' as Forum-80. As it is written mostly in BASIC it would be quite easy to tailor it to your own requirements, provided the supplier did not object.

I can recommend this package to anyone wishing to experiment with electronic mail, either as a hobbyist or for non-critical business applications.

Leon Heller

INNOVATIVE

TRS-80 SOFTWARE

FROM THE PROFESSIONALS



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.



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Blandford Forum, Dorset.

Tel: 0258-53737

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36 Park Court Road
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Tel: 0656-3484

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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 W13.9PQ

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 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.

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)

NORTH EAST LONDON'80' USERS GROUP,
P.O.BOX 71,
Chingford,
London E4 7QX.

Contact Alan Greenhalgh

01 524 2765 or 01 520 0218

CHELMSFORD
Meetings generally at :-
38 Britten Crescent,
Great Baddow,
Chelmsford.

Contact Mr R. Hamlett,
Pine Lodge
Desden Road,
Loughton,Essex

ROCHDALE

Melvyn Palmer,
28 Rooley Moor Road,
Rochdale,Lancs.
0706 54681

****
MKSS of MILTON KEYNES
0908 566660
40a HIGH STREET,
STONY STRATFORD,
MILTON KEYNES.
80-US £3.00 or £9.00 for 6 months
ring for past index's
****

****
MKSS of MILTON KEYNES
0908 566660
40a HIGH STREET,
STONY STRATFORD,
MILTON KEYNES.

DOES YOUR TRS-80 TALK TO YOU?
FOR LOW COST SPEECH SYNTHESISER
RING THE ABOVE
****

Manchester Sub-Group
==========
Contact: Francis Glenister
13 Pridmouth Road
Withington
Manchester M20 9GN
Phone: (061) - 445 - 7191

Fareham (Hants) Sub-Group
==========
Contact: Brian Shepherd
The Security Centre
203 West Street
Fareham,Hants
Phone: Fareham 289114

Meetings

****
MKSS of MILTON KEYNES
0908 566660
40a HIGH STREET,
STONY STRATFORD,
MILTON KEYNES.

FOR SORTING/SEARCHING IN ASSEMBLER
BUT USING BASIC
UP TO 15 fields/DATA or FILES

RING THE ABOVE for further details
****

Southampton Sub-Group
==========
Contact: Mr Ron Watson
136 Ringwood Road
Toton
Southampton
Phone: (0703) - 866239

Group Meetings

National TRS-80 Users Group

Newsletter

VOLUME 3 ISSUE 5 NOVEMBER 1981

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INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from Brian Pain, the Group Secretary and Publisher of the Newsletter. Membership of the Group is open to anyone with an interest in the TRS-80 range of microcomputers,and compatible systems such as the Video Genie.

Details of the Group accounts and the constitution of the Group are obtainable from the Secretary.

Members requiring assistance with problems related to the TRS-80/Video Genie may call the Secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops are arranged from time to time in various parts of the country.

Sub-Groups exist in many areas. A list is provided at the back of the Newsletter. Sub-Groups also exist for medical and educational users.

The Group maintains a software library which is free to members. A library list is obtainable from the Secretary (price 50p). The medical and educational sub-Groups maintain their own libraries.

A membership list is available from the Secretary (price 50p).

Back numbers of the Newsletter are available.

Please send all contributions for the Newsletter to the Editor.

Chairman and Newsletter Editor:-

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

Secretary and Newsletter Publisher:-

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40A High Street,
Stony Stratford,
Milton Keynes.
Tel: (0908) 566660/564271

EDITORIAL

Our membership has now passed the 800 mark! An advertisement we recently placed in PCW was largely responsible for the increase. We intend to advertise on a bi-monthly basis from now on.

The Group AGM will be upon us in a couple of months. Please start thinking about any points you might like to raise in connection with the organisation of the Group.

Some members are still complaining that there is nothing for beginners in the Newsletter. And, I keep telling them that the solution is in their own hands. Unless they let us know what aspect of computing they would like covered, there is no way in which we can request suitable articles. It really is your own fault!

The Amateur Computer Club will be organising a conference on Communications. As a result of a temporary mental aberration I agreed to serve on the organising committee.

Leon Heller

FOR SALE

A former member has a 8" disk drive for sale (Shugart, I believe), together with hardware for interfacing to a Model I. Suitably modified software is also available. You will have to provide your own power supply. Please contact me for more details.

Leon Heller

FOR SALE

TRS-80 16K Keyboard - switches up, but returns to MEMORY SIZE after a period(of a few minutes to an hour or so). Any offers?
EXATRON STRINGY-FLOPPY, with a number of programs on wafers, and spare wafers. £50.00
I.C.L. Termiprinter, was working, now dead. Any offers?

Ian Sinclair,
Hedingham (0787) 61004

MEMBERS' LETTERS

From Martin Rogers

This is my first letter to the newsletter and I have several things to write about.

1: I recently became interested in Forth and got the disk MMS Forth. With the three drives I use I have 2611 of disk storage! The virtual memory is a lot easier to use than any other dos I know of and is similar to the Percom DS-80. The Forth language allows you to create your own disk commands and file system. Anyone interested should read the march newsletter page 23.

2: Some of us disk users like to make backups and it's nearl impossible to copy Microsoft Adventure. (The reviewer of M.A. in BYTE couldn't copy it!) Superback is the only program I know of which will copy it (with a struggle) and I'd like to know if there are any others.

3: A monitor which I haven't seen mentioned is MON4. This is MON3 with added commands and improvments. It's usefull for data recovery, tape-to-disk and disk-to-tape transfer, and disk repair as well as debuging. Files can be loaded, created, killed and there's an exit to dos. The disassembler can output a source file with line numbers to disk. The secter I/O commands can work without dos and MON4 can be used instead of MON3 on a cassette based system. Unfortunatly there are still no breakpoints but I've never had to use them, if I ever do then I can use the LDOS Extended Debugger. These two programs work well together.

4: I used to have trouble with the expantion bus connector. Rebooting in the middle of an Attack Force game is an example (very annoying). The problem was solved by spraying the connector with Shell Damp Start.

5: SuperUtility really is a super utility. A revew would be nice, I haven't seen one anywhere. I'd like to here from anyone who has experience with Macro-80 or Editor Assembler plus. These look like good programs but what are they like to use? I already have the assembler supplied with Newdos80 which is good but doesn't use macros.

6: Some friends and I are intrested in writing an adventure. Could anyone supply us with an assember listing for the adventure programme in the August P.C.?

Finally, would it be possible to add Forth programs to the library?

Martin Rogers

P.S. All my letters are written with Scriptsit and an Epson MX-80.

From Laurie Shields

With deep apologies to my regular readers (?) I now belatedly power up Scripsit in an attempt to catch the Christmas issue.

Firstly there were a couple of matters pointed in my direction way back before the summer that deserved some comment. In answer to 'Desperate', in the June issue I can only comment that if the copy of Spacev that he has bought doesn't work properly, then send it back. If as one might suspect he didn't buy it then surely he has nothing to complain about. I did try to point out in the article that all I was involved in was adding a patch to kill off the Dos keyboard scan to a version of the program that someone else had put to disc. Whether in setting it there involved altering it in any way could only be answered by he who transferred it to disc.

On the same topic I wish Alan had read my article before slinging some totally irresponsible offhand remarks regarding NewdosB0 versus Vtos. Now the whole point of my article was to demonstrate that one didn't need these exotic or erratic, and I leave the reader to work out which is which, Dos's in order to get access to and modify CMD disc files. The whole operation can be done using TRSDOS Disc Basic, given a little bit of ingenuity.

As for the amount of time it took. I could have achieved the same objective using Zen and Superzap whilst Vtos was still in the process of booting-up, checking on whether Randy's blank sector was where it should be and if it wasn't did it matter anyway, and finally configuring the system and puzzling out what day it was. Vtos may be clever in its device handling but as far as the disc Basic is concerned there are still some major bugs and deficencies to be sorted out. And it is so pathetically slow !

Now for much more important matters. Brian tells me that we have at least two new members and that means that they probably have never heard of Zen and haven't been given the low down on interpreting Leon's comments on software.

'... much more powerful...' = takes up more disc space.
'... an excellent program ...' = comes from america.
'... useless program ...' = does not come from america.
But the priceless beauty was '.. not recommended for beginners ..'. Now this really means "the prosram although american and therefore it must be sood, is actually so impossible to use and the documentation so awful that only an expert could possible guess as to how to implement it".

Now for Zen, this assembler is being used by an increasing body of machine code programmers who are finding that once they get beyond the examples in the back of the E....m manual that they need something much more efficient and less troublesome. The disc based Zen now out-performs every other package available for the TRSB0 and I include the whole of the assemblers offered by the american market. No other assembler has got the comprehensiveness offered by Zen and don't take my word for it. Ask Leo, Jeremy, Brad or Brian Howarth who has just put together a new 13k Adventure for Harding, that was causing all sorts of headaches before he got Zen.

In an attempt to force Leon to come to terms with reality I challenged him to produce on a standard 35 track disc an editor/assembler of his choosing, the source file for a program the size of Scripsit, a complete Dos and of course space on the disc to assemble the object code. When he does that he might be in a position to comment on the relative merits of his assembler but until he does I wish he would keep quiet and stop passing remarks about software of which he knows nothing.

Macros, relocatable object modules and linking loaders do not mean power, they are simply an adaptation of techniques developed on mainframes. Techniques evolved for compiler languages, where memory and disc storage are counted in mesabytes more often than in K's. When someone can demonstrate that the use of such techniques makes more efficient use of the computer, or saves time, or produces more readable and easier maintained code, or makes debugging easier then I might implement them with Zen.

The latest improvements to Zen include:

i. Assembler listing to Ascii disc file, invaluable if you haven't a printer and if you have it saves a lot of paper.
ii. Total compatibility with the Model3.
iii. Doscall function implemented for Newdos80 users.
iv. Newdos80 ver2 disassembler compatibility.
v. Formatted or unformatted video/printer source file display.
vi. Global search and replacement of text.

All of this together with Zen's capability to assemble direct from disc, from Scripsit/Pencil compatible source files (and I mean files), output direct to memory or disc or cassette, allow lower case, respect high memory, etc etc.

Other News

I've just arranged a dealership with Instant Software, the biggest US software publisher for the TRS80. Prices will vary with the state of the pound-v-dollar but they look something like this:

up to 10 dollars :-: #9.50
up to $ 20 :-: #14.50
up to $ 30 :-: #19.50 etc.

Pick of their catalogue so far:

ULTRA MON Does everything including setting breakpoints in Rom Level2 or Disc #17.50

TLDIS & DLDIS Tape or Disc Labelling Disassembler. If you are going to try and understand other peoples machine code you need one of these. Tape #12.50 Disc #15.00

FIND IT QUICK Turn your TRS80 into an instant librarian for any type of info retrieval. References can be recalled according to author, source, date or by up to nine keywords that you determine. 32K 1 Disc #30.00

COSMIC PATROL For the space game enthusiast this is the best on the market. Complete with sound. Tape #12.50 Disc #15.00

MASDIR The ultimate in disc directory programs. Holds the directories of hundreds of discs with thousands of files and sorts, seaches, selects, lists and prints them at machine code speed. Disc #20.00

The catalogue is big and covers all aspects, drop me a line or ring if there's anything wanted.

Hardware ** Memory Expansion **
I recently got involved in supplying a memory expansion unit that fits all in the keyboard and doesn't involve cutting any wires or soldering. Just pull out the old chips, plug in the printed circuit board that holds all the memory, clip on a few wires and plug back in the old chips and the new ones. The package comes complete with board, chips, inserter/removal tool and manual.
16K costs #59.50 and 32K costs #99.50

Now this has to be the smallest machine code utility on any disc system and its for Electric Pencil users. The program has no coding whatsoever and is simply an execution address of 5CC5H, which just happens to be Pencil's re-entry point. So if ever you are in the middle of doing something with Pencil and it reboots simply key PENCRASH or whatever you decide to name it and Bingo you're back in business. One or two characters on the current blinking cursor line will probably be altered but the rest of the text is still there. The source code in Edtasm format is like this:

```
      END   5CC5H
```

and in Zen format:

```
EXEC  5CC5H
END
```

Or if you want to do it in Basic then this program will create the necessary CMD file:

```
10 OPEN 'O',1,"PENCRASH/CMD"
20 PRINT#1,CHR$(2);CHR$(2);CHR$(&HC5);CHR$(&H5C)
30 CLOSE:END
```

For Level 2 cassette users, should Pencil freeze up on you all that is needed after resetting back to READY) is to key SYSTEM (E) and /17318 (E). The same technique applies to the Aculab Floppy Pencil with the difference being the fact that this Pencil is 2048 bytes higher in memory so after SYSTEM (E) key /19366 (E).

Laurie Shields, 151 Lonsedge Lane, Winsorworth, Chesterfield.
Tel 0246 75568

**(* Really, Laurie, I cannot recall stating that "a useless program" is one that does not emanate from the States. If a macro capability and the ability to produce relocatable object modules were of little use to programmers, why is it that the semiconductor manufacturers like Intel, Zilog, Moterola etc. all produce development systems with these features. Moreover, these systems and their attendant software are used in professional applications where it is <u>essential</u> that highly efficient, easily maintained software is produced.
I used to work for a manufacturer of office systems where the software engineers used to agonise over the best way to make use of the ROM space available. Every byte had to count if it made the difference between being able to use a 16K ROM, or something larger, since the machines we were designing would be sold in thousands. I hardly think they would use inefficient software. MACRO-80 is virtually identical to the development software they used.
Apart from their uses in producing readable concise code with a minimum of effort, Macros are fascinating in their own right. If you want to see how powerful they can be, get hold of a copy of Macro Processors and Techniques for Portable Software by Prof. P.J. Brown. LFH *)**

From David Washford

Thanks for another very informative Newsletter. Although you know from last month's issue that I am a beginner, I would offer two tips, learnt most painfully, to other beginners :

Syntax Errors. Although you can usually see the mistake which caused this message, sometimes it is not very obvious. If you have a difficult one, enter the Edit mode, and space along, character by character. By this means I found, for example, that some of the syntax errors relating to LPRINT lines arose because memory remembered that I had backspaced (to correct a typing error) and therefore the printer was being asked to back space ! I don't pretend to understand why this happens, I just know that I had great difficulty in recognising and correcting the syntax error !

Disks. I recently spent literally hours trying to fathom out why a program in drive Ø would not call a data file in drive 1, but instead displayed a blank screen, followed by the next program line. Quite by chance I eventually discovered the reason - the datafile name had become entered onto the program disk directory (probably I had at some stage run the program without having the data disk in drive 1!). So if you find this problem then it is worth having a look at the directory for drive Ø.

Now for a beginner's request. I am learning to hate these clever b's who write a program in one of the many magazines and start off by saying "This program is written for a so-and-so machine but can easily be adapted for any other micro". Easy for <u>them</u>, perhaps, but with so many versions of basic and little opportunity for an owner to learn another system which he hasn't got, not so easy for me ! So how about an article giving the comparable instructions ? For example, I think that SCREEN in Nascom 2 means PRINT @, but since it is followed by two numbers (column and line ?) I do not know quite how to translate this into our version of BASIC. Similar situations arise with nearly every listing. Related to this, the November issue of 'Computing Today' gives a comparison chart of the character chart for TRS-80/Sharp/Pet which is quite useful. If any member can't get a copy and as long as I don't get done for breaking any copyright laws, then I'll willingly supply a copy in return for a SAE.

David Washford,

1 Alexandra Road,

Bournmouth

From Richard Jacobs

I am writing for two reasons the first is to beg guidance of either you or one of your members and the second is to offer guidance.

I have just purchased an ACULAB Floppy Tape. I will probably be using it for both Word Processing and Data Processing. The Word Processor, I am in the middle of writing in Assembler. My problem at the moment is that of file handling - using the ACULAB Floppy from a machine code program. I would be grateful if someone could write giving me details of useable Entry Points for the 8 File Commands and the setup needed.

On my second point I plan to write a set of small articles for beginners on Assembly Language Programming with particular reference to the Z80 instruction set and the TRS80. If anyone has any particular ideas what they would like me to cover I will give it some thought.

Finally I would like to thank you for a very informative news letter and for spending time and effort in producing it. If anyone has any problems they would like solving with Assembly Language Programming I will try to help. I also write programs for a small fee which I would reduce still further for members. Thank you again and keep up the good work!

Richard Jacobs

I can be contacted at the address below

9 Savernake Court
Wolverton Road
Stanmore
Middx

Please write with any queries or sugestions for my articles

From P.Green

Recently we joined the Natiol TRS-80 Users Group and wondered if you could help us with advice on line printing. We use a cassette-based 16K Level II system with a Microline 80 printer. We are relatively new to the field of computing and find that if we want the results of a particular program we have to edit PRINT statements to LPRINTs. Is there an easier way?

We find the addition of the Educational Users Group section in the Newsletter most interesting because, in fact, it is the only section we understand. The rest really appears to be for the very dedicated hobbyist. We wish we could make use of it as it is probably packed with good tips. Hints for the beginner would be welcome. For example, after progressing from SET statements to POKE for faster graphics I now use PRINT n, STRING$(n,CHR$(X)) for much faster graphics. Things like this are very applicable to us in schools where we do not have a lot of time to experiment and find out for ourselves.

P. Green,
St. Bernadette School,
Bristol, BS14 9LS.

(* Converting PRINT statements to LPRINT is covered in Vol. 2 Issues 3 and 4 of the Newsletter. Back numbers are available.

It is no good simply bemoaning the fact that there is nothing for beginners in the Newsletter. Please be constructive. You merely have to write in and tell me specifically what you would like to see covered. I will publish the request and I am sure someone will do something about it.

We are now including the Librarian's address in the front of the Newsletter. LFH *)

From Derek Trayler

I have been in touch with Andrew Donald who gave me an advanced copy of his Scriptsit Patch. It was very useful but as it was intended for Andrew's Base 2 printer it lacked a few refinements for the more advanced Epson printer. As a result he has now produced a Mk3 Patch which can make the Epson and Centronics printers sit up and beg. Another point worth mentioning is that Andrew not only supplied, free of charge, a program that would have cost far more than a years subscription to the users group but also went out of his way to explian how it worked.

I have already sent my thanks to Andrew but I would make a point to other beginners who feel that they do not get their monies worth. If they asked questions that can be answered then they will get a lot of value from a users group. On the other hand if they just complain that there is nothing of value in the magazine then they should at least store up the back copies. I found that when I first started I could not even understand the problems let alone the tips and answers. As time goes on I am repeating all the mistakes that everyone else has made. The difference is that I know where to find the answer.

I think that one problem that does arise for beginners in our group is that the more experienced people use Discs while the rest use Tapes. A small tip for anyone using a tape is to invest in a Bulk Erazer. I first used tapes for music and found that new tapes sounded cleaner than rerecorded tapes. Later when I used tapes with a Computer I found that a program on a new tape was far less prone to loading errors. In particular Scriptsit files on Tapes were very difficult to load. Then I bought a bulk erazer and found that it was the poor eraze facility that caused most of the problems. I later tried erazing tapes before recording music and can hear the difference.

Derek Trayler

Steely Dan

Do we have any fans of Steely Dan in our midst? If so would they like to contact me.

Mike Gibbons

EDUCATIONAL SOFTWARE REVIEW

by Dave Futcher

Bryan Etherington of North Bersted near Bognor Regis has recently established his own software house specializing in educational material. His programs are being marketed the name of BRYANT (EDUCATIONAL) SOFTWARE.
This review will look at three of the first programs that he has on offer to the Primary market. At the moment the programs only run on TANDY TRS-80 and VIDEO GENIE but plans are in hand for versions for the PET and the BBC MICRO.

CLAWS

CLAWS is an enteraining little program which provides practice in addition, subtraction and multiplication. However there are many many programs that offer this, but CLAWS does attempt to do that bit more, although it certainly could be described as yet another Maths Drill program it does go a lot further than most to make the work appealing and fun to the child. CLAWS too begins to use some of the potential that the micro has with graphics.

The program is built arround the child being asked a question ad a claw moving accross the screen towards the question and theatening it, if the question is not answer in time the claw wipes off the question. The idea of the claw and time running ot certaining appealed to our children, and it certainly provid an incentive for the answer to come quicker! Of course when you fail to respnd in time the claw gets you and you are treated to a graphical 'GOTCHA' sequence.

Built into the program is a chance to set various parameters. These are -:
Choice of problem - you are offered add, subtract, and multiply.
Speed of operation - there is an offer of five different speeds. The faster the speed the faster the claw moves.
Number youb want to work with - with this function you are able to specify one of the numbers that the program will use in its question.

Once the program is up and running, you are lead through the parameter setting and then you are there with you first problem. Whilst the claw is moving towards you, you are prompted with messages that flash such as 'enter tens', which some children found helpful when they were experiencing place value difficulties. If you get the question right each time you are given a speed score. And if you are wrong and the claw gets you, a sequence tells you the correct response.

ON GUARD

On Guard is a mathematical game that is based on equivalances invdecimals, vulgar fractions, and percentages. It is based on an early program that just dealt with decimalfraction and vulgar fraction equiliants. This review deals with the expanded version that has just become available and offers eight different options. This comprehensive coverage includes work at tenths and hundredths in decimals. We found that when working with older pupils in the Middle School that the areas covered were just what was required with the age range.

The theme of the program is treasure boxes in which you have cards with either decimals, vulgar fractions, or percentages on. A burglar appears at the botom of the screen and threatens to take away your treasure boxes. If you fail to answer the question correctly on equalivance the burglar runs up the screen and steals you treasure. For those who are able to keep the treasure safe for ten turns there is a treat of a chase between the burglar and the long arm of the law. For those who fail on any question there is a short revision course with provides exercisesto help you defend the next treasure box.

We have found both these programs to have been enjoyed by the children and are welcome additions to our software library. They are certainly good value for money costing only $4.50 each. Bryan Etherington has used some novel features to good effect, he has begun to explore the power of the graphics, and his claw and burglar are worth watching. If he continues to provide us offerings that improve further on these his work will be worth watching out for.
However both programs were slightly spoilt for the children by the labourous keying in of parameters for each problem. It would have been so much better to have set the parameters for ten problems! These faults have been accepted by the author and future versions will be accordingly updated.

A series of program on odd and even numbers has now been finished, and I here they both make extensive use of the graphics. Other programs on shopping are under development and so is another called MONEY BOX.

Dave Futcher

FOR SALE.

I have graduated to an Mx 80F/T,so have for disposal an excellent MICROLINE 80, with £ sign and buffered cable. Takes standard Telex paper. Delivered Colchester or London, otherwise buyer pays carriage. Price £250
Maxwell Stamp,Mulberry Green Farmhouse,Copford,Essex.
Tel: (0206)210231.

TRS-80
EDUCATIONAL
USERS
GROUP

Newsletter Three 31st October 1981

MEMBERSHIP OF THE GROUP:

In the last month the membership of the group has increased from 70 to 115, which is a pleasing sign, but as I said in the last edition we are only scratching the surface of the great potential of membership in the U.K.. Do pass the word arround to other educational users.

SOFTWARE DIRECTORY NOW AVAILABLE

One of the most pleasing developments in the last month has been the production of the groups SOFTWARE DIRECTORY, it had been planned to have been ready back in the summer and it was finally finished and being distributed in September. This directory lists some 160 programs available to members of the group the National Users Group as well. At present the library is tape based with the programs being made available in whole tapes of related material. Our library continues to grow weekly as donations arrive. Some excellent software is becoming available and it is tremendous to see software being shared arround free, for the benifit of all. Yes everything in our library is accepted on the understsnding that it is in the public domain. More details of programs in later newsletters. It is likely that before Christmas that a supplement to our directory will have to be published.

NETWORK USERS

A growing numbers of our members are schools that have installed Computer Classrooms with a number of machines networked together. I hope that in future newsletter that we can have more details of their work and their sucess with this great concept.

ELECTRONIC LEARNING

This is a new bi-monthly magazine for all teachers interested in new technology in schools. Edition 1 takes a look at educational software in a survey of programs and packages from all the major U.S. Educational Publishers. This new magazine is available on subscription from

Scholastic Publications Ltd.
Westfield Road
SOUTHAM
Leamington Spa CV33 0JH

for £6 for a years editions

COMPUTERS IN PRIMARY EDUCATION

The University of London Institute of Education are organizing a day conference on 11th November on Computers in Primary Education. Among the speaker is Roger Keeling of Newman College, who has produced some fine educational programs, whichhave now all been translated from the 380Z to the TRS-80

NEW SOFTWARE AVAILABLE

John Wiley in Chichester the well know British Publisher has begun to handle software from the U.S.A. from the Hayden Group. This output includes some educational material and some of it is available for the TRS 80. These include a number of Mathematical packages by Jules Gilder.

Bryants Educational whom I wrote about last month continues to produce programs that I am sure will be of interest of members. Elsewhere in this newsletter is a review of two programs that our school has tried and tested. But now Bryan Etherington has more to offer, he has produced two fine program that concentrate on odd and even numbers. The first of these TOWERS gives the user the chance to build up towers of blocks to see if they are odd or even numbers. In the second CROCODILE you have to beat the crocodile in deciding whether a displayed number is odd or even. Both these programs are £3.50 each. Bryants also offer two other interesting programs that may appeal to Secondary teachers --
DATAQUIZ in which you are able to design your own multiple choice quiz, it has a number of special features that enable yo to save and load your own files from tape
GCE O LEVEL REVISION this program deals with questions from Paper 2 and each question is backed with a teach in.
Bryan Etherington has a number of programs ready for issue next month which include MONEY BOX a subtract and multiply game where you fill a money box as you get the problems right. I've only seen a development version but it is full of some very interesting graphic sequences. Also due out is DECIMAL DAN which is planned to help all of us who have problems in decimal work in school.
Contact BRYANTS at Chalcraft Lane, North Bersteads [illegible] REGIS.

I've also recently received a whole collection of programs from John Everett of Lutterworth Software who is marketing a batch of Basic Maths and Word Matching programs. They are available at £6 a tape. More details of what is on offer next month.

SCHOOLS COUNCIL ECONOMICS PROGRAMS

David Beale of Dorset Institute of Higher Education has converted the Schools Council Computers in Education Economics programs and is very willing to share these with members of the group. He has much to offer the users group paticularly the links that he has made with their TRS 80 via the Smart Terminal Software and the College ICL 2903 and also their RM 380Z.

TRS 80 INTERFACING 0978, 263030
I've recently had contact with E&L instruments (U.K.) of Wrexham who are marketing the IF-100 TRS 80 Interface Box. This device turns your TRS into an industrial controller. Anyone who requires further details do contact me.

CONTIBUTIONS WANTED

Rather than my collecting together what is happening in the growing world of computers in schools we do need contributions from others. So all you users out their do contribute!
On a sad note we do have one contribution this month. Its from an early ent[illegible]iast of CAL in the Primary sector, Tony Hughes

I TOOK MY HARP .....

I suppose I'm a peculiar sort of bloke, even as teachers go, and maybe it was as too much to expect a computer to be welcomed in a Primary school.
My Headmaster said I could bring my Tandy to school to use for a lunchtime club. He even found forty pounds to buy an old 17 inch T.V. for it.
So I made up this clever carrying case for it out of wood and off I went..... I only had a few simple programs for it, thatI had cribbed from a mag., like Tables, Spelling, Decimals, Bases, Number etc. but the children were so keen I felt I had to go from lunchtimes to mornings before school. Soon it was everyday. THAT'S WHEN I MADE MY BIG MISTAKE!!
So few children seemed to be getting computer time that I asked the other teachers if they would mind letting children come in rotation to work with a program. They were agreeable. The Head was away, as he often was but the Deputy thought it was a good idea if it wouldn't bother me.
So at times when my own class was busy, I could send for childrn in other classes to come and work. If any of them had never worked with the computer before, several of my 'remedial' children could easily get them started with minimal inconvience to them or me.
This went on for about two months and the kids certainlyseemed to be gaining from it, not the least my own kids, until one daythe Head came to see me about some child's bad behaviour. As he was leaving he glanced at the Tandy for half a second or so and later he called me to his office. He told me thta I had deceived him and was wasting educational time with this toy and that I was no longer to bring it to school and to make sur the T.V. would be locked away.
And thats the way things stand .....

DISK CORRUPTION - SOME HINTS

In reply to Laurie King's penultimate paragraph (September newsletter) here is a list of things not to do if you want to avoid corrupted disks .Many probably won't apply if he only uses his equipment at home, but I've managed to lose data in most of these ways —:

Switching off with disk in the drive
Having a disk in the drive when heavy electric equipmement is switched on or off on the same circuit
Working during a thunderstorm
Handling a disk when you are charged with static
Putting the phone down on a disk
Putting your 'electronic notebook' down on a disk (or disk on the notebook) or even carring both in your briefcase
Putting a disk too near any magnet such as paperclip holders
Putting a disk near the mains transformer for your cassette recorder

It is a lot easier to make sure you have a backup of anything that matters than to try recovering lost data. In our experience cassette tape is an efficient and cheap way of backing up anything except data files.
We've recently got a programme called B17 which is supposed to give quick and easy backup of data files onto cassette but we've not been able to make it work yet.

Ariela Taylor

JOINED-UP WRITING WITH THE MX-80 PRINTER

I have finally been able to get the MX-80 to print joined-up handwriting. As you can see, it works! The handwriting was designed and graphed by Danny Emmett, (a fantastic artist among other things). The idea was sparked off inside John Newgas's head.
I wrote a program which would allow the operator to design a shape or character on the screen and the computer would then code it for use on the printer.
We then used the program's output to write an EDTASM file of DEFB's,
I then wrote a Machine Language driver program to convert all lower case characters into the handwriting counterparts by having two tables in memory, the first is the bytes to look for, the second table are the replacement bytes
The only problem being that the replacement is not just a one to one conversion
The one byte to be converted would need twelve bytes in replacement,
Anyway, It works very nicely and I am very happy with the result,
The handwriting driver will work on any MX hi-res series printer.
I use it on a normal MX-80 f/t fitted with the new GRAFTRAX hi-res roms.
They cost around 40 pounds (or less), and open up a new field in printing.
Installing the roms is extremely simple, unplugging the old rom and plugging three new ones in.
After installation, the MX-80 is converted into a TRS-80 compatable printer, in other words, without the need for drivers, the printer will print all the correct graphics code for the TRS-80 and respond
to all other codes not normally available under the MX-80 TRS-80 mode.
The other main advantages are :
Before GRAFTRAX, the MX-80 could not print more than one mode at a time.
as you can see, this problem has been overcome!
This also includes small and also **large** characters.
They also give you a very nice *Italics* character set,
bringing the fonts available to 24 (more if you include the Handwriting set!)
Also, Epson give you the Highest resolution dot matrix printer available with 960 dots per row,8 columns per line with the option of a lower-res 480 dots p/l
I will be demonstrating the printer and my software at the November meetings!

Jeremy E. Sam 01-959 0114

FOR SALE

	List Price
Level II 16K RAM K/B	£339
Expansion Interface	£249
Disc Drives (349 & 369	£718
Percom Separator	18
Lower Case Mod	29
32K up grade	70
	£1423
Quick Printer	177
	£1600
Monitor	60
Carrying Cases	70
	£1730

Sell £1000 o.n.o.

Peter Goodfellow,
4 Park Close
Brookmans Pa
Herts. AL9 7RS. Tel. Potters Bar 54605

GENIE/TRS-80 EDGE CONNECTOR CROSS-REFERENCE

IN VOLUME 3 ISSUE 4 BOB THOMPSON REQUESTED INFORMATION ON THE COMPATABILITY BETWEEN THE GENIE AND TRS-80 EDGE CONNECTORS. I HAVE THEREFORE ATTATCHED A TABLE SHOWING THE PIN INTERCONNECTIONS TO OBTAIN THE TRS-80 BUS FROM THE GENIE.

IN THE TABLE THE SYMBOLS USED EITHER SIDE OF A GENIE PIN NUMBER HAVE THE FOLLOWING MEANING.

NN INDICATES AN ADDITION TO THE GENIE BUS
#NN# INDICATES A SIMILARITY BETWEEN THE GENIE AND THE TRS-80 BUT NOT AN IDENTITY.

I HAVE RUN AN ACULAB AND I KNOW OF A LNW EXPANSION BOARD CONTROLLING DISCS WHICH IS BEING RUN OFF AN EXPANSION BUS USING THESE SUBSTITUTIONS.

PIN 12 OUT* CAN BE OBTAINED BY OR'ING GENIE PINS 40 & 38.
PIN 13 WR* CAN BE OBTAINED BY OR'ING GENIE PINS 40 & 43.
PIN 14 INTAK* CAN BE OBTAINED BY OR'ING PINS 38 & 45.
PIN 15 RD* CAN BE OBTAINED BY OR'ING PINS 41 & 43.
PIN 19 IN* CAN BE OBTAINED BY OR'ING PINS 38 & 41.

SUITABLE OR GATES CAN BE FOUND IN THE 74LS32, WHICH IS A QUAD ARRAY. UNLESS INTAK* IS DEFINATELY REQUIRED IT CAN BE LEFT OUT FOR MOST APPLICATIONS. IT IS WORTH MEMBERS REALISING THAT RD* AND WR* ON THE TRS-80 ARE IN FACT MEMRD AND MEMWR AND NOT $\overline{RD}$ AND $\overline{WR}$, HENCE TANDY'S USE OF THE * AS OPPOSED TO THE BAR.

$\overline{CAS}$ CAN BE OBTAINED FROM THE CPU BOARD, INSIDE THE GENIE, ON PIN 6 OF Z39, MUX CAN BE OBTAINED ON PIN 5 OF Z37. ALSO IF YOU WISH $\overline{OUT}$ IS AVAILABLE ON PIN 8 OF Z15 WHILST $\overline{IN}$ IS AVAILABLE ON PIN 6 OF Z15.

IF ANY MEMBERS CAN ADD TO THE ABOVE I WOULD BE GRATEFUL TO HEAR FROM THEM.

KEN ROBINSON.
(0908-754779)

FOR SALE

Base 2 (Superprint) 800 MST printer.

£170.

Bob Stead Birmingham (021) 350 6464

PIN INTERCONNECTIONS

TRS-80		GENIE
1	RAS*	43
2	SYSRES*	#48#
3	CAS*	*13*
4	A10	26
5	A12	29
6	A13	27
7	A15	21
8	GND	1,2,49,50
9	A11	28
10	A14	23
11	A8	22
12	OUT*	*32*
13	WR*	#40#
14	INTAK*	--
15	RD*	#41#
16	MUX	*25*
17	A9	24
18	D4	20
19	IN*	*33*
20	D7	17
21	INT*	31
22	D1	14
23	TEST*	#39#
24	D6	18
25	A0	10
26	D3	16
27	A1	7
28	D5	11
29	GND	1,2,49,50
30	D0	15
31	A4	6
32	D2	12
33	WAIT*	37
34	A3	8
35	A5	5
36	A7	3
37	GND	1,2,49,50
38	A6	4
39	GND (LEV 2 ONLY)	
40	A2	9

GENIE		TRS-80
1	GND	8,37,29
2	GND	8,37,29
3	A7	36
4	A6	38
5	A5	35
6	A4	31
7	A1	27
8	A3	34
9	A2	40
10	A0	25
11	D5	28
12	D2	32
13	CAS	3
14	D1	22
15	D0	30
16	D3	26
17	D7	20
18	D6	24
19	VCC	--
20	D4	18
21	A15	7
22	A8	11
23	A14	10
24	A9	17
25	MUX	16
26	A10	4
27	A13	6
28	A11	9
29	A12	5
30	PAI	--
31	PINT	21
32	OUT	12
33	IN	19
34	PRDY	--
35	PHALT	--
36	HALT	--
37	PWAIT	33
38	ILRQ	--
#39#	PNCLK	23
#40#	WR	13
#41#	RD	15
42	CCLKS	--
43	IORQ	1
44	MI	--
45		--
46	RESET	--
47	RFSH	--
#48#	NMI	2
49	GND	8,37,29
50	GND	8,37,29

INDUSTRIAL COMPUTER and MICROPROCESSOR CONTROL SYSTEMS.

Having acquired a Model 11 Computer in 1980 and successfully transferred all accounts and technical programmes from the old Model 1, the next problem was, what to do with the now redundant Model 1 !.

The Model 1 system was acquired in October 1978 and subsequently modified, improved with two disk drives, data separator, Teletype 43 and Diablo 1640 printers were added and by the latter part of 1979 provided complete control of all business accounts, correspondence and technical services. In fact, the complete system paid for itself within the first 18 months. This is not too bad, bearing in mind that Tandy never successfully removed the 'bugs' even after some 12 months and numerous attempts. These faults were eventually dealt with by Freddy Nicholls of Optronics. During this period, Tandy failed to appreciate the need to provide even a resemblance of basic service facilities and to deal with queries and/or complaints with normally accepted business courtesy. I am still awaiting a reply to a letter I sent them some twelve months ago.

Recently, having put the Model 1 to one side, while I concentrated on the final improvements to the programmes which I wrote in those 1979 halcyon days of sleepless nights and early morns and to bring the Model 11 onto line with 'all systems go', I then needed a task for the Model 1 - 48K system which would otherwise have been discarded, eventually to be thrown away.

My main business interests lie in the design and installation of mechanical services for both new projects and existing factories where different types of control systems for heating, ventilation, hot and cold water, factory effluent, gases, acids as well as products for production etc., are employed. I asked Freddy Nicholls of Optronics if he knew of any way of utilising and programming the Model 1, with its numerous ports, for this purpose.
I did not have to look or ask further. Optronics are about to market a fully equipped breadboard together with all necessary cables and manuals, reference books which will enable anyone, who is interested in designing and controlling both basic and sophisticated systems for engineering applications, to both learn and experiment using their Model 1.

With my knowledge of current methods of factory control, there is tremendous scope for anyone capable of designing and writing high level programmes for all types of control systems. It appears at the present time, that leading computer and process control manufacturers have this market to themselves and charge accordingly for their services.

Valve manufacturers market their systems which are limited to the control of their valves from conventional sensors. The same applies to manufactuers of engineering orientated control devices. There does not appear to be anyone developing fully integrated control systems, from scratch, for the small to middle size business or for big firms to utilise the new technology currently available when considering extensions or improvements to existing plants. Most contractors are still currently offering conventional control systems. This is partly due to the lack of knowledge of most of the Engineers currently considering or designing these works for their employer.

Further development will occur in the design and application of engineering controls, pumps, valves, thermostats, switches, meters etc., which are used in all industries. These will have to be improved to cater for the rapid and accurate response that can now be achieved with the microprocessor. On-Off pumps and valves will give (to modulating or proportional units thus providing a better 'continuous' flow of

production. This not only applies to materials being carried in pipelines such as powders, liquids and gasses but also the handling of both bulk raw and finished products. Yes robotics again, but these are all controlled by a microprocessor, similar to that in the Tandy keyboard. Nothing is impossible but everything is possible.

If there is any other member of the TRS80 Newsletter, who is seriously interested in this further development using the Model 1 Computer, I shall be pleased to hear from them. I am proposing to commence this 'mental exercise' in February '82; that is to write programmes in Basic and compile, after thorough testing, into machine language; to use the full 48K system, using the expansion interface ports and not the keyboard port, also to write the experimental programmes onto disk for ease and speed of access for subsequent future creation of ROM for permanent programme control.

D. J. Swann

Birmingham & West Midlands TRS-80 User Group

Prior to six months ago members in the area who knew of each other gathered occasionally in each others houses. We decided that it was time to organise a group formally. We now meet on the first Friday in each month, from 7PM to 10PM at the Adam & Eve Pub in Bradford St, Birmingham 5 (just SE of the city centre). Membership has grown by 500% in three months.
Our programme for the next three months is :
November - Demonstration of the new colour printer
December - Christmas Gift night!
January - Demonstration of the Colour Computer
We are producing a Newsletter which is available to non-Birmingham Group members. Please contact me for details.
If any suppliers or traders would like to advertise in our Newsletter please contact me.
If anyone would like to drop in to any of our meetings if they are in the area - feel free!

Mike Gibbons

Colour Printing

By now I expect most of you will have heard of the colour printer which is available for about the cost of the average black and white printer and first demonstrated at the "Which? Computer Show" at the N.E.C. last year.
On a similar line I have just watched a demonstration of a hand-operated printing press at the "International Business Show" at the N.E.C. This is available for about £46 and will print up to postcard size, in any shade of any colour, and as many colours as required can be put anywhere. A plastic printing stencil is quickly made from any carbon based original which can be drawn, typed, etc.
It is to be launched in the U.K. on 2nd.November and should be useful for producing small handouts, cards, tickets, and in the educational field. An A4 version is also available.

Mike Gibbons

REVIEW OF A NEW GENIE VIDEO AND LOWER CASE MODIFICATION.

AS GENIE OWNERS ARE AWARE THE VIDEO GENIE HAS A NUMBER OF DIFFERENCES FROM THE TRS-80. IF YOU RUN TRS-80 PROGRAMMES ON THE GENIE CERTAIN CHARACTERS ARE NOT PORTRAYED AS ON THE TRS-80 AND, IF YOU ARE WRITING SOFTWARE FOR THE TRS-80, THE GENIES' RESPONSE TO < PRINTCHR1(23) > CAN CAUSE DIFFICULTY WHEN YOU TRY TO FORMAT THE DISPLAY.

ERIC HARTLEY HAS DESIGNED AND IS MARKETING A MOD. TO CORRECT ALL THESE DIFFERENCES. THE CHARACTER SET PRODUCED BY THIS MODIFICATION GIVES ALL THE TANDY CHARACTER SET. ARROWS REPLACE SQUARE BRACKETS AND THE BACKSLASH. SPACEVADERS DROP PROPPER BOMBS AND NOT SOME APPOLOGY FOR A BOMB. THIS CHARACTER SET IS ALWAYS AVAILABLE AND THE GENIE PERFORMS AS NORMAL WITHOUT ANY DRIVER PROGRAMME. FOR ME THIS IS IMPORTANT AS I HAVE A NUMBER OF PROGRAMMES WRITTEN FOR THE GENIE WHICH USE THE VIDEO-CUT SWITCH TO OBTAIN DOUBLE WIDTH CHARACTERS AND I'VE NOT NEEDED TO ALTER THEM.

IF YOU THEN LOAD THE LOWER CASE DRIVER PROGRAMME SUPPLIED YOU WILL HAVE COMPLETE COMPATABILITY WITH THE TRS-80'S VIDEO DISPLAY. CHR1(23) WORKS AS ON THE TRS-80. < SHIFT ZERO > IS USED TO TOGGLE BETWEEN LOWER CASE AND UPPER CASE. ON POWER UP THE KEYBOARD PRODUCES UPPER CASE AND < SHIFT 'LETTER' > WILL DISPLAY LOWER CASE, PRESS <SHIFT ZERO> AND THE REVERSE OCCURS THUS GIVING A TRUE TYPEWRITER KEYBOARD. YET ANOTHER FEATURE IS THE USE OF <SHIFT BREAK> TO TOGGLE THE FLASHING CURSOR AND AUTO-REPEAT FACILITY ON AND OFF.

THE LOWER CASE SET DISPLAYED DOES, OF COURSE, HAVE TRUE DESCENDERS. AS AN ASIDE I PERSONALLY THINK THE UPPER CASE CHARACTERS ARE EASIER TO READ THAN THE ORIGINAL GENIE SET, I THINK THEY ARE SLIGHTLY LESS ROUNDED BUT THAT'S AN ENTIRLEY SUBJECTIVE DECISION.

THE MODIFICATION IS EASY TO INSTALL, THE WHOLE JOB TOOK ME ABOUT ONE AND A HALF HOURS INCLUDING TESTING. IT IS UNNECESSARY TO REMOVE THE INTERFACE BOARD BUT THE KEYBOARD HAS TO BE REMOVED OF COURSE TO GAIN ACCESS TO THE CHARACTER GENERATOR. THIS IS REMOVED TOGETHER WITH ONE VIDEO RAM CHIP. A P.C. BOARD REPLACES THE CHARACTER GENERATOR AND AN ADDITIONAL RAM CHIP AND SOCKET REPLACE THE RAM CHIP REMOVED SO THAT THE ORIGINAL RAM CHIP CAN BE REPLACED. THERE ARE SEVEN WIRES TO SOLDER TO THE INTERFACE BOARD AND ONE TRACK TO CUT. THE INSTRUCTIONS SUPPLIED ARE COMPREHENSIVE AND INVOLVE CARRYING OUT THE MOD. IN A SET ORDER WITH TESTING BETWEEN EACH STAGE.

THE LOWER CASE DRIVER AS SUPPLIED, RESIDES IN LOW MEMORY FROM 5200H TO 55E6H, BUT IT IS ENTIRELY RELOCATABLE USING MOR3 OR HOWE'S OB-REL PROGRAMME. ACCORDING TO THE INSTRUCTIONS SUPPLIED THE DRIVER PROGRAMME CAN BE PATCHED INTO DOS USING CHR1(22), BUT CERTAIN DOS REQUIRE THEIR OWN LOWER CASE DRIVERS TO BE SWITCHED OFF.

THIS MODIFICATION HAS FILLED A NEED AND IS HELPING TO BRING COMPATABILITY BETWEEN THE GENIE AND THE TRS-80. IN OPINION THIS MOD. IS SUPERIOR TO ALL OTHER PRESENTLY AVAILABLE LOWER CASE MODS. AND ITS PRICE IS COMPATABLE WITH THEM.

KEN ROBINSON

TRS-80 - SPELLING CHECKERS

There is generally a mixed reaction to the value of computerised spelling checks. This is probably an emotive response to the implied suggestion that the user is abdicating control to the computer. Given that word processors are now almost common place the appearance of spelling check programs are but a natural extension of this trend.

This review is based upon three software packages. In order to assess the relative value of these programs it is necessary to first define the base standards.

Package	Systems	Software House
Hexspell	1 & 3	Hexagon Systems
Proof Reader Grammatik	2	Aspen Software Company
2.0 Scripsit	2	Tandy

Having looked at the above then the following base standards were derived.

1) The Dictionary - Size and ease of set up and maintenance
2) Speed of operation
3) Ease of use:-

   a) Using the systems
   b) Safeguards for dictionary amendments
   c) Correction facility

4) Other facilities.

As an overall rule the system should be simple and sufficiently fast not to create frustration on the part of the user. It is obviously ? important that the spelling check process should not be able to introduce errors into the text.

In order to be of any real use then there must be access to a reasonably large dictionary. Before use of these systems the reviewer would have considered that large ROM support or at the least hard discs would be required. It was of some surprise that one of the reviewed systems were effective based on the standard mini floppy discs of the Model 1.

Before making any detailed comparisons it is necessary to say that the Aspen Software was very disappointing. The system did not cope with Pencil text files of 256 bytes long and with a text file of 1 byte in length while the

program worked the time involved in reading the text was far too long. After all the delays the program could not alter the text but only produced a list of the errors. Even worse these errors were all displayed as lowercase!

Unless the Aspen software is improved then it suffers from severe drawbacks. However the Grammatik module can check for style - a feature not in the other two programs.

Hexagon Systems Hexspell

Hexspell was tested on a Model 1 and proved to be impressive. Some 6,000 words are kept in memory with a further 23,000 on disc. The documentation claims that these list are re-ordered with new words entering at the beginning and unused words being discarded such that Hexspell becomes faster as it learns the user's vocabulary.

Both speed and ease of use were very acceptable. The text is displayed as it is checked with unknown words listed together with some following words to clarify context. Options are offered to replace, learn or skip (leave word but no directory entry).

The main weakness is that once in the list words are lost forever. No facilities are provided to list or edit the directory. Careful checking is required before a word is committed to the learn option!

At the technical level the system suffers from the problems of using the Model 1 Microsoft compiler. The Hexspell program is large as it requires the BASIC BRUN support. There is a loading delay and the system crashes if an invalid filename is entered. In spite of the manual ERROR FILE NOT FOUND AT 5C43 it not a valid program response.

However given the limitations of the Model 1 this is a first class approach. The program automatically copies the text to a new file and than copies this new text back on to the original at the end of the session which requires the minimum of intervention by the user.

2.0 Scripsit

2.0 Scripsit is a new release of the Model 2 word processing system which has many new features as well as the spelling check. It also has the promise of further facilities not yet available such as Boilerplates and column manipulation. There was no doubt that this version is much improved over the previous version.

With Scripsit Tandy have created a closed system in terms of directory maintenance with the result that external

checkers such as Hexspell can not read the direct Scripsit text. 2.0 Scripsit does provide an external interface. However there is little point in using this interface if a direct spelling check is available.

Up to now I have been a dedicated Electric Pencil fan and I have never been tempted to use any other product. With the previous version of Model 2 Scripsit, while I could see that there were some very useful facilities I always experienced an awkwardness with the commands. As a result of a comprehensive rewrite of the command structure this latest version now succeeds with its operator interaction.

Scripsit's control of document creation has always been one of its strong points. This feature is now complemented by:-

* Background printing in the best way I have yet seen.
* Ability to Read & Write external files.
* User friendly block deletion/movements

However the intrinsic spelling check and hyphenation are startling. The dictionary has a claimed 100,000 word dictionary with a further total of just over 2,000 which can be placed in a user word list. Scripsit and its text resides on one eight inch disk while the dictionary takes up another. A two drive system is a minimum and extra drives can accommodate further Scripsit text!

The mode of working is similar to Hexspell except that it is totally within the Scripsit package. There is a short delay while the dictionary is loaded and the words are checked. This differs from the combined display and check process of Hexspell. The Scripsit approach is better in that the operator is only required to use the machine at the actual correction stage - in contrast the Hexspell printing of correct text is an unnecessary distraction.

The correction process is similar except that hyphenation options can also be defined. At the end of the session the dictionary is updated. The user dictionary is much better implemented than with Hexspell as the list can be loaded into Scripsit through the external files facility. The list can be inspected and then amended as required. This is a major improvement over the 'hidden' updates in the Hexspell dictionary. However it is equally disconcerting that the main directory can not be examined and it must have it's fair share of horrors such as color and tire.

Are they gimmicks

To sceptics this must be a natural reaction. However given the sunk investment in word processing software and

equipment these packages represent natural evolution. From the limited trials with Hexspell and 2.0 Scripsit there would appear to be real gains:-

* Accuracy in presented work.
* High standards with low quality and hence cheaper staff.
* Reduced printing time due to less reprints.

Are they a complete answer

Two points have to appreciated in using these packages:-

* These packages can not judge accuracy of context.
* Corrections must be checked ! It is probably not good practice to let your typist do this unsupervised.

Within these constraints the checking process is useful and although a poor implementation, the Aspen software does indicate that grammar as well as spelling checking is about to enter the micro market. On the speed side both of these packages were acceptable but it is inevitable that expectations expand beyond actual achievements. Tandy's hard discs will be a powerful complement to their Scripsit word processing package and will significantly increase the scope of this already impressive system.

Both Hexspell and Scripsit can be obtained from:-

Ostronics 01 892 8455
A.J. Harding 0424 220391
Any Tandy Store - Scripsit only

Derrick Rowe

Adventure Games

If you are frustrated at playing adventure games this can be used - but only as a last resort!

1. Load in the program
2. Re-set the machine
3. Enter the following program:

```
10 CLS
20 FOR I=1 TO 32767
30 PRINT CHR$(PEEK(I));
40 NEXT I
50 CLS
60 PRINT @ 390,"THAT IS ALL"
70 END
```

4. When you run this, Level II Basic words, graphic characters and Error messages appear. After about 3 minutes you arrive at the program and will see the words it responds to, and the appropriate rooms and objects.

Reminder - this is a last resort.

Mike Gibbons

Assembly Language Programming for Beginners

I plan to present a series of articles titled above to give those beginners to Assembly Language Programming a start and hopefully point them in the correct direction.

The first thing for the beginner to do when planning to learn Assembler Language is to buy an Editor/Assembler. This is the program, normaly writen in assembler itself, that allows you to enter Assembler Language Mnemonics and then translates your Assembly Language Mnemonics into a 'machine readable code'. There are many Editor/Assemblers on the market at the present and I can hear you asking which one. I recommend a very simple one for beginners. Tandy's Editor/Assembler or similar (I have an Editor/Assembler from Kansas which is simple although includes a Debugger which will be useful to one later). Which ever one you buy it should be one that uses 'standard' Z80 Mnemonics and a set of understandable instructions.

The next thing to purchase is a Z80 Assembler Programming Manual. These range from the simplest list of Z80 Mnemonics to the most complicated but well explained 'Programming the Z80' by R. ZAKS. Figure 1 is a summary list of most of the Z80 Mnemonics for quick reference.

Each article will contain a Glossary or Terms, a list of useful routines and any references. The articles will cover the following subjects:-

a) Assembler Language Programming - an introduction to the Z80 and programming it.
b) Assembler Language Techniques 1 - including Addressing Modes and Program Structure.
c) Assembler Language Mnemonics - an introduction to the Z80 instruction set.
d) Assembler Language Techniques 2 - including Further Program Design and Programming Tricks.
e) Example Programs.
f) Any other subjects that readers request.

Glossary of Terms

Assembler Directives - These are <u>not</u> Z80 instructions but instructions that the assembler interprets to give it information or tell it to define something. I will be using the following throughout the articles.

ORG - Origin,	Defines the first 'line' number or 'Address' of your assembled program.
LOAD -	Allows you to load the object code anywhere in memory.
EQU - Equate	Sets a symbol to a value ie SPACE: EQU 20H
DS - Define Storage	Allows you to skip a number of bytes
DW - Define Word	Defines a two byte data item in Z80 word format (reverse order - see later article)
DB - Define Byte	Generates the value of the operand in the Assembled program. Operands can be numbers or alpha ie DB 6,20H,"This is some text",00H
END -	Informs the Assembler where to stop

The Z80 Mnemonics arranged by Operation Code

MSB / LSB	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	NOP	DJNZ d	JR NZ, d	JR NC, d	LD B,B	LD D,B	LD H,B	LD (HL), B	ADD B	SUB B	AND B	OR B	RET NZ	RET NC	RET PO	RET P	0
1	LD BC, nn	LD DE, nn	LD HL, nn	LD SP, nn	LD B,C	LD D,C	LD H,C	LD (HL), C	ADD C	SUB C	AND C	OR C	POP BC	POP DE	POP HL	POP AF	1
2	LD (BC), A	LD (DE), A	LD (nn), HL	LD A, (nn)	LD B,D	LD D,D	LD H,D	LD (HL),	ADD D	SUB D	AND D	OR D	JP NZ, nn	JP NC, nn	JP PO, nn	JP P, nn	2
3	INC BC	INC DE	INC HL	INC SP	LD B,E	LD D,E	LD H,E	LD (HL), E	ADD E	SUB E	AND E	OR E	JP nn	OUT A, port	EX (SP), HL	DI	3
4	INC B	INC D	INC H	INC (HL)	LD B,H	LD D,H	LD H,H	LD (HL), H	ADD H	SUB H	AND H	OR H	CALL NZ, nn	CALL NC, nn	CALL PO, nn	CALL P, nn	4
5	DEC B	DEC D	DEC H	DEC (HL)	LD B,L	LD D,C	LD H,L	LD (HL), L	ADD L	SUB L	AND L	OR L	PUSH BC	PUSH DE	PUSH HL	PUSH AF	5
6	LD B,n	LD D,n	LD H,n	LD (HL), n	LD B, (HL)	LD D, (HL)	LD H, (HL)	HALT	ADD (HL)	SUB (HL)	AND (HL)	OR (HL)	ADD n	SUB n	AND n	OR n	6
7	RLCA	RLA	DAA	SCF	LD B,A	LD D,A	LD H,A	LD (HL), A	ADD A	SUB A	AND A	OR A	RST 0H	RST 10H	RST 20H	RST 30H	7
8	EX AF, AF'	JR d	JR Z,d	JR C,d	LD C,B	LD E,B	LD L,B	LD A,B	ADC B	SBC B	XOR B	CP B	RET Z	RET C	RET PE	RET M	8
9	ADD HL, BC	ADD HL, DE	ADD HL, HL	ADD HL, SP	LD C,C	LD E,C	LD L,C	LD A,C	ADC C	SBC C	XOR C	CP C	RET	EXX	JP (HL)	LD SP, HL	9
A	LD A, (BC)	LD A, (DE)	LD HL (nn)	LD A, (nn)	LD C,D	LD E,D	LD L,D	LD A,D	ADC D	SBC D	XOR D	CP D	JP Z,nn	JP C,nn	JP PE,nn nn	JP M,nn	A
B	DEC BC	DEC DE	DEC HL	DEC SP	LD C,E	LD E,E	LD L,E	LD A,E	ADC E	SBC E	XOR E	CP E	**	IN A, port	EX DE, HL	EI	B
C	INC C	INC E	INC L	INC A	LD C,H	LD E,H	LD L,H	LD A,H	ADC H	SBC H	XOR H	CP H	CALL Z,nn	CALL C,nn	CALL PE, nn	CALL M,nn	C
D	DEC C	DEC E	DEC L	DEC A	LD C,L	LD E,L	LD L,L	LD A,L	ADC L	SBC L	XOR L	CP L	CALL nn	**	**	**	D
E	LD C,n	LD E,n	LD L,n	LD A,n	LD C, (HL)	LD E, (HL)	LD L, (HL)	LD A, (HL)	ADC (HL)	SBC (HL)	XOR (HL)	CP (HL)	ADC n	SBC n	XOR n	CP n	E
F	RRCA	RRA	CPL	CCF	LD C,A	LD E,A	LD L,A	LD A,A	ADC A	SBC A	XOR A	CP A	RST 8H	RST 18H	RST 28H	RST 38H	F
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	

n means a single byte
nn means a double byte
d means a relative displacement in 2s complement form
** means Extended Instruction

Conditions are :- NZ - non Zero; NC - no Carry; PO parity odd; P - sign positive; Z - zero; C - carry; PE - parity even; M - sign negative;
(HL) means that the contents of the address given in HL etc.

Fig. 1

BIT - A BInary digiT (1 or 0)
BYTE - 8 Bits - a unit of storage - a character
HEXADECIMAL - A two digit number that represents 8 BITs - Base 16 uses the characters 0 1 2 3 4 5 6 7 8 9 A B C D E F to represent 0-15 denary
MNEMONICS - Alpha numeric representation of a machine code instruction ie NOP = 00.
MACHINE CODE - The binary code that tells the computer what to do.

Richard Jacobs

SANDRA MASON - RS232 INTERFACE - TELETYPE 43 DRIVER.

No plea for help from a damsel is distress should not go unheeded but unfortunately I am far past my prime to 'go forth', to do 'battle' as my horse is lame, my sword is blunted and my lance is broken. Pity me.

To the matter in hand. With the Small System Hardware, Ms Mason should have received a driver programme (note the correct ENGLISH spelling) for serial printers. This should now be written onto the master programme disc and loaded via the 'automatic' routine on 'powering-up' into BASIC. Thus the printer driver is always loaded and the printer 'operational' provided the printer was 'switched on' before the programme was initialised.

It may be necessary to modify the TANDY PROFILE programme by deleting all references to the state of the printer. That is whether the printer is 'Ready or Not Ready'. These are usually indicated in the programme with specific references to the dreadful twins - Peek and Poke. All 'gosub' check sub-routines relating to the printer should also be deleted or alternative gosubs substituted to provide a 'flow' of instructions and commands within the programme.

Ms Mason should not modify the Master PROFILE Programme but alter the Working Copy.

When all is done, the system will work; assuming of course the RS232 is not one with bugs, which of course is not entirely unknown.

For the connoisseurs, this epistle was produced on Model 11 using Magic Wand word-processing printed via Diablo 1640.

D J. Swann

(~ no David, the correct spelling is program. A computer program is a different entity from a theatre programme. *)

Adventure Type Games

I have two Adventure Type Games which I have modified. They are Minatour and Treasure Dungeon. If anyone would like a copy please let me know.

Mike Gibbons

Benchmarks

Benchmarks are standard programs which can be run on any type or make of computer to compare their performance. I have typed these in for the TRS-80 Model 1. If anyone would like a copy (to save them the hard slog) please let me know.

Mike Gibbons

PROBLEM SECTION

Could any member who owns a BASIC compiler offer a service compiling BASIC programs for those of us who don't want to lash out £300 or so, just to compile the occasional program. The operator of the service could of course charge a reasonable fee for each compilation, and thus help recoup his/her substantial investment.

Paul Godier.

(* Microsoft require a royalty for every program compiled for someone other than the registered user, I believe. A lot of work is often necessary before a program (that might run perfectly under interpreted BASIC) will compile successfully. LFH *)

****
* WANTED URGENTLY *
****

Do you subscribe to Softside? Can you provide the Educational Users Group with a photocopy of the June 1981 article "Maths Decathlon". This part, which is the 4th of a series, is needed to complete an Apple translation.

Dave Futcher

I can program in BASIC (with limitations), and have managed to produce the things I require like moving average calculations and so on. I do however need fairly lengthy data files - several hundreds of numbers - and of course found why people complain of the TRS-80 being slow! I wished I'd never bought it, or had waited until I could afford a disk system.

A friend has now provided me with what seems to be the ideal solution, photocopies of August '80 and January '81 Practical Computing, which give programs to enable a program to be loaded, and a separate program, which is simply data lines, loaded as an addition. I have used a loop at the start of my main program to read the data and continue with the rest of my program. There is only one snag - it just does not work. Can you please offer a simple solution for storing numbers on data line statements which can then be added to another program?

I am also interested in things like Fourier analysis and statistics. Are such things in the Library?

Harry G. Shaw

(* I have had a lot of people asking about the above. Can anyone help? I have contributed a lot of stats programs to the Library. How about a Fast Fourier Transform program from someone with a bit of time to spare? A machine code version, preferably. LFH *)

Although it had been explained to me in the past, I was never entirely clear what a macro was. John Couch's article in the October issue of the Newsletter seems to make it clearer. If I understand it correctly, it allows a repeated routine to be specified by the use of one word in source code for insertion in various parts of the routine.

But surely if a series of instructions are repeated more than once, they would more effectively be treated as a sub-routine to be called as required? Unless they are very short, would the saving in space not outweigh any increase in processing time? Perhaps someone can explain.

C.L. John

(* You are quite right! Macros, since they produce in-line code on expansion, will execute faster than sub-routines, although they might require more memory. It is largely a question of swings and roundabouts. It is quite possible, of course, to call a sub-routine from a macro. This way you get the best of both worlds, especially if you use the macro to pass parameters to the sub-routine. For instance:-

```
        LD      HL,XXX
        LD      BC,YYY
        CALL    FRED
```

could be replaced by:-

```
        FREDM   XXX,YYY
```

if a macro such as:-

```
FREDM   MACRO   PARM1,PARM2
        LD      HL,PARM1
        LD      BC,PARM2
        CALL    FRED
        ENDM
```

was defined. The macro, if several calls were to be made to the sub-routine, would save quite a lot of typing and, in my opinion, would make the code more understandable. No more code is used in this case than if the sub-routine had been called in the usual way! LFH *)

Help

Can any of our whiz-kids help with a problem with Electric Pencil ? If you have a page that you want a number of copies of, one way is to press Control P from time to time. Has anyone any ideas of how to produce many copies without "minding the machine" ? (apart from photocopies)

Mike Gibbons

Surgery Bookings

Can anyone help me with developing this program, as I have no experience of anything like it.
I want a program to have a list of times down one side of the screen, patients' names next and their numbers following. Such as:

0900	Fred BLOGGS	1607
0915	Mary SMITH	5609

Some desirable features could be:
Names etc to be entered by typing, to be deleted by one key operation after the cursor has been put over the name, the program to be searched and display on the screen after an input of a name or a day or a number, to be able to automatically go forward (say) four weeks, to be able to step one day forward at a time (by one key pressed) and so on.
I should be grateful for any help anyone can give.

Mike Gibbons

RE-BOOT PROBLEM SOLVED

You may be interested to know that I was for a long time plagued by random reboots and lockups and in particular by a tendency to reboot when reserving memory. I recently lost my temper with the machine, took it out of its case, and went over it on the upper surface of the board soldering all the earth pins to the upper face of the earth plane. I have no doubt that the holes are plated through but nevertheless, since I did it, I have not had a single reboot, nor any of the other troubles about which I was grumbling.

M.C. Matthews

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GIVE YOUR COMPUTER A VOICE!

A long time ago, Dr. Dobbs' Journal of Computer Calisthenics and Orthodontia (DDJ) had an article on a simple technique for digitising speech, storing it in RAM and subsequently playing it back through a single bit of an output port, via a low-pass filter, to an amplifier and speaker. I have recently been experimenting with this technique and have found it to work fairly well. The hardware and software requirements are minimal. This is an extremely inefficient way to go about it; 16K of RAM gives about 27s of speech!

As can be seen from Fig. 1, the speech input (1V to 2V peak to peak) from a microphone and amplifier is differentiated, and the zero-crossings of the speech waveform are sampled using the LSB of an input port. These single bit samples are then stored in RAM. When the contents of RAM are output a bit at a time, sufficient information is available for the human auditory system to recognise the utterances.

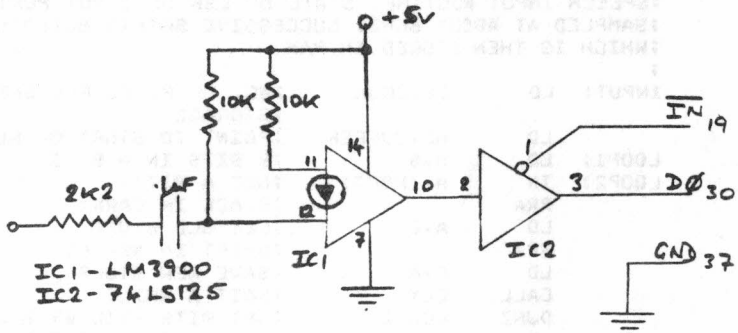


Fig. 1

Whilst the speech quality is nowhere near that obtainable with one of the speech synthesis systems that are currently available, it is extremely cheap, and no special hardware is needed for outputting the speech; you just need an amplifier and speaker on the cassette output!

Here is a listing of the software I am using:

```
                ASEG
;
CLS     EQU     1C9H        ;CLEAR SCREEN ROUTINE
KBRD    EQU     49H         ;KEYBOARD INPUT
DSPLY   EQU     33H         ;DISPLAY CHARACTER
CR      EQU     0DH         ;CARRIAGE RETURN
COUNT   EQU     3FFFH       ;16 K
PORT    EQU     255         ;OUTPUT AND INPUT PORT
```

```
START   EQU     7000H           ;A CONVENIENT PLACE
;
        ORG     START
        LD      SP,START        ;SET STACK POINTER
        DI                      ;STOP INTERRUPTS FROM MESSING
                                ;THINGS UP
AGN:    CALL    CLS             ;CLEAR SCREEN
        LD      HL,MSG1         ;PRINT MESSAGE
        CALL    PRINT
        CALL    KBRD            ;WAIT FOR <ENTER>
        CALL    INPUT           ;GET SPEECH INPUT
        LD      HL,MSG2         ;PRINT MESSAGE
        CALL    PRINT
        CALL    KBRD            ;WAIT FOR <ENTER>
        CALL    OUTPUT          ;OUTPUT SPEECH
        JR      AGN             ;REPEAT
;
;               * * * INPUT * * *
;
;SPEECH INPUT ROUTINE. STATE OF LSB OF INPUT PORT 255 IS
;SAMPLED AT ABOUT 6KHZ. SUCCESSIVE SHIFTS BUILD UP A BYTE
;WHICH IS THEN STORED IN RAM
;
INPUT:  LD      DE,COUNT        ;NO. OF BYTES FOR SPEECH
                                ;STORAGE
        LD      HL,BUFFER       ;POINT TO START OF BUFFER
LOOP1:  LD      B,8             ;8 BITS IN A BYTE
LOOP2:  IN      A,(PORT)        ;GET A BIT!
        RRA                     ;PLACE IN CARRY
        LD      A,C             ;GET OLD STUFF
        RRA                     ;SHIFT IN NEW BIT
        LD      C,A             ;SAVE NEW STUFF
        CALL    DLY             ;WAIT A WHILE
        DJNZ    LOOP2           ;GET BITS 'TIL BYTE COMPLETE
        LD      (HL),C          ;SAVE BYTE IN BUFFER
        INC     HL              ;BUMP POINTER
        DEC     DE              ;TEST FOR BUFFER FULL
        LD      A,D
        OR      E
        JR      NZ,LOOP1        ;GET NEXT BYTE OTHERWISE RETURN
        RET
;
;               * * * OUTPUT * * *
;
;SPEECH OUTPUT ROUTINE. SUCCESSIVE BYTES RETRIEVED FROM
;BUFFER AND OUTPUT TO LSB OF PORT 255 A BIT AT A TIME
;BY A SHIFTING PROCESS
;
OUTPUT: LD      DE,COUNT        ;NO. OF BYTES IN BUFFER
        LD      HL,BUFFER       ;POINT TO START OF BUFFER
LOOP3:  LD      B,8             ;8 BITS IN A BYTE
        LD      A,(HL)          ;GET BYTE
LOOP4:  PUSH    AF              ;SAVE IT
        AND     1               ;LSB ONLY
        OUT     (PORT),A        ;OUTPUT LSB
```

```
        CALL    DLY             ;WAIT A WHILE
        POP     AF              ;RESTORE BYTE
        RRCA                    ;SHIFT RIGHT UNTIL DONE
        DJNZ    LOOP4           ;
        INC     HL              ;BUMP POINTER
        DEC     DE              ;CONTINUE IF MORE BYTES
        LD      A,D             ;
        OR      E
        JR      NZ,LOOP3
        RET                     ;OTHERWISE RETURN
;
;               * * * DLY * * *
;
;DELAY ROUTINE GIVING APPROX. 6KHZ SAMPLING
;
DLY:    PUSH    AF
        PUSH    BC
        LD      B,20
LOOP5:  DJNZ    LOOP5
        POP     BC
        POP     AF
        RET
;
;               * * * PRINT * * *
;
;ROUTINE TO PRINT A MESSAGE ON THE SCREEN
;
PRINT:  LD      A,(HL)
        CP      '$'
        RET     Z
        CALL    DSPLY
        INC     HL
        JR      PRINT
;
MSG1:   DB      'PRESS <ENTER> WHEN READY TO SPEAK$'
MSG2:   DB      CR,'PRESS <ENTER> WHEN READY TO LISTEN$'
;
BUFFER  EQU     $
        END     START
```

Better quality can be obtained by the use of a low-pass filter between the cassette output and amplifier. Some experimentation might be needed in order to ascertain the optimum input signal level.

A later issue of DDJ had an improved input circuit but I have not yet tried it out as I seem to have mislaid the LM324 chips I purchased some time ago. It uses the LM324 rather than the LM3900 in the original circuit.

One or two games (eg. Robot Attack) are using this technique, and it could be very useful as an enhancement to some existing games, or for educational purposes.

Some changes would have to be made to the software if isolated words are to be digitised and stored so that they can be retrieved when required, and some editing routines are needed so that the pauses between words can be removed. You might be able to use one of the monitor programs such as MON3 for this purpose. If I have the time I might do some work on this. Perhaps some of you might like to have a go! Give me a ring if you would like some more information.

Leon Heller

TRS-80 RE-BOOTS

Further to the recent discussion on the subject of reboots, I have been investigating what happens on my system and I have discovered that it seems to corrupt certain areas of memory in a very specific way after a re-boot. I tried setting the whole of RAM from 4200 to D300 (just below my Monitor), to several different known values, and then re-booted the system to LII BASIC. Then on examining the memory, I found most of it unchanged, except for certain areas which always seemed to contain the following:-

```
42E8  00 00 00

426E  C0 3D
4270  80 04 DD 03 1D 40 15 40 EE 41 F0 EA 6E 06 4A 0D
4280  66 1E 23 36 5F 1E 26 03

4330  80 3C 80 04 DD 03 1D 40 15 40 ED 41 F0 EB 6E 06
4340  4A 0D 66 1E 23 30 8F 1B FC 00 00 00

C300  40 3D 80 04 DD 03 1D 40 15 40 EE 41 E8 41 3D 1C
C310  00 53 E6 41 9C 1A B5 02 1E 1D 00 00 00
```

As you can see the results in each location are very similar, but don't seem to make much sense when I try to disassemble the code, not that I'm much of an expert at M/C anyway. The code doesn't seem to have come from ROM as far as I can tell. Also, the result was always the same no matter what the initial value of the filler byte, and I suppose this must be the reason for my BASIC programmes being beyond repair when I try to rescue them using normal methods. However, Mac Randle recently very kindly sent me a copy of his programme called "RESETF" to try out, and it certainly seems to work. You can get the programme from "Remsys", 17 Langdale Close, Leamington Spa, Warwickshire, CV32 7PU (Tel: 0926 39871). The price is £5.00 inc. for tape systems only.

DOSPLUS

In response to David Wastford's query (Oct newsletter), I have just got Dosplus and a double density upgrade. My initial reaction is favourable, except for the documentation. I will try to write some more detailed comments in the near future.

I hear on the grapevine that Tandy are working on a double density upgrade for the Model I, presumably it is intended to improve compatibility with the Model III.

Peter Tootill (051) 220 9733
101 Swanside Rd. Liverpool L14 7NL

Cursors, Cursors

To produce a solid cursor use the following program:

```
10 FOR K=32635 TO 32654
20 READ X
30 POKE K,X
40 NEXT K
50 DATA
245,197,205,88,4,237,75,32,64,10,254,95,32,3,62,143,
      2,193,241,201
60 POKE 16414,123
70 POKE 16415,127
80 END
```

To produce a flashing cursor use the following program as a sub-routine called when the cursor is required:

```
500 I$=INKEY$:I$=""
510 I$=INKEY$:PRINT CHR$(8)CHR$(143);:IF I$<>""THEN PRINT
CHR$(8)I$;:RETURN
520 PRINT CHR$(8)CHR$(95);:GOTO 510
```

Mike Gibbons

LOW-COST ACOUSTIC COUPLER

Modular Technology of Watford (Tel. 01-421 0626) had a new low-cost acoustic coupler on their stand at COMPEC. The price was £99.50 plus VAT. It is designed for the UK market and therefore fits the standard handset perfectly. At this price it is not worth building your own, unless you really enjoy doing that sort of thing.

Leon Heller

16-BITS FROM TANDY

A recent issue of Electronics mentioned that Tandy were about to bring out a 16-bit system based on the Motorola 68000 chip. If this system does materialise I think it wil be an upgrade of the Model II.

I asked Mike Ayres of Tandy (UK) about this development, but he professed to know nothing about it, so it might just be a rumour, although Electronics usually gets this sort of thing right.

Leon Heller

16-BIT PROCESSOR - MONITOR NOW WORKING

My 16-bit 8088 system is coming along nicely. The monitor is now working and I am able to enter machine language programs into RAM via my Model I and execute them.

The 8088 is a very nice chip to work with and makes the Z-80 look like a toy. A software single step function and software interrupt make the writing of a debug package childs play. Hand assembly of 8088/8086 code is not really to be recommended, however, if you value your sanity. CP/M-86 comes with a full assembler so the sooner I get it up and running the better.

I have now got the CP/M-86 documentation, so I can make a start on designing the full system. The small system will be ideal for developing the Bootstrap and BIOS software needed to bring up CP/M on the full system. Does anyone know of any 64K RAMs going cheap? I need 16 chips - 128K!

Leon Heller

TANDY AT COMPEC

Tandy had a large stand at Compec which was held recently at Olympia. They used the occasion to launch the new colour computer. Although Compec is officially a trade show for professionals there seemed to be hordes of people playing games on the several TRS-80 Colour machines present. It is a very nice machine with incredibly fast, easy-to-use graphics.

The Last One was also there. I still have reservations about it, partly because when I tried it out at the Southall Workshop (thanks to Os House) it crashed whilst generating some code for me! Has anyone used it for a real

application yet?

Leon Heller

LOST AT SOUTHALL

Os House lost a copy of The Last One manual at THE Southall workshop. Perhaps someone picked it up accidentally (I'm being charitable). If so, please could they return it to Os A.S.A.P. Os cannot sell the disk without the manual, so he stands to lose around £160.

Leon Heller

LOST AT MILTON KEYNES

Something seems to "walk" at every workshop. John Christie lost a box of 10 disks at the Milton Keynes workshop. The disks contained some important files and John would obviously like them back. Eight blank disks in a box turned up (Verbatim, like John's) so perhaps someone picked up the wrong box (I'm being charitable again). Brian Pain has lost a bulk demagnetiser and a brand new box of disks at previous workshops, and other members have also lost items. It is not very nice to know that we have a thief or thieves amongst our members.

Leon Heller

LOCAL GROUPS

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Interest Group
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* All ASCII characters can be displayed in positive (white on black) or inverted (black on white) video.
* The 64 graphics characters are retained to give a total of 256 different characters.
* The whole screen including borders may be inverted under separate control.
* Totally compatible with existing software.

A standard TRS80 model I has 128 video characters, 64 ASCII and 64 graphic. The video RAM stores only 7 bits, all that is needed for 128 codes. When lower case is added an extra RAM chip stores the eigth bit. This allows 128 new codes but only 32 are used, the lower case letters and some other symbols.

The AV-1 board adds lower case (if not already installed) to make a total of 96 ASCII characters in positive (white on black) video. The other 96 extra codes display these characters in inverted video (black on white). The lower case characters are in the character generator ROM but cannot be accessed by an unmodified TRS80. The lower case set will vary according to the revision level of the computer. Early machines will have lower case letters without descenders. For total compatibility with existing software the inverse video facility must be activated by setting bit 0 of port FE (full mode). With this bit zero the board is in compatibility mode and only codes 96-127 display differently to an unmodified machine. The displayed characters for a given range of codes in the video RAM is tabulated below.

Code in video RAM	Unmodified machine	Compatibility mode AV-1	Full mode AV-1
0-31	Upper case	Upper case	Upper case inverted
32-63	Digits	Digits	Digits
64-95	Upper case	Upper case	Upper case
96-127	Digits	Lower case	Lower case
128-159	Graphics	Graphics	Lower case inverted
160-191	Graphics	Graphics	Digits inverted
192-255	Graphics	Graphics	Graphics

The AV-1 also allows the whole screen to be inverted, including borders. Any inverted characters will revert to white on black. This facility is controlled by bit 1 of port FE. The double width facility is not affected. The AV-1 will invert single width and double width characters alike. Because port FE is used there is no interaction with cassette operations.

On power up and reset port FE is cleared, selecting compatibilty mode and no whole screen inversion.

The level II video display driver converts lower case letters to upper case. This is because lower case ASCII codes in the video RAM display as digits on an unmodified machine. The manual gives a patch to bypass this conversion code so that the driver will handle them correctly. Your DOS may not need such a patch; refer to the DOS manual to find out if it allows lower case already. There is no problem with the keyboard. Level II can read lower case letters as it stands. Further, BASIC strings contain ASCII codes, not the codes needed for the video RAM. You cannot output inverted video characters by the BASIC screen driver routines. The manual gives BASIC subroutines to send strings to the video dispay using the POKE and PEEK functions.

The board carries 7 TTL chips and is supplied assembled and tested. It fits inside the keyboard case. A 2102 RAM chip will be supplied unless you indicate that lower case is already installed. There are 5 tracks to cut on the CPU board and 18 connections to the AV-1 board. These are made by soldering wires to the edge connector used in testing the board. You will need a sharp knife and a fine soldering iron. A fitting service is available at £10+VAT plus carriage at cost. Please arrange this before sending your computer.

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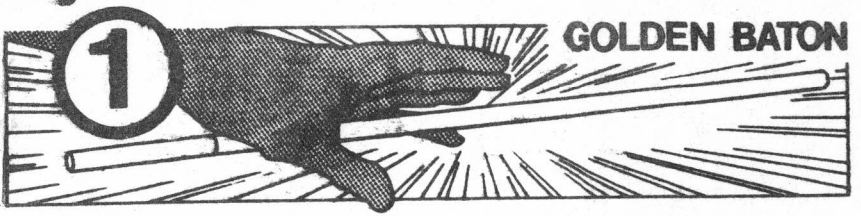
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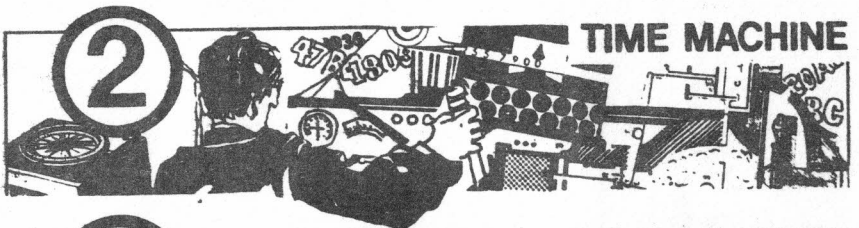
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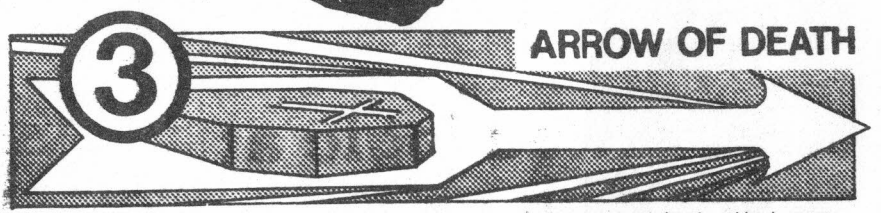
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National TRS-80 Users Group

Newsletter

Volume 3 No. 6 DECEMBER 1981

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INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from Brian Pain, the Group Secretary and Publisher of the Newsletter. Membership of the Group is open to anyone with an interest in the TRS-80 range of microcomputers,and compatible systems such as the Video Genie.

Details of the Group accounts and the constitution of the Group are obtainable from the Secretary.

Members requiring assistance with problems related to the TRS-80/Video Genie may call the Secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops are arranged from time to time in various parts of the country.

Sub-Groups exist in many areas. A list is provided at the back of the Newsletter. Sub-Groups also exist for medical and educational users.

The Group maintains a software library which is free to members. A library list is obtainable from the Secretary (price 50p). The medical and educational sub-Groups maintain their own libraries.A membership list is available from the Secretary (price 50p).

Back numbers of the Newsletter are available.

Please send all contributions for the Newsletter to the Editor.

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40A High Street,
Stony Stratford,
Milton Keynes.
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EDITORIAL

With a bit of luck this issue should reach you before Christmas, putting us back on schedule.

We have decided to hold a one-day Workshop in Milton Keynes at the end of January, which will commence with the Group's Annual General Meeting. The A.G.M. agenda is included in this issue. Please attend if you can.

We now seem to be getting articles for beginners. Are these articles what the beginners want? No-one has written in with any suggestions so everyone must be happy!

Leighton has sent us the latest Library list. We will shortly be getting it printed, and it will be available from Brian.

We hope to be producing a new membership list shortly. As membership renewals come in we will be placing them on the computer.

If you have not already done so, please renew your subscription. You should have received a renewal form.

There seem to be several rumours about the new 16-bit system from Tandy. I mentioned the 68000 last time. I have also seen a report that it will use the 8088 chip I am working on. Both the IBM personal computer and the new Sirius system from Chuck Peddle (designer of the PET) use the 8088, so Tandy would be in good company!

At the recent Milton Keynes Workshop, some wholesale copying of program documentation took place. To prevent such activities (copying manuals definitely is an infringement of copyright, even if the software position is uncertain), copying machines will not be allowed at workshops in future.

Finally, a merry Christmas and a happy New Year to you all from Brian and myself.

Leon Heller

WHICH COMPUTER SHOW

Mike Gibbons has a supply of tickets for the above show, to be held at the NEC, Birmingham, 19-22 January 1982.

Mike's address is:-

1 New Street,
Castle Bromwich,
Birmingham.

MEMBERS' LETTERS

From Bill Burnside.

Just a bit of gossip. Earlier this year Centronics ran a competition which could be entered by all who bought a Centronics 737 printer between May and July. First prize was a holiday in the Bahamas; the second was a holiday in the Greek Islands. Both of these prizes were won by TRS-80 users. I was lucky enough to win the second prize, which paid for the printer very nicely thank you!

Bill Burnside.

From Marshall Barry

Thank you for Vol 3 Issue 5 which there is no doubt is your best. It covered a vast range of interesting subjects, and although not all applied to my set up, the details will be very useful for reference in the future.

Marshall Barry.

From John Everett

In reply to Mr. Shaw's letter on p. 29 of the November Newsletter, I shall shortly be marketing a program which I wrote for the problems which Mr. Shaw describes.

J.N. Everett,
6 Cromwell Close,
Walcote,
Lutterworth,
Leics. LE17 4JJ

The Swindon TRS-80 Club Has changed its name, mainly because we now have members from all over the South of England, from Cornwall in the West to Slough and district in the East, and we felt that we would like to show in the name of the club the area we now represent. So we now call ourselves the Southern TRS-80 Club.

I am including some more reports and reviews from our own News Letter. Also I am responding to the request for more material for the novice programmer. With the fear or what ever, that writing programms in machine code appears to hold, I am now starting to write an article on using Editor/Assembler and programming in machine code, as I am only a novice myself in this field I may have made some bloomers, if I have I am certain some one will let us know, if nothing else it may get some reaction from someone , and it may get some interested in trying to program in this mysterious machine code.

One very serious problem I have as an editor and writer, is my rather suspect way of spelling, I hope I have not made too many errors this time, but if I have I hope you will forgive them, I hope its the content that counts and not the spelling.

On a brighter point, this week I have had a letter from the Scottish TRS-80 Users Group secretary, Dick Mackie, he spotted my letter to you a month or two ago, when I suggested that local groups could help each other. I am pleased to say that, although the Scottish group have been in existance only a short time, I still found that their News Letters to be very interesting and helpfull. Dick did say if I found anything I wanted to use for our own News Letter, to go ahead and use it, and I sent him our News Letters with the same comments.

If there are other club leaders or secretaries that think the same way as we do I would be pleased to hear from them. It would be expensive to photo-copy all the News letters comming in and send on to other clubs, but if we use any material ourselves in our own News Letter, and state in there where the article came from, so the club whose effort produced the goods has the credit. I would then send our News Letter on to others, which would spread the News and save the cost. I will do this free of charge of course, but if anyone would like to send a small contribution towards the cost it would help, but I would add this is not important, what is important is that we get together, and help each other make our clubs better run with full and interesting News Letters.

As you may not see anything from me until the New Year, I would like to take this opportunity to thank you for a good News Letter in 1981, and wish you all everywhere a very Happy Christmas and New Year.

Bob Sparling

If any reader of our newsletter is still uncertain whether to install a Holmes keyboard expansion, I can offer further encouragment. My 32k board came without undue delay, charged through Access, with chips from Midwich, and was fitted in under two hours. It has worked perfectly.

I purchased a s/h Aculab, and obtained a @SCRIP from Laurie Shields, which facilitates letter writing with printer control (Centronics 737). I have converted a level 2 invoicing program to run under XBAS on the floppy tape. The only difficulty encountered was an incompatability between Lauries lowercase driver LCASE0 and sequential file handling under XBAS. However the LCASE80 driver seems to work fine. I expect there is a simple explanation for this if only I knew.

This system should preclude the need to buy a Tandy expansion unit and disc drives, but I would like to see an article in the floppy tape corner full of advice on how to convert programs designed for Disc Basic to FT XBAS.

There is now a need for database programs and intelligent games that run under FT XBAS and occupy more than 16k. How about it Molimerx !

Please keep up the good work.

M.J.Brindle, Hall Lane, S.Wootton, King's Lynn.

I am writing to thank you for helping me out, at such short notice, with the loan of your Model 1 Disk Expansion Unit.

As you know, Computer Talk magazine asked me, at short notice, to arrange a "talking computer" competition for their COMPEC stand, having been let down by another company who promised to do this.

Tandy themselves were most helpful in lending me a Model 1 processor, Voice Synthesiser, etc, but were unable to come up with a disk expansion unit, at a few days notice, due to an apparent world shortage of this item.

Due to your speedy co-operation, I am pleased to report that the competition was a great success with a large number of entries.

I am also pleased, as a Model II owner, that these circumstances put me in touch with the user group from which I have already benefitted.

I refer to an item in the July newsletter which discusses the 2.0A version of TRSDOS and, in particular, the suggestion that disc processing is now slower due to a change in the use of the "I" command.

I must admit that I had wondered, in passing, why disc processing was slower with the new version of TRSDOS and this comment caused me to re-examine the use of the "I" and "VERIFY" commands as a result of which I have more than doubled the speed of program loading, at a stroke, by simply issuing the command "VERIFY (DETECT = OFF)" which seems a convenient alternative to the remedy suggested in the July newsletter.

I have owned my Model II for nearly 12 months and have now become fairly familiar with it's foibles.

However, even though I am an experienced programmer, I recognise that I could have saved myself many man-hours, over the last year, by sharing the experiences of some of your members as reflected in the newsletters that you sent me.

Les King

Pencil Crash

Recently I had typed in a medium sized Pencil file that was full of fairly complex data. I was just about to save it to disk when there was a mains spike and the machine reset itself.
I said a few **ff**!! words, but then began to wonder if it could be rescued as Scripsit files have been in the past.
Eventually the following was developed:

1. Reset the machine
2. Load Basic and type in the following:

```
10 DEFINT A-Z:AD=27650
20 OPEN"O",1,"FILENAME/PCL"
30 IF AD=32767,THEN AD=32768 ELSE AD=AD+1
40 X=PEEK(AD)
50 PRINT £1,CHR$(X);
60 IF X=0 THEN CLOSE:END ELSE 30
```

3. Run the program, which will save the memory to a BASIC file on disk.
4. Pencil can now be loaded again, the file can be read back into it and any editing can be done.

I am grateful for the help given to me by Leo Knaggs when I had this bit of bother.

Mike Gibbons

Epson MX-80 Printers

Having seen Dennis Long's program on Lineprinter Control for the Centronics 737 (see newsletter Nov.1980), I wondered if the same idea might apply to the Epson MX-80. I had ordered the MX-80 F/T2, but was in fact sent the ordinary MX-80; anyway, got started on adapting Dennis's program. It worked ! - then the F/T2 arrived. Lo and behold, - slightly different control codes & DIP switch settings. Consequently, a second program appreared.

For those of you who may not have seen Dennis's program, it allowed underlining of REM statements, and PRINT sequences which started (Quote-space-asterisk). I have been able to adapt his program to run on the MX-80 with one or two differences:

<1>. Since there is no underline control code on the Epson, the line advance is adjusted to increment a samall amount (1/72in) during the underline process.
<2>. REM statements (followed by a blank) are underlined to the end of the program line.
<3>. PRINT statements containing the sequence (Quote-asterisk-space) will be underlined - again to the end of the program line.

As I mentioned previously, each printer has a slightly different set of control codes, so I have enclosed both program listings (MX-80 and MX-80 F/T2). Obviously, you may not have room to include both in the Newsletter, so if anyone encloses a stamped addressed envelope, I shall be only too pleased to supply a listing of the program.(- state for which printer !!). A direct copy of the program can also be supplied if the appropriate media is supplied.

If anyone has any programs demonstrating the Bit Image capability of the MX-80 F/T2, I would appreciate some help!. Also if anyone in the South Derby / North Leicester area would care to get in touch, I would like to hear from them. - I've only recently moved to the area and don't know a single TRS-80 user locally.

My present system is Model I - 48K + 3 drives (Double density), and Epson MX-80 F/T2 printer.

An excellent Newsletter. - keep it up.

Graham M. Brown.
20, Paddock Close,
Castle Donington,
Derby. DE7 2JW Tel: Derby 812216

Memory Test

The following short program will do a 'memory test' printing out the memory and stopping at about line 60.

```
10 PRINT MEM;:GOSUB 10
```

Mike Gibbons

LDOS CMDFILE VS. SPACEV/CMD - A POSTSCRIPT.

SINCE I WROTE ABOUT PATCHING THE LEVEL II KEYBOARD ROUTINE TO ENABLE SPACEV AND THE LIKE TO BE RUN FROM DOS IN THE JULY NEWSLETTER (VOL 3 #1) SEVERAL PEOPLE HAVE POINTED OUT THAT LDOS CMDFILE WONT PUT SPACEV ONTO DISK PROPERLY IN THE FIRST PLACE. (THE VTOS CREATE UTILITY SEEMS TO WORK OK).

THE PROBLEM IS THAT CMDFILE DOES NOT AUTOMATICALLY RELOCATE CODE WHICH NORMALLY LOADS BELOW 4200H : IT FIRST ASKS FOR CONFIRMATION THAT THIS CODE IS TO BE RELOCATED. (NORMALLY THE ONLY CODE NOT TO BE RELOCATED WOULD BE THAT WHICH WAS DIRECTLY LOADED TO THE VIDEO MEMORY BETWEEN 3C00H & 3FFFH. THE MEMORY BETWEEN 4000H & 41FFH IS USED TO STORE SYSTEM POINTERS WHICH ARE FOR THE MOST PART DIFFERENT UNDER DOS TO THOSE WHICH A PROGRAM LOADING UNDER LEVEL II WOULD EXPECT). THIS IN ITSELF SHOULD NOT CAUSE A PROBLEM PROVIDED THAT THE OPTION TO RELOCATE THE CODE IS TAKEN. HOWEVER CMDFILE APPEARS TO CONTAIN A BUG WHICH RESULTS IN THE CODE BELOW 4200H NOT BEING RELOCATED AT THE SPECIFIED RELOCATION ADDRESS. I CANT QUITE WORK OUT EXACTLY WHERE THIS CODE DOES RELOCATE IN RELATION TO THE SPECIFIED ADDRESS AS A GENERAL RULE, BUT IT IS VERY LIKELY TO CORRUPT CORRECTLY RELOCATED CODE AND THUS CRASH THE SYSTEM WHEN RUN.

THE SOLUTION IS TO RELOCATE ALL CODE ABOVE 3FFFH AND NONE BELOW IT, PROVIDED THE RELOCATING APPENDAGE IS SPECIFIED ANY NEW SYSTEM POINTERS SPECIFIED BY THE PROGRAM WHICH LOAD BETWEEN 4000H & 41FFH WILL BE INSTALLED WHEN THE PROGRAM IS RUN.

TO MODIFY CMDFILE SO THIS IS ALLOWED, TYPE :-

```
PATCH CMDFILE/CMD.RRW3 (X'5487'=FF 3F,X'5E66'=30)

[TO SUBSEQUENTLY REMOVE THE PATCH, TYPE :-
PATCH CMDFILE/CMD.RR#3 CPL (YANK)  ]
```

SINCE I DONT HAVE A TAPE VERSION OF SPACEV I HAVENT BEEN ABLE TO TEST THE PATCHED CMDFILE ON THIS PARTICULAR PROGRAM ... WOULD SOMEONE LIKE TO TELL ME IF IT WORKS? THE FOLLOWING INSTRUCTIONS SHOULD WORK :-

```
     (W# REFERS TO THE QUERY NO. IN THE LDOS CMDFILE INSTRUCTIONS)
     LDOS READY          ===>      CMDFILE
     W1                  ===>      N
     W2                  ===>      T
                         ===>      <ENTER>
     W2                  ===>      <ENTER>
     W3                  ===>      8000
[RESTRICT OFFSET TO 4000 IF APPLICABLE.]
     W4                  ===>      Y
     W5                  ===>      Y
     W6                  ===>      Y
     W8                  ===>      D
                         ===>      SPACEV/CMD
     W9                  ===>      E
```

THEN TYPE SPACEV TO SEE IF IT WORKS!

AL REDHOUSE
THE VILLA
EAST COTTINGWITH
YORK
YO4 4TL

TEL : MELBOURNE (07593) 502

```
1 '*************************************************************
2 '***   Epson MX-80 FT/2 Lineprinter Control Program    ***
3 '**                by: Graham M. Brown (C)              ***
4 '***     From a program by D.V. Long (C), featured      ***
5 '***     in the Newsletter Vol.2  Issue.5  Page.19      ***
6 '*************************************************************
7 'The various control codes necessary to implement this
  program, can ONLY be utilised on the MX-80 FT/2 printer
  NOT the earlier type.
8 REM DIP 1.              DIP 1.              DIP 2.
10 '   Sw 1 = Off          Sw 5 = Off          Sw 1 = Off
11 '   Sw 2 = Off          Sw 6 = Off          Sw 2 = Off
12 '   Sw 3 = Off          Sw 7 = On           Sw 3 = On
13 '   Sw 4 = Off          Sw 8 = On           Sw 4 = On
14 'This program has been re-written to CONTROL
  the lineprinting on an EPSON MX-80 FT/2 of a Basic program
  stored in ASCII on disk.
15 'SPECIAL FEATURES consist of the ability to set up top,
  bottom and side margins. To double space each printed
  line, to underline selected statements, and to avoid
  chopping statements in half.
16 'Line numbers are right justified and spaced from text.
17 'REMstatements may be underlined if the letters REM are
  followed by at least one space. The underlining will
  continue to the end of the statement line.
18 'PRINT statements will also be underlined if they contain
  a (Quote-asterisk-space) sequence. For example:-PRINT"*
  * UNDERLINE TEST * *". Underlining continues as before
19 CLS:CLEAR1000:DEFINT A-Z:DEFSNG F,S,L:DEFSTR P,Q
20 PU=CHR$(27)+CHR$(65)+CHR$(1):QU=CHR$(27)+CHR$(50)
21 REM * * * SCREEN HEADING * * *
22 PRINT"Epson MX-80 Lineprinter Control Program.~The disk
  file must be ASCII encoded.";PRINTSTRING$(63,"*")
23 REM * * * PRINTING FORMAT * * *
24 LP=PEEK(&H4028):PRINT"Page length is presently ";LP;" -
  Change it ?  <Y/N> ";
25 GOSUB111
26 IFQ="Y"ORQ="y"THENGOTO106
27 IFQ<>"N"ANDQ<>"n"THEN25ELSEPRINT
28 INPUT"Enter TOP margin spacing for listing..";TM:
  IFTM<3THEN29ELSETM=3
29 INPUT"Enter line no. for BOTTOM of listing....";BM:
  IFBM<LP-6THEN30ELSEBM=LP-7
30 INPUT"Enter LEFT margin width (inc. line £).";LM:
  IFLM<10THEN31ELSELM=10
31 INPUT"Enter RIGHT margin width.............";RM:
  IFRM<10THEN32ELSERM=10
32 PRINT:PRINT"Enter the type of print required:~<1> Normal.
            <2> Condensed.          <3> Double strike.
33 GOSUB111
34 A=VAL(Q):IFA<1ORA>3THEN33
35 ONAGOTO37,38,39
36 REM * * * PRINT TYPE SELECTION * * *

Note:- The character -~- denotes an imbedded line-feed
37 PT="":PN="":CL=80:GOTO40
38 PT=CHR$(15):PN=CHR$(18):CL=132:GOTO40
39 PT=CHR$(27)+CHR$(71):PN=CHR$(27)+CHR$(72):CL=80:GOTO40
40 IFA=2THEN47
41 PRINT"Type selected =";A;". This gives you";CL;"
  characters/line.";PRINTSTRING$(17,131):PRINT"Do you
  require EMPHASISED print as well ?  <Y/N>"
42 GOSUB111
43 IFQ="Y"ORQ="y"THENE=1:GOTO45
44 IFQ<>"N"ANDQ<>"n"THEN42ELSEE=0
```

```
45 REM $ $ $ EMPHASISED PRINT CODINGS $ $ $
46 PE=CHR$(27)+CHR$(69):PF=CHR$(27)+CHR$(70)
47 PRINT@192,CHR$(31);"Do you require a heading for each page
   ?  <Y/N>"
48 GOSUB111
49 IFQ="Y"ORQ="y"THENGOSUB107:GOTO51
50 IFQ<>"n"ANDQ<>"N"THEN48
51 LINEINPUT"Enter the filename you are printing..";N$
52 REM $ $ $ SELECT LINE NUMBERS/UNDERLINING & SPACING $ $ $
53 INPUT"Enter START line no. for the listing";SL:
   IFSLTHEN54ELSESL=0
54 LN=SL:INPUT"Enter FINISH line no.............";FL:
   IFFLTHEN55ELSEFL=65529
55 PRINT"Do you require a space after each line ?   <Y/N>"
56 GOSUB111
57 IFQ="y"ORQ="Y"THENZ2=1:GOTO59
58 IFQ<>"n"ANDQ<>"N"THENGOTO56ELSEZ2=0
59 PRINT"Do you require the REM's & PRINT's underlining  ?
     <Y/N>"
60 GOSUB111
61 IFQ="Y"ORQ="y"THENZ1=1:GOTO63
62 IFQ<>"N"ANDQ<>"n"THEN60ELSEZ1=0
63 REM $ $ $ SHOW PRINT FORMAT SELECTED $ $ $
64 NP=0:PRINT@192,CHR$(31);PH;"~File name :
   -"TAB(14)N$TAB(35)"Page
   Length"TAB(46)PEEK(&H402B)"~Margins:- Left"LM"
   Right"RM"      Top"TM"      Bottom"BM"~Line no.'s:-  Start
   "TAB(22)SLTAB(30)"Finish"TAB(36)FLTAB(45)"Current"TAB(53)LN
65 POKE&H4029,LP-1:OPEN"I",1,N$:REM $ $ 4029H is the line
   counter.
66 WP=CL-RM
67 GOSUB108:'LPRINTPT;:IFE=1THENLPRINTPE;
68 REM $ $ $ GET DATA $ $ $
69 IFEOF(1)THENPRINT@512,CHR$(31);"$ $ END OF FILE $
   $";:CLOSE:GOSUB109:GOTO112
70 LINEINPUT£1,LI$
71 LN=VAL(LI$):IFLN<1THENCLOSE:PRINT@512,CHR$(31);"$ $ This
   is not an ASCII file $ $ Press <ENTER> to continue $ $":
   GOTO73:ELSEPRINT@438,LN;
72 GOTO75
73 GOSUB111
74 IFQ<>CHR$(13)THEN73ELSEGOTO46
75 PRINT@512,CHR$(31);LI$
76 REM $ $ $ CHECK LINE NUMBERS $ $ $
77 IFLN<SLTHEN69
78 IFLN>FLTHENPRINT@512,CHR$(31);"Last line requested has
   been printed":GOSUB109:CLOSE:GOTO112
79 REM $ $ $ START WORK ON LINES $ $ $
80 I=1:LR=0:LL=0:GOSUB102:IFZ1GOSUB103
81 LL=INSTR(LI$,CHR$(32)):IN=LM-LL:GOSUB105
82 REM $ $ $ CHECK PAPER & PRINT HEADING $ $ $
83 LC=PEEK(&H4029):IFLC>BMTHENNP=NP+1:IFNP=1THENGOSUB108:
   LPRINTCHR$(12):ELSEGOSUB109:ELSE88
84 LPRINTPT;:IFE=1THENLPRINTPE;
85 GOSUB110:LPRINT"      "PH;PU;
   LPRINTSTRING$(5,32);STRING$(LEN(PH),CHR$(95));QU;"
   Page";NP
86 FORN=2TOTM:LPRINTCHR$(32):NEXT
87 REM $ $ $ SORT & LINE-PRINT DATA $ $ $
88 IFLEN(LI$)<(WP-IN)THENLPRINTPI;LI$;:ELSE92
89 IFUR=1ANDUL=1THENLPRINTPU:
   LPRINTPI;STRING$(LEN(LI$),CHR$(95));QU:GOTO91
90 IFUL=1THENLPRINTPU:LPRINTPI;STRING$(R,"
   ");STRING$(LEN(LI$)-R,CHR$(95));QU:ELSELPRINT""
```

```
 91 IFZ2THENLPRINTCHR$(32):GOTO69:ELSE69
 92 L=WP-IN:V=L-5:TC$=" "
 93 X=INSTR(V,LI$,TC$):IFX>0ANDX<LTHENV=X:GOTO94:ELSEIFTC$="
    "THENTC$=":":GOTO93:ELSEV=V-5:TC$=" ":GOTO93
 94 LPRINTPI;LEFT$(LI$,V);:IFUL=0THENLPRINT"":GOTO98
 95 IFUR=1THENLPRINTPU:LPRINTPI;STRING$(V-1,CHR$(95));QU:GOTO98
 96 IFR=>LORR=VTHENLPRINT"":GOTO98
 97 LPRINTPU:LPRINTPI;STRING$(R," ");STRING$(V-R-1,CHR$(95));QU
 98 IFZ2THENLPRINTCHR$(32)
 99 LI$=RIGHT$(LI$,LEN(LI$)-V):IFR<LTHENUR=1ELSER=R-V
100 IN=LM:GOSUB105:GOTO83
101 REM * * * SUB-ROUTINES * * *
102 I=INSTR(I,LI$,CHR$(10)):IFITHENMID$(LI$,I,1)=CHR$(126):
    GOTO102:ELSERETURN:REM * * Replace line-feeds with
    a squiggle.
103 R=INSTR(LI$,"REM"+CHR$(32)):IFR<>0THENUL=1:R=R+3:RETURN
104 R=INSTR(LI$,CHR$(34)+"* "):IFR<>0THENUL=1:RETURN:ELSEUL=0:
    R=0:RETURN:REM * * Put underline code after a REM or ("* ).
105 PI=STRING$(IN,32):RETURN
106 PRINT:INPUT"Enter the page length required ";LP:
    POKE&H402B,LP:PRINT@192,CHR$(31);:GOTO24
107 PRINT"Enter no more than 1 line for the heading":
    LINEINPUTPH:RETURN
108 IFPEEK(14312)<>63THENPRINT@896,"* * SWITCH PRINTER ON *
    *";:FORM=0TO50:NEXT:PRINT@896,CHR$(30);:FORM=0TO50:NEXT:
    GOTO108ELSERETURN
109 LPRINT"":LPRINT"     Note:- The character -";CHR$(126);"-
    denotes an imbedded line-feed";CHR$(12):RETURN
110 PRINT@832,"* * Check Paper * * ";:INPUT"PRESS <ENTER> TO
    CONTINUE..";Q$:GOSUB108:RETURN
111 Q=INKEY$:IFQ<>""THENRETURNELSE111
112 REM * * * END OF PROGRAM POSITION * * *
113 PRINT@192,CHR$(31)
114 PRINT:PRINT:PRINTTAB(5)"<1> Another printout of the same
    file.~      <2> Re-initialise program.~      <3> Exit to
    BASIC.~~      Press the appropriate key...";
115 GOSUB111
116 B=VAL(Q):IFB<1ORB>3THEN115
117 ONBGOTO64,118,120
118 IFE=1THENLPRINTPF:LPRINTPN:ELSELPRINTPN
119 GOTO19
120 CLS:END
```

FOR SALE:

JPC TC-8 Cassette Interface. Fast loading and saving, along with excellent file management for TRS-80 Connects directly to keyboard, uses unmodified cassette recorder. Nearest to £50

ALSO NASCOM DMP printer. Dot matrix type, serial interface. Reliable, can be supplied with homebrew interface and all necessary software. Nearest to £200

I. R. Sinclair

Hedingham (0787) 61004

(Essex)

SYNCHRONOUS CLOCK SPEED UP

THE USUAL TYPE OF CLOCK SPEED UP MOD IS AS DESCRIBED IN NEWSLETTER VOL 1 #10 AND VOL 2 #3 AND WORKS QUITE WELL IN CERTAIN CIRCUMSTANCES. IT DOES HOWEVER HAVE A TENDANCY TO PRODUCE "GILTCHES" IN THE CLOCK SIGNAL WHEN IN THE ACTUAL PROCESS OF SWITCHING BETWEEN THE TWO CLOCK SPEEDS WHICH CAN CRASH THE SYSTEM. THIS IS NOT TOO DISASTHOUS ON A LII CASSETTE MACHINE AS IT ENTAILS RELOADING THE BASIC PROGRAM AT WORST, USING DISKS HOWEVER THINGS CAN TURN A BIT NASTY .... SWITCHING SPEEDS - EVEN BY SOFTWARE COMMAND - HAS CAUSED THE DISK CONTHOLLER/DOS TO THY TO STEP TO TRACK 255 ON MY SYSTEM WITH FAIRLY NERVEWRACKING RESULTS!

THEORY

AFTER PONDERING THIS PROBLEM FOR SOME TIME I DECIDED TO THY A NEW APPROACH. RATHER THAN DERIVING TWO CLOCK SPEEDS (OF 1.76 & 2.66 MHZ) AND SWITCHING THE CLOCK INPUT TO THE Z80 BETWEEN THEM I DECIDED TO TAKE IN A CONSTANT FREQUENCY OF 5.32 MHZ AND DIVIDE IT BY A VARIABLE RATIO (IE BY 2 OR 3). THANKS TO THE 74LS161 CHIP THIS CHANGE IN RATIO CAN BE DONE SYNCHRONOUSLY WITH THE INCOMING CLOCK PULSE .... RESULT -- NO GILTCHES.

THE 74LS161 IS A 4-BIT BINARY COUNTER WITH SYNCHRONOUSLY PRESETTABLE INPUTS : IN OTHER WORDS IT CAN COUNT FROM 0 TO 15 AND ON TO 0 AGAIN STARTING AT ANY DESIRED VALUE IN THIS RANGE. IT CAN BE LOADED WITH THIS PRESET VALUE AT ANY COUNT STATE AND THE COUNT WILL AUTOMATICALLY TAKE THIS VALUE AT THE NEXT CLOCK CYCLE AFTER THE "LOAD" PIN HAS BEEN TAKEN LOW. BY CAREFULLY CHOOSING THE START AND RELOAD COUNTS WE CAN MAKE THIS CHIP DIVIDE BY 2 OR 3 JUST BY CHANGING ONE INPUT LINE BETWEEN HIGH AND LOW; THE ONLY OTHER COMPONENT NEEDED IS A 4K7 RESISTOR

IF WE PRESET THE COUNTER ON THE CLOCK PULSE FOLLOWING THE COUNT OF FOUR THEN BY PRESETTING THE COUNTER TO 2 GIVES ONE OUTPUT (IE PRESETTING) PULSE AFTER EVERY THREE CLOCK PULSES. AND PRESETTING IT TO 3 GIVES AN OUTPUT EVERY SECOND PULSE. THE SEQUENCE IS AS FOLLOWS:-

CLOCK PULSE	PRESET DATA B3 B2 B1 B0	OUTPUT DATA B3 B2 B1 B0	PRESET ENABLE (BOTH O/P BIT1)	OUTPUT PULSE
	0 0 1 1 ==> DIVIDE BY TWO			
0		0 0 1 1	1	1
1				
0		0 1 0 0	0	0
1				
0		0 0 1 1	1	1
ETC.				
	0 0 1 0 ==> DIVIDE BY THREE			
0		0 0 1 0	1	1
1				
0		0 0 1 1	1	1
1				
0		0 1 0 0	0	0
1				
0		0 0 1 0	1	1
ETC.				

THUS CHANGING CLOCK SPEEDS IS JUST A MATTER OF CHANGING PRESET BIT

FROM LOW (1.76 MHZ) TO HIGH (2.66 MHZ). THIS CAN BE DONE EITHER BY A SINGLE POLE TOGGLE SWITCH OR BY THE OUTPUT FROM A LATCH DECODED AS BIT 0 OF PORT 254 (AS DESCRIBED IN NEWSLETTER VOL 2 #3 & #6). THIS LATTER METHOD IS SOFTWARE COMPATIBLE WITH THE VTOS/LDOS "SYSTEM (FAST)" COMMAND ENABLING THE USE OF THE HIGHER SPEED CLOCK WITH DISKS. HOWEVER, A WORD OF WARNING IN THIS CONTEXT. THIS METHOD OF CLOCK SPEED UP (AND INDEED ANY METHOD WHICH DOESNT USE A SECOND CRYSTAL) DISTORTS THE RELATIVE TIMINGS OF THE MEMORY DECODE SIGNALS (RAS, CAS, MUX) WITH A RESULT THAT HIGH ACCESS SPEED MEMORY CHIPS MUST BE USED PARTICULARLY IN THE EXPANSION INTERFACE. I BOUGHT MY MEMORY CHIPS BEFORE MEETING VTOS 4 & LDOS 5 SO AT PRESENT I CAN ONLY USE THE HIGHER SPEED FOR PROGRAMS OR DEVICE DRIVERS LOADING BELOW 8000H (IE IN THE KEYBOARD MEMORY).

INSTALLATION
††††††††††††
1.PRE-WIRE THE 74LS161 AS FOLLOWS:-
CONNECT PINS 1,4,7 & 10.
CONNECT A 4K7 RESISTOR BETWEEN PINS 16 (=+VCC) AND 10.
CONNECT PINS 5,6 & 8 (=0V).
CONNECT PINS 9 & 13.

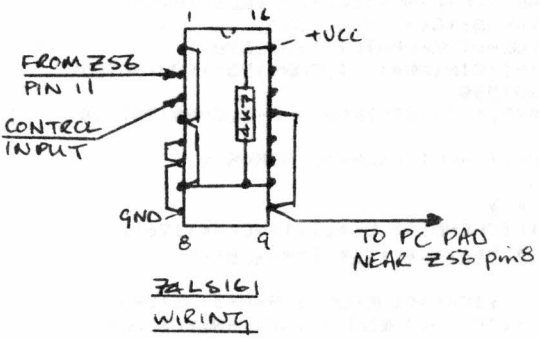
2.INSTALL THE IC:-
PIGGY BACK THE 74LS161 ONTO ANOTHER 16 PIN CHIP IN THE AREA OF Z56 BY PINS 8 & 16 (THE POWER SUPPLY PINS) MAKING SURE NONE OF THE OTHER PINS TOUCH THOSE OF THE SUPPORTING IC.
CUT THE TRACE LEADING FROM PIN 8 OF Z56 TO THE PCB SOLDER PAD ADJACENT TO IT AND CONNECT A SHORT WIRE FROM THIS PAD TO PIN 13 OF THE 74LS161. THIS IS THE NEW CLOCK OUTPUT TO THE CPU (VIA Z72).
CONNECT A WIRE FROM Z56 PIN 11 TO PIN 2 OF THE 74LS161. THIS IS THE 5.32 MHZ CLOCK INPUT.

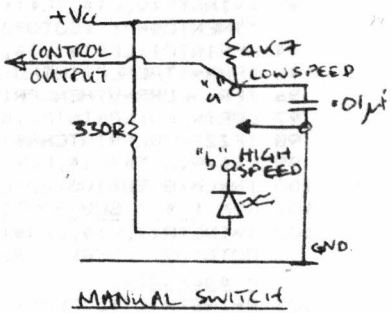
3.WIRE UP THE CONTROL:-
A) MANUAL SWITCH. MOUNT AN SPDT SWITCH AND A LED IN A SUITABLE PLACE. CONNECT THE MOVEABLE POLE OF THE SWITCH TO GROUND AND WIRE A 0.01 MFD CAPACITOR BETWEEN THIS AND POLE "A". RUN A WIRE FROM POLE "A" TO PIN 3 OF THE 74LS161 AND CONNECT A SECOND 4K7 RESISTOR BETWEEN PINS 3 & 16. CONNECT THE LED AND ITS 330R SERIES RESISTOR BETWEEN VCC (+5V) AND POLE "B" OF THE SWITCH. AN ILLUMINATED LED INDICATES HIGH SPEED OPERATION.
B) SOFTWARE CONTROL. INSTALL A LATCH TO LATCH BIT 0 OF OUTPUT PORT 254 (=FEH). THIS CAN BE A 74LS175 AS DESCRIBED IN NEWSLETTER VOL 2 #3 & #6 -- IN WHICH CASE JUST RUN A WIRE FROM PIN 2 OF THIS LATCH TO PIN 3 OF THE 74LS161 -- OR BY USING THE SPARE PORTION OF Z7. IN THIS CASE FIRST FREE THE GROUNDED PINS 8-13. THEN:-
CONNECT Z7 PIN 9 TO 74LS161 PIN 3.
CONNECT Z7 PIN 13 TO SYSRES* Z37 PIN 1.
CONNECT Z7 PIN 12 TO BIT 0 OF THE DATA BUS.(EG Z59 PIN 4)
CONNECT Z7 PIN 11 TO FEOUT* DECODED AS DESCRIBED IN THE VOL 2 #3 ARTICLE.

WITH EITHER OF THESE SOFTWARE DRIVEN MODS OUT254,<ODD NUMBER> (IN BASIC) WILL SELECT THE HIGHER SPEED AND OUT254,<EVEN NUMBER> OR PRESSING RESET WILL GIVE NORMAL SPEED.

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VISIT TO CHELTENHAM

A very enjoyable afternoon was spent by several members of the club on Sunday, 15th November at THE COMPUTER SHACK, Cheltenham. Amongst the computers being demonstrated were the TRS80, Commodore PET, Video Genie, Sharp MZ80 and the ACORN, and it was really nice to be able to make comparisons. The high definition graphics of the Sharp really impressed quite a few of the members and I for one would love to have a little black box that did the same for my TRS80.

Excellent refreshments had very kindly been provided and Mr.D.E.Lewis and his colleagues did all they could to give all the information that was requested by our members regarding the various computers, printers, etc..

Also on display were a fantastic collection of books on all aspects of computing. This is really worth remembering if you are looking out for additions to your library. A list of the books available and also a catalogue of equipment handled by THE COMPUTER SHACK will be on show at the next club meeting.

Members and guests present were Vernon, Peter, Michael and Stephen Griffiths, Ed Badcock, Terry Hart, Andy Bell, Rod Bullard, Ray Beswick, Chris and Paul Gray, Bob and Mary Sparling and self.

Many thanks to THE COMPUTER SHACK for such an interesting afternoon and to Terry Hart who arranged the visit.

Finally, THE COMPUTER SHACK is at 14, Pittville Street, Cheltenham, glos. GL52 2LJ., and the telephone: (0242) 584343.

Laurie King.

Asst. Editor.
Southern TRS( )Club

PROBLEM SECTION

Having a limited electronics knowledge, perhaps you could help me with this question:

A number of machines have the ability to add on a board and produce colour. Outside of the Colour TRS-80, will it ever be possible to adapt the standard Model I? If not, why not?
Marshall Barry

(* Just modifying the Model I for colour is not particularly difficult. William Stuart Systems Ltd. of Dower House, Billericay Road, Herongate, Essex CM13 3SD, Tel: (0277) 810244 have been selling a suitable kit for about £50 for a couple of years. Getting good, high resolution, colour graphics is another matter. LFH *)

I wonder if you could help with a problem we have at the moment. We have written a careers choice program for secondary school pupils, which for copyright reasons beyond our control can only be tested in independent schools (we'd like to change this).

Could any independent schools who have TRS-80s please contact me, if they would like to take part in this evaluation.

Dr. M.L.A. Robinson,
Worth School,
Paddock Hurst Road,
Turners Hill,
Crawley,
Sussex RH10 4SD

We have a copy of the cassette version of Scripsit which works perfectly with TRS-80 Model I, but doesn't work with a Video Genie/Expansion box/Epson MX80 F/T. Two faults exist:

a) It will not read in a tape prepared on a Tandy. Tape read error ocurrs.
b) Output to printer will not work.

Any help would be appreciated.

Steve Lucas,
41 Longcroft Lane,
Cheadle Hulme,
Cheshire SK8 6SE

Can you give me some help in the 'Communications' area; I want to buy a modem (+ auto-answer) but do not know which

are the best buys. Should you aim for an acoustic modem or (highly illegally) a hard-wired type?

Graham M. Brown.

(* If you want an auto-answer facility, you must use a hard-wired modem. The best buy is probably the Modtech unit sold by 3-Line Computing at about £250. See the November issue for details of the best buy in acoustic couplers. LFH *)

As a final year computer science degree student I have been assigned a project investigating tecniques used to protect micro-computer software. As you can imagine there isn't a lot of freely available information in this field.

I imagine that as a one make computer users club your members probably help each other by sharing software amongst friends and I would be extremely grateful if you could comment on any protection tecniques you have encountered, in return for which I would, of course, send you a copy of the completed project.

I should emphasise that any information you may supply is for the benefit of the polytechnic and will not be made available to any commercial body and the source will not be disclosed to a third party.

I hope this arrangement will work to our mutual benefit.

M.J. Crowson,
Dept. of Computing and Cybernetics,
Brighton Polytechnic,
Lewes Road,
Brighton.

"FOR SALE Acutab Floppy Tape. Just over one year old (owner has traded up to disks). Boxed and complete with leads, PSU, manual, and 20 tapes of assorted lengths (9 @ 10', 5 @ 20', 3 each @ 30' & 50') with a variety of software on them. Would cost over £200 new. Accept £100 post & insurance paid. Paul Godier, 83 Trinity Road, Wimbledon, London SW19 8QZ Tel (01) 542 9972 evenings"

COMPAK by Nigel Dibben

The name of Nigel Dibben has become synoymous with good and efficient programs and COMPAK must surely, further enhance his reputation. The program is available from A. J. Harding (Molimerx) LTD. John Harding says, "The title of this program is a composit word which may be interpreted in two ways, either as standing for COMplete PAckage of aids to the programmer or as for one of the princible features of the program, namely the ability to compress Basic programs to an almost unbelievable minimum".

The program is made up of four main categories of utilites. In the aggregate they comprise a complete utility containing every foreseeable feature that a Basic programmer could require. Up until now, very usefull utilities have been sold by John Harding and others, the main drawback with lots of separate utilities are you pay a lot more for just two such utilities and find a large number of commands are just duplicated, worse still they occupy part of the same area in memory as each other, so cannot be used together. Compak has for me, overcome theese problems.

The big advantage with this program is it allows the user to decide just what is to be carried out on a Basic program in memory. The COMPAcKing of a program can be selectivly achieved by using the following commands.

Delete remarks:-

1. Delete all remarks.
2. Delete "REM" remarks.
3. Delete all "'" remarks.
4. Delete REM# remarks. (used in the Renumbering routine)

Delete irrelevant characters:-

1. Blanks except in DATA and STRING statements.
2. LET's.
3. GOTO's (after THEN's).
4. After the first two letters of a variable name.
5. Colons. (e.g. THEN: or ::)
6. Quotes from ends of lines.
7. Blanks in DATA statements.

These can be combined in any combination by a two letter command or all by just one letter.

Packing the program:-

Any or all of the following can be carried out.

1. Pack the program so that the maximum line width is 'n' characters, expanded, the default of 'n' being 240. This joins former single lines into multi-line statements.
2. Pack density. i.e. maximum line length is 'n' bytes compacted, with a default for 'n' of 240. Renumbering, if necessary, will be requested.

One major advantage over any other program I have used is it will reverse the Pack funtion, in other words, unpack. Good programming practice is to have more than one statement on one line and if you have written the program this way or if you have used the program to COMPAcK your program the resulting Basic program becomes difficault to Debug or understand and follow. With the Unpack command, provided there is enough room between lines, will turn your program into single statement lines. To demonstrate this, a small program example below.

```
10 CLS:PRINT:PRINT:GOSUB5000
20 PRINT:PRINT"THAT WAS IT":REM PRINT END MESSAGE
```

After unpacking would look like this :-

```
10 CLS
11 PRINT
12 PRINT
13 GOSUB5000
20 PRINT
21 PRINT"THAT WAS IT"
22 REM PRINT END MESSAGE
```

From this small demonstration you can see how powerfull this command is, in fact all of this realy excelant program has many such powerfull commands many of which I have still not used, I think you will find if there is something you want to do to a Basic program this utility will do it.

REPLACE

Another very powerfull set of commands are the find and repalce commands, This is magic just to see in action. The best way is again to use the program above to show the resulting display.
qIf we want to replace the GOSUB 5000 with GOTO 5000 and replace the message in line 21 to read "This is the end" it is as simple as entering ABC and its completed. :-

```
10 CLS
11PRINT
12 PRINT
13 GOTO 5000
20 PRINT
21 PRINT"THIS IS THE END"
22 REM PRINT END MESSAGE
```

FIND

The find commands are just as usefull and easy to use, if you want to find any thing in a Basic program, from a comma to a complete statement or just a number COMPAK will do it and come back with the numbers of the lines containing the occurrence and with the number of occurrences in the line if greater than one. The find command has a wait for input feature which is most usefull for altering a program, for example while in this mode you can delete a line, automatically enter the Edit mode for the line displayed and continue search, it is even posible to go back to the start of the program with out leaving the Find routine. Infact once you get used to having the program loaded you will wonder how you managed without all the help COMPAK provides.

Join lines & copy lines

With this feature any line can be joined to another line separated by a colon. A line can also be copied to another specified line.

Decode lines

This is a useful feature which has been made necessary by the continued use by programmers of the technique of entering graphics or machine code into strings. This feature will decode the strings into hexadecimal code and add them as new lines at the end of the program. A number of variations are available to this routine is to make the manipulation of packed strings easy.

Add programs together

Two programs in memory can be concatenated. This allows programs to be written in blocks or segments and then added together to make one program, this way of writing programs makes it easy to run and debug parts of you program and then add all the parts together.

Renumber

There is a comprehensive Renumbering facility, some of the additional features are the sequence of renumbering may be changed anywhere in a program using a special form of REM statement. If a line has a reference to a non existant line number, the old line number and old number will be displayed and two asterisks will be placed after the offending number. Line numbers marked by the programmer will be omitted when renumbering takes place.

Status

This funtion will display the space taken in memory of the following

<1> Program
<2> Array names and values
<3> String variables
<4> Free space and Basic stack
<5> variable names and values
<6> Total of all.

Among other features in the program, one can set control keys to preset abbrevaitions and also display on demand, the current abbreviations stored. A disk Save/Load program for quick backups when editing or debugging requires only two letters to save under the filename of TEMPROG/BAS.

The program itself is invisible to the user and its just like having a much more powerfull Basic with a very usefull Debug. Among the facilities for debugging is the Trace mode which allows a trace with the last 8 lines displayed at the top of the screen. Continous trace, line by line, or step by step are available, and pauses if desired can display the current line or step. Edit mode can be automatically entered in the current line, and breakpoints can be inserted so that when Trace encounters them it will stop and allow all variables etc. to be inspected.

In a short review of this nature, one cannot hope to cover all the facilities offered, but enough has been said to show that COMPAK is truly the Programmers dream come true and at such a reasonable price is a must for all serious programmers.

REVIEW BY BOB SPARLING SOUTHERN TRS-80 CLUB (SWINDON)

Molimerx Photopen

Review by Dave Kilford (Video Genie)

On Saturday 12th September (accompanied by my wife persuaded by a promise of some west end shopping "later in the day") I made my way on Rimes' coach to the event of the year - the Personal Computer World Show at the Cunard Hotel, Hammersmith.

It was absolutely packed and I made myself a promise that next year I would come up on the Friday which was, I was reliably informed, the quietest of the three day show. After an hour or so on the ground floor which housed most of the lighter items in the show, games and the like, I made my way upstairs to the heavy boys showing business systems and other similar joys. Amongst the companies on this floor I came across Bob's favourite progr amming mates, A. J. Harding (Molimerx) LTD. And purchased their catalogue for one pound (the best value for money at the show without a doubt). Whilst looking at a Video Genie which Molimerx had fitted with a colour board, I noticed next to it another Video Genie fitted with a light pen and was facinated by the way it picked up information from the screen without the use of the keyboard.

On making enquiries from a delightful dolly bird thoughtfully provided by A. J. Harding, I was truly amazed at the price asked for this mysterious device, eleven pounds ninety five plus vat (why the heck isn't there a pound sign on this machine - one of the deficiencies inherited from that Tandy thing). Needless to say within a few moments I was the proud owner of this new toy and was regretting the earlier promise to my better half to spend precious time shopping. As the coach didn't leave until half past eight I decided that discretion was the better part of valour and did not suggest that we caught the concorde home.

Saturday was a very long day after that and after walking what seemed like John O' Groats to Lands End, I crawled onto the coach just as the wheels began moving for home. The next thing I remember it was Sunday morning and as dawn broke (about ten o'cock) the dog went for his quickest walk since I gave up joggng. It was now time for me to examine the latest addition to my Genie family (about blinking time you say?).

The first thing I read was that a cassette player is required to amplify the signal from the photopen. I have never used the second cassette facility of the Genie and was not endowed with this luxury. however, I remembered that some years ago we bought both our offspring portable cassettes for Xmas and an immediate search was started; before long the photopen was connected as per instructions and the demonstration tape was loaded. disaster - disaster - the *#$**# thing doesn't work.

I'm a great believer in the old saying "if at first you don't succeed - give up!" but on this occasion the thought of the previous day's demonstration by Molimerx spurred me on and after a great deal of time spent reloading the programme and testing the connections I discovered that the cassette player was faulty and was not in fact transmitting the photopen signals to the Genie. Some considerable time later the second offspring's player was found (and tested) and at last the new toy was ready for operation..... and it worked.

To quote from the instructions supplied:-
"The photopen allows you to utilise the video display as direct input to your computer. It is used to detect a point of light on the screen. The position of the point and therefore it significance is established by a simple basic routine.

You will find many applications for your photopen in interactive games, computer assisted instructions and many other fields. It can also be used to simplify your business programmes. Menu selection within a programme can be very easily amended to permit photopen input.
The photopen can be used with any size memory and is compatible with any DOS system. Level II Basic is a minimum requirement."

In addition to the demonstration programme there are four other programmes supplied with the photopen the most illustrative being "Geography Test" which draws an outline of the U.K. and flashes various points on this map. a choice of five towns and cities is listed by the side of the map with a small white square alongside each choice. pointing the photopen at the chosen square sends a signal to the computer which flashes each square in turn until it reaches the one chosen. This flash is picked up by the photopen which again sends a signal to the computer thereby identifying the name chosen. Twenty different towns are flashed in sequence each with five alternative choices and your result is given as a percentage at the end of the test. If your choice is wrong, the correct answer is given before going on to the next sequence.

I consider this purchase to be extremely good value for money, the applications seem endless: It could even tempt me to write a game and I'm sure that Rod can think of dozens of uses in games he has already written. If you want a demonstration let me know - I will make sure I bring this remarkable device to the next few club meetings.

Dave Kilford.
Southern TRS-80 Club, Swindon

EDITOR/ASSEMBLER PROGRAMMING FOR THE BEGINNER

As new members are al ways wanting something, not to complex, or some simple teaching type of feature in the newsletter, I have decided to put pen to paper (or fingers to keys) and give the members who cannot come to meetings and get help, either from their local clubs or from the National Users Group, the sort of information they are missing out on. At the same time for those of you who do go to meetings and who are seen scribbling notes, and may be cannot read them afterwards, here is a hard copy plus a bit more practical programming using the Editor Assembler. I may have started on a life times work in writing a book on How To Program In Machine Code, in other words it will probably continue and turn up with more when ever I have time to spare.

If you first load Edtasm using the 'SYSTEM' command and start the program with a / <ENTER>. Once in the program type 'I' and <Enter>, this will put you in the 'I'nsert mode and will give you an automatic line number as in the 'Auto' command in basic exept that the line numbers start at one hundred and the display is thus :- 00100.
Line numbers and increments can be selected at the time you type I for insert, for example I10,10 will start at line number 10 with an increment of ten and I50,50 will start at line 50 and have an increment of 50, by just typing 'I' the default is the same as typing 'I100,10'.
You then enter your program as you would with the normal Basic program. Just a few differences from Basic, you cannot enter the program without using the 'I'nsert command giving the 'AUTO' line numbers and you cannot have more than one statement or command on a line also the Tab or spacing in the line is important, without the correct spacing the assembler will not work. An example of the spacing is demonstrated below.

Line No	Label	Opcode	Operands	Remarks
00100	LABEL	ORG	7FFFH	;START
00110		LD	A,31H	;LOAD A WITH 1
00120		JP	LABEL	;GOTO LABEL
00130		END	LABEL	;FINISHED

The first statement of your program should be an orgin statement to let the assembler know where to put the program in memory, and is typed as ORG the address follows after pressing tab or right arrow, the address can be in decimal or hexadecimal, if the address is expressed in hexadecimal an H should follow the value typed in, the following are all valid ORG statements. :-

```
ORG     7000H
ORG     37700
ORG     0EF00H
```

The following are not correct statements :-

```
ORG     7F00
ORG     EF00H
```

The first statement is incorrect because there is a hexadecimal address without an H following, the second statement is a lttle more obscure, if an address starts with a letter then it must be proceded with a zero otherwise an error will be generated on assembly, all addresses through out the program which start with a letter must be preceded with a zero.

The LABEL is a symbolic name of a line, so instead of keeping a note of where your routine or subroutine is, as you would do in Basic with the line numbers, you give the subroutine a label and instead of saying GOSUB 5000 or GOTO 2000 you would say CALL FRED or JP FRED, FRED being the label given to your routine. The label is defined as a string of characters no greater than 6 characters, the first character must be a letter. A label may not contain the '$' character. The dollar sign is reserved for the value of the reference counter of the current instruction, (I will try and explain the dollar and its use later). All labels must start in column one of the source line. The following also are reserved and cannot be used as a label because they refer to registers and the assembler will get things mixed up, They are :-

A B C D E H L I R IX IY SP PC AF BC DE HL

OPCODES will take quite a bit of explanation before the whole set will be understood individually and fully, its a bit like trying to explain the Basic commands for example IF THEN ELSE DATA SET POKE PEEK and so on. Each Opcode is an instruction to do something and are like the Basic instructions, some need other information to follow, others stand by them selves and CALLs need a RETurn just as a GOSUB in Basic needs a RETURN.

OPERANDS are always one or two values seperated by commas. Some instructions require no operands at all. Operands with parentheses ( ) specifies indirect addressing when used with registers, or the contents of registers, As I have just turned a lot of you off with that statement, I will try and grab your interest again by having a go at explaining what Indirect Addressing is. Any value in parentheses refers to the address (or box if you like). We will start by putting a value into a memory address, the Opcode is 'LD' and the Operand is '(address),value of a register' for example :-

```
LD    A,31H       ;Puts an ASCII one or a HEX 31 into the
A register
      LD    (7FFFH),A   ;Then puts this value (31H or ASCII  1
into the last box or location in a 16K machine.
```

If you have stored a value in an address (or box) and you want to get it out, the following example will do just that.

```
LD    A,(7FFFH)   ;gets the value from location 7FFFH.
```

Before we move on, I should expand on the way a variable can be defined as a Decimal Hexadecimal or an Octal base number or value. As I stated in the ORG statement, if the address is expressed in a hexadecimal format and the first character is a letter then it must be preceeded by a zero and followed by an

'H' to show the value is a hexadecimal value, the decimal and octal numbers will not start with a letter but the following letter will define the number as being 'D'ecimal, 'H'exadecimal or 'O'ctal, the following examples show how the numbers are defined :-

(0FH) (7111H) are Hex. (7111O) (711O) are both Octal and (7111D) and (7111) are Decimal. Any number without a letter defining the number is defaulted as being a decimal number.

Last of all in the line the Comment statement. The Comment is an optional statement which is the same as the REM statement in Basic. The main difference between the Basic REM and the Assembler Source Code, is, in Basic the REM statements are usually used at the begining of subroutines etc. to help find parts of your program quickly and to remind you what parts do what and how. With Assembly source code the Comment is usually made at the end of the line on every line, because the code is not so easy to see what is happening, as it is with Basic. Comments can start at the begining of a program or a Macro (Macro is something like a subroutine in Basic but as the Tandy EDTASM will not support Macros I will cover this much later on) or any section of code that you may want marked so as to find or refer to during programming. The Comment is denoted by a semi-colon ; and the remark follows, as in Basic every character after the remark delimiter is ignored by the Editor/Assembler at assembly time.

Just to straighten things out a bit for you I will try and explain some of the terminology used in machine code programming.

Source Code : This is what you have typed into EDTASM and have on the screen, you can include rem type statements in your program

When you have written your source code you need to save this to tape or disk, if the program is a long one it would be wise to save this several times during the writing of your program, so that if any thing goes wrong you have some back-up on two or more tapes, then you wont have to start all over again, it is a good idea to do this with Basic programs as well as assembly language source.

After you have saved your source code the next thing to do is assemble your code into object code. This is the time when you turn you program into something the computer can understand. To do this you type 'A', and then you have some options or extras you can select. In default the filename of NONAME will be used and no switches will be active.

The syntax for Assembly with options command is, 'A' space 'NAME' up to six characters in length, followed by '/' then the switch or switches. The switches are :-

NL No listing will be written to the screen at assembly time
NS No symbol table will be written to the screen at assembly
NO No object code will be written to tape or disk

LP Send listing, errors and symbol table to the line printer
WE Wait errors. This will cause the assembly to stop or pause when a syntax type of error is found, in other words when the assembler cannot understand what you want done or cannot make sense of the instructions.

The Wait Errors will not find errors in the program its self so allthough an assembly is successfull your assembled program will not necessarrily work as you intended.

Well I think that is enough for now, but before I finish I will give you some examples you can try for your selves.

To make your assembly langauge program load to the screen from tape or from disk you must ORGinate your program at the screen address, which will then load the following bytes to the screen. To make them intelligible you must have them stored in ASCII format using the Pseudo-Op DEFM. Any thing typed in after entering ' will be defined as ASCII. Try the following short program for your self.

```
00100       ORG     3C00H
00110       DEFM    'THIS IS MY FIRST ASSEMBLY PROGRAM'
00120       END
```

Then type A/WE and then save your assembled program to tape. The program will have the file name of NONAME because you did not name the program at the time you assembled the source, so by typing SYSTEM <Enter> N <Enter> the program will load the message to the screen as the tape is loaded. To Name your program type A NAME/WE a space must be left between the 'A' and the filename 'NAME'.

To make your program auto-start instead of having to type / <Enter> you will need to put in another ORG statement to have the start address and a jump instruction inserted into low RAM which is used by the system in its house keeping, so try the following little program.

```
00100       ORG     42E1H
00110       JP      1A19H               ;BASIC READY
00120       ORG     3C00H               ;SCREEN START
00130       DEFM    'THIS GOES TO THE SCREEN'
00140       END
```

If you put your program address in to the JP instruction instead of the address of the Basic Ready (1A19H) the program will auto start on completion of loading

Next month I try and continue with some more ideas and I will cover editing, finding and the normal programming and shifting around of the text or program plus some practical examples to try. Come on and have a go for your selves this is the only way you will learn.

Good programming to you all.

Bob Sparling

Bob Sparling
SOUTHERN TRS-80 CLUB SWINDON

MX80 FT II PRINTER

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30 Nov 1981

Dear Editor,

A number of references to the MX80 printer have appeared in recent issues, together with some attempts to link it with Scripsit. Readers who are currently making a decision on what printer to acquire may like to hear of my own experiences with the MX80 and Scripsit.

I've had an MX80 F/T II since last March and can testify to its performance. It is rugged, easy to use, and very quiet ..it is silent when not actually printing, and the printing itself is a pleasant buzz, nothing like the chain-saw commotion created by some of the Tandy printers I've heard.

Its ruggedness is demonstrated by one particularly nasty experience I've had. The scale/paper guide is prone to get in the way of single sheets, particularly if you try to start printing as near the top of a page as possible with the scale tilted forward of the platen; the paper then wraps itself around the print-head with consequent disaster! At least that's what happened with my Tandy Quick Printer II, and I incurred a nasty £46.00 repair bill. But not so with the Epson ... as soon as the head movement was restricted, some built-in self-defence mechanism locked the drive motors up and sounded an ear-piercing warning note on the bell for 30 seconds. After switching off and on again, the printer was back to normal.

The F/T version of the MX80 has an optional paper-roll guide and carrier. In fact I've never used it ; I've removed the tractor mechanism and use single sheets of paper most of the time. The paper-roll is always available if I want to do a particularly long listing. Feeding in single sheets is absolutely simple - just like a normal typewriter. A release lever allows you to push the paper straight through under the platen.

The variety of print-types is a very satisfying feature, particularly when using the printer in conjunction with Scripsit for correspondence and documents. With a fairly new ribbon, normal printing is very clear and complete, while the emphasised mode gives an exceptionally good-quality appearance, even with an old ribbon.

For this reason, I always use my printer in the Epson mode as opposed to the optional TRS-80 mode which can be selected from a DIP switch through an opening in the back of the printer. This latter mode allows you to toggle between three sizes of normal intensity print - condensed (132 chars/line), normal (80 chars/line) and enlarged (40 chars/line), together with standard TRS-80 graphics codes 128-191.

The Epson mode, on the other hand offers far greater flexibility, with the solitary disadvantage of having to bump the graphics codes by 32. In addition to normal intensity printing, you have emphasised print; this is, in effect, a double-density print-type with twice the resolution of normal type. Also, there is a double-print option whereby every line is printed twice over to give a stronger imprint.

Contrast this paragraph, which is in double print, with the last one in emphasised print, and the one before that in normal print. In practice, this is probably a bit hard on the eye, but is invaluable for document headings and titles.

The Epson mode also allows you to vary the line-feed in steps of 1/72" - the distance between adjacent wires in the head. This permits a fairly effective underlining function, together with pseudo supers and subs which can be implemented from Scripsit.

The newsletter references to Scripsit seem to involve a fairly minimal implementation of the printer's options. The standard Scripsit patch is very limiting; in fact several patches are needed to achieve underlining ,subscripts and superscripts. My own driver uses six patches and allows a free insertion of print parameters in the normal Scripsit format line.

The following print-out illustrates some of the functions possible ....

1. execute <u>all</u> the print-types of the MX-80 ...

condensed
normal
enlarged
emphasised
double
condensed/enlarged
emphasised/enlarged
emphasised/double
emphasised/double/enlarged
condensed/double
condensed/double/enlarged

2. mix printer formats freely with standard formats
3. perform a pseudo but effective underlining
4. insert $_{\text{sub}}$scripts/$^{\text{super}}$scripts
5. <u>underline</u> individual chars/words in a <u>line</u> .... at the expense of right justification!

Not bad for a dot-matrix printer and Cassette Scripsit!

I've found that the optimum DIP settings for the standard F/T II printer, Epson mode, are as follows :-

DIP 1

Switch	Setting
8	on
7	off
6	on
5	on
4	off
3	off
2	on
1	on

DIP 2

Switch	Setting
4	off
3	on
2	off
1	off

The addition of three new chips converts the MX80 Type II into a handy graphics printer. These hi-res chips (known in the States as Graftrax 80) offer two forms of bit-image printing - 480 dots/line or 960 dots/line. The effort at the top of this letter is in 480 bit-mode.

As you can see, it is possible to mix text and graphics on the same line. Unfortunately, it seems that bit-image printing must be done in machine language so as to avoid that dreadful ROM routine at 003BH which performs incalculable contortions before passing a byte to the printer. It is adequate for normal printing/listing from Basic, but plays the MX80 a merry dance when asked to send Ascii codes in the the range 0 to 13.

It is relatively easy to patch Scripsit to suspend its normal progression through a document and branch to a bit-image routine which might be used, for example, to illustrate the accompanying text.

In addition to graphics, the Graftrax chips offer a very attractive italics script, and also allow you to change print-type mid-line and backspace the head - two essential functions to permit emphasising individual words or phrases mid-line. I've not implemented all these features in Scripsit as yet; it's going to require some comprehensive patching, but I gather this has already been done for the Centronics 737, so it must be possible.

Also with the Graftrax chips, the Epson v. TRS80 mode argument is a non-starter since the mode can now be toggled from software. Apparently all the ESC codes are now user-definable but the instruction sheets I had from Micro Peripherals don't say how, so I've not been able to assess this feature yet.

One simple feature missing on the Graftrax chips is the sterling pound character; the standard printer offers this character in exchange for the usual "#" character - a fair trade-off.

I am using the following DIP settings for the Graftrax chips :-

DIP 1

Switch	Setting
8	on
7	on
6	on
5	off
4	off
3	off
2	off
1	off

DIP 2

Switch	Setting
4	off
3	off
2	off
1	off

In fairness, I should add that this is the second set of hi-res chips I've had. The first set proved pretty useless as the linefeed code didn't work in Basic. They did produce very economical listings, however - I was able to list all 16k of Android Nim on a single line! One intrigueing function on these chips was a print-type called reverse-field (a black on white, white on black, sort of effort) - very effective.

This does illustrate the many interesting possibilities with this form of printer update. I expect it will soon be possible to customise these Eproms for one's own specialist applications. Hence, your Eprom programmer assumes special significance. Unfortunately, there seems to be a great dearth of information on the mechanics of using one of these programmers. Do you have to use a special programming language, or do you literally transfer a Z80 routine direct from memory? Would such a programmer enable me to read my printer chips (disassemble them, as it were) to see exactly what they're programmed to do? I would be grateful if you can offer any information or advice along these lines.

Incidentally, most TRS80 users - particularly the "older" generation who began their TRS80 trip with the Level 1 machine - will be pleased to know that David Lien is doing for the MX80 what he did for the TRS80 Level 1. He has written a beautiful little manual for the standard MX80 printer. He really does have a way with manuals. He quickly gets to the heart of the matter and explains the operation of the printer in a perfectly clear, unambiguous and comprehensive way,using that inimitable style of his which makes the book a pleasure to read, as well as a virtual treasure-chest of interesting ideas and applications. The manual also includes a very comprehensive index of printer codes and character matrix patterns.

I believe David Lien has already written a sequel for the Graftrax printer and is awaiting the go-ahead from Epson before publishing. The address to contact about these publications is

COMPUSOFT PUBLISHING
1050 Pioneer Way
STE.E EL CAJON
CA 92020

The standard MX80 manual costs $14.38, inc. Air Mail postage. I would recommend every MX80 owner to get himself a copy. I've found Compusoft to be very prompt to answer queries and offer advice from their engineer about any problems with the printer.

Finally, I now have a refurbished, good-as-new Tandy Quick Printer II on the shelf. I had intended to keep it in reserve, for when the Epson went on the blink. But I now have confidence enough in the Epson to last its course, so the Tandy machine is just an ageing liability. If any member is interested in buying this printer for around $80, please give me a ring, or get in touch. I've got a few spare rolls of paper and can offer a General Utility program in Basic which can be used as a disassembler, editor and hex-dumper ; the print-out is specially geared to the Quick Printer II's 32 char/line format. An ideal tool for the budding machine language programmer who urgently needs a hard-copy record of his efforts. I can also offer several patches to NEWS for the printer.

John Phelan

(* My EPROM programmer offers several options. You can program from RAM, ROM or a disk file (executable object code). You can also read EPROMs into RAM, for subsequent modification and re-programming. They could also be disassembled. LFH *)

PLAYING WITH STRINGS

Most Basic programmers of graphics have quickly passed by SET and RESET and moved on to POKE graphics, but many have not appreciated all the possibilities of STRINGS. Try drawing a line by POKE(video),191 and then try PRINTSTRING$(64,191), fast yes?

Strings are not limited to horizantal lines as the string can contain the cursor control codes (24-27). So a vertical line is quite easy.

```
1000 CLEAR 200:A$=""
1010 FOR I=1TO15:A$=A$+CHR$(191)+CHR$(26)+CHR$(24):NEXT I
1020 A$=A$+CHR$(191)
1030 CLS:PRINT@30,A$;
1040 GOTO 1040
```

Simple really and satisfyingly fast. By building up a series of strings one can create reasonble animation which is fast enough to allow program logic between changing the display. A "Space Invaders" program written using strings has satisfied my young brother who is a connoisseur of arcade games.

If one is using a large number of strings then the time taken to create them and the amounts of memory used can cause problems. One solution is string packing which involves poking the character values straight into the string as follows:

```
1000 A$="                    "    (49 spaces)
1010 X=PEEK(VARPTR(A$)+2)*256+PEEK(VARPTR(A$)+1)
1020 FOR I=0 TO 48;READ A: POKE X+I,A:NEXT I
1030 DATA 130,27,24,168,135,27,24,160,152,144,26,24,131,137,190,
     187,26,24,130,131,27,24,188,188,26,24,24,131,131,129,27,24,
     183,189,,34,27,24,160,152,164,144,26,24,139,148,26,24,129
1040 CLS:PRINT@458,A$;
1050  GOTO 1050
```

If you run this A$ is printed midscreen.If you now list line 1000 you get a rather messy splurge of reserved words.You can now delete lines 1010 to 1030 and line 1000 can be CSAVEd and Cloaded with no problem. However LPRINT is not reccommended.

Such strings can be manipulated using the usual commands, LEFT$, MID$ etc. though one must not forget the garbage collector recently mentioned in these pages. This is a ROM routine invoked when string space gets filled with non-active strings and it stops everything until it has finished. Most annoying, so either one should allow for this when CLEARing string space, restrict string manipulation or reCLEAR at a suitable interlude and remake your strings.

String packing also happens to provide a useful place to keep machine code routines. The following example is one I use frequently to provide a little drama. It reverses all graphics blocks and ignores any text.

```
1000 A$="                    "    (33 spaces)
1010 X1=PEEK(VARPTR(A$)+1):X2=PEEK(VARPTR(A$)+2):X=X1+256*X2
1020 FOR I=0 TO 32:READ A:POKEX+I,A:NEXT I
1030 POKE 16526,X1:POKE16527,X2
1040 DATA 33,1,60,43,126,254,32,32,4,62,191,24,12,214,128,50,9,
     198,128,71,62,191,144,198,128,119,35,62,64,186,32,226,201
```

Now Y=USR(0) will reverse all graphics and a repeat will reverse

it all back. Lines 1020 and 1040 can now be deleted but the others must remain to provide the vector for the USR command.

For those just starting on graphics programming I have a few simple tips.

1 - Use instruction display time to set up your strings and other variables.
2 - Put instructions and set up routines in high numbers and keep low line numbers for the parts that need quick execution.
3 - Only use GOSUB if you have no choice as it is very slow.
4 - Only use GOTO if you have to, it is nearly as slow. Try to have the program run sequentially rather than jumping about.
5 - Avoid complicated calculations during the main program, get as much as possible done in the set up section, even if it means more variables.
6 - If you use M/C routines in your Basic program CSAVE the program before you run it. System crash can wipe out your carefully typed creation.

Steve Holloway

MODEL III MATTERS

1) *Model III Scripsit*. Members who have bought the early, 500 baud, cassette Scripsit may be interested to know how to save and load files at 1500 baud. Proceed as follows:

a) Load Scripsit in the usual way, but respond to the prompt after loading by pressing ENTER *without* the slash (/). Ignore the Syntax Error message.

b) Change the baud rate by executing (in IMMEDIATE mode without a line number) the Basic statement POKE 16913,1 (pressing ENTER as usual).

c) Type SYSTEM and press ENTER. Answer the prompt by /ENTER.

You are now ready to go. This procedure will NOT work after Scripsit has been entered in the normal way, or if any data has been typed in or loaded from tape. Consequently files created at 500 baud will not be compatible with those created at 1500 baud. To make them compatible you will need to write a special machine language routine to load the files, change the baud rate, and resave. If any member succeeds in doing this I shall be glad to hear from him.

The Scripsit tape itself can be converted to 1500 baud with a Model III system tape copy utility (available from e.g. Microcomputer Applications), but that may be a breach of copyright and the files are still incompatible. There are, however, advantages in using the high baud rate - it saves tape as well as your time, and reduces the risk of a tape loading error.

2) *Model III Machine Code*. I have been hampered by the absence so far of system utilities for Model III, particularly an editor/assembler and monitor. It seemed impossible to enter assembly language programs from listings. To get round this I looked at the various machine code-to-Basic programs available, but they were all a)designed to convert Programs already in memory, and/or b) designed for disc systems with the RSCII option. If you write a Program to generate the text of Basic DATA statements, it seems that a cassette system will not recognize the statements as a Program, but as data, and they cannot be CSAVEd. Consequently you have to copy them out and type them in again, with the attendant waste of time and risk of error. I got round the Problem with a Basic Program which accepts input in hex, byte by byte, stores it in a data file, allows the user to check and correct the file, and then generates the Basic interPreter code required for the FOR-NEXT loop and DATA statements. The Basic start address is then changed so that the computer recognizes the target Program and can save it to tape. The generator Program is loaded in the middle of user RAM and the target Program is generated at the normal Basic start address.

If anyone can suggest a better way round the Problem I should be glad to hear from him. If not, I should be quite happy to send a copy of my Program to the software library, or to an expert who could improve it for the use of Group members. It may be of some use to members who already have an Editor/Assembler, as it should save some typing time and error.

3) *Julian Calendar*. The various TRS-80 calendar Programs I have seen are of no use for dates before 1582, or for English dates before 1753, as they all use the Gregorian calendar. I have been able to modify one by J.E. Barker, Published in PCW (July 1981), to Provide a Julian (Old Style) calendar for years to 1582, a Gregorian (New Style) one for years from 1753, and an option of either for the intervening years. It also Provides a Gregorian calendar for 1582 and an English one for 1752, allowing for the days omitted in those years. It may be useful to members teaching history in schools. It can't be sent to the software library, as the original Program is J.E. Barker's copyright, but I can supply a listing of the revised and new lines to anyone interested.

C.R.J. Currie

(* The Newdos+ version of EDTASM for the Model I will work on the Model III, after a fashion. The printer will not work, but you can save source and object code files quite satisfactorily. Problems might arise with large files, according to Laurie Shields. Alternatively, you could get Zen for the Model III from Laurie. LFH *)

RECORDING SWIMMING RESULTS

We used our system to record the results for a local swimming club. It was an annual competition that had over 1000 children aged 12 and under coming from all over the country. The job was quite simple in computing terms but owing to the very high cost of hiring swimming pools and the need to get the event over early enough for the chidren to get home at a reasonable time it was very hectic while it lasted. We later calculated that the average time for entering the information and printing out the result, was approx 20 sec per competitor.

There is no dedicated software available and it would have to be extremly good to keep up the pace and keep out the human errors that occur when entering rapidly. We tried the Instant Search and Sort program from Hardings because this can Sort extremly fast and has the selectivity that we required. It is an excellent program but and it is obviously designed to double and even treble check all entries before going on. Can you imagine the frustration when, after entering 300+ entries and another 100 to go, it still asks "Amend another one Y/N" and then "Is this the one Y/N". At that point you start to type in "OF COURSE IT IS! WHY DON'T Y.." and the system quietly asks "Change NAME". Now I ask you how often does an ten year old boy change names straight after a race. Perhaps in Hollywood .... You then come back to reality and press <ENTER> for the 1200th time and it asks you "Change CLUB" and you press enter for 1201th time and it then gets down to the real object of the exercise and changes the one and only piece of information that needs to be changed "Change TIME". Now that more like it. But its not done, you still get asked is that correct, and then shows you how it will look now the record has a TIME in it. Now if it was going into the OLYMPIC BOOK OF FAME" or going to be engraved in marble then one cannot be too careful but this is the TADPOLES of 1981 and we would like to get it over before 1982. Therefore we did not use Instant Search and Sort.

We used Microfiles in the end because it is quick enough and can change one field only. It also steps through the records with a single "D". The only problem is that it only sorts by one field and therefore each event had to be made a seperate file. This was no great problems as they load in fast but every format has to be entered into every file and with 22 events per session it was a time consuming job. If any one knows of a better program I would love to know. I did have high hopes for MAXI MANAGER but it is written by Adventure International and the manual is like an Adventure game. The clues are there somewhere but I think I am in the wrong Dungeon.

After printing out the results event by event, I ended up with lots of pieces of paper which I had to cut and paste by hand before photocopying. It struck me that if I could load the data into SCRIPSIT I could assemble the whole thing before printing. If I had a Scripstt file I could even get it photoset. Sounds possible but I do not have a clue as to how it can be done.

It was rather rewarding to feel that our computer had actually done a small social service and if the right software was available it would get used very widely as their are many such events all over the country. The trouble is that it is the old chicken and egg situation. The people that are capable of turning out the program do not need them and the people that need them cannot write the program in the first place. I expect that one day a good programmer will have a son or daughter that joins a swimming club. The day will come that mum and dad are given a pencil and a list of 1000 names and ages spread over 25 events. They will be expected to put a time against most of the names and work out which are the fastest six 10 year olds and will you then type out all the rest of the names and time in order. And by the way they are waiting for all the names right now.

Derek Trayler

INTERFACING A SERVO TO THE TRS-80

I have wanted to interface a model control servo to my TRS-80 for some time. One of Brian Pain's interests is radio-controlled model aircraft, so he has plenty of servos lying around. He very kindly loaned me one, and I quickly interfaced it to the cassette output on my Model I. Half an hour later I had written a simple program in assembler to turn the servo: left, centre, right, centre, and left again, in a continuous sequence. Servos such as the Micron unit that Brian loaned me cost around £15.

These model control servos move to a position dependent upon the width of a TTL compatible positive-going pulse. A pulse of 1ms moves it hard over in one direction, whilst a 2ms pulse moves it in the other direction. a pulse of 1.5ms centres the unit. Pulses in-between these values cause it to take up an intermediate position. The pulses should be about 20ms apart, although this is not very critical.

A suitable interface circuit is described in Fig. 1. I have not checked the current taken by the servo, but it would be about 200mA. Since the cassette output is only a fraction of a volt, a simple transistor circuit is needed to derive the necessary TTL compatible output pulse required by the servo.

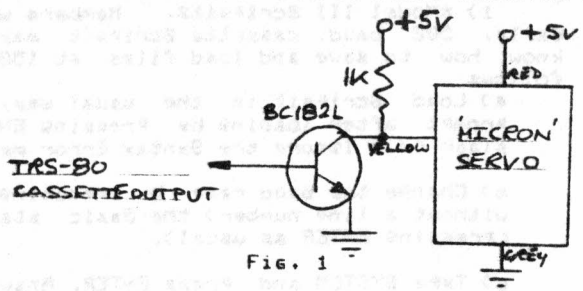


Fig. 1

The software required is quite trivial. I have used a couple of macros as an illustration of how they can be used to make a program much easier to understand (I hope!). Note the use of the PULSE sub-routine in conjunction with the TURN macro. Note also the use of a local label in the TURN macro. The same label can be used in the main program. The double semi-colons prevent the comments in the macro from being included in a listing file. Otherwise they would be included every time the macro is expanded, making the listing file somewhat large and difficult to follow.

```
;                    * * * SERVO TEST PROGRAM * * *
;
;SERVO CONTROLLED BY CONNECTION TO TRS-80 CASSETTE OUTPUT
;VIA A TRANSISTOR AND RESISTOR CIRCUIT FOR CONVERSION TO
;TTL VOLTAGE LEVELS. TRANSISTOR CIRCUIT INVERTS THE OUTPUT
;SIGNAL, HENCE ONE = 0 AND ZERO = 1.
;
;
;EQUATES
;
DLY       EQU       60H             ;ROM DELAY ROUTINE
PORT      EQU       255             ;CASSETTE OUTPUT PORT
DLYCNT    EQU       0FFFFH          ;LONG DELAY
N         EQU       20              ;NUMBER OF PULSES FOR SERVO
LEFT      EQU       68              ;DELAY COUNT FOR 1MS PULSE
RIGHT     EQU       136             ;                2MS PULSE
CENTRE    EQU       102             ;                1.5 MS PULSE
START     EQU       7000H           ;MY USUAL PLACE
ONE       EQU       0
ZERO      EQU       1
;
;
;MACRO DEFINITIONS
;
;                    * * * TURN * * *
;
;TURN - A MACRO TO DELIVER N POSITIVE PULSES OF WIDTH
;DETERMINED BY PARAMETER 'DIR', HENCE CAUSING THE SERVO
;TO TURN
;
TURN      MACRO     DIR
          LOCAL     AGN             ;;LOCAL LABEL
          LD        B,N
AGN:      PUSH      BC
          LD        BC,DIR          ;;DELAY COUNT FOR REQD. PULSE
          CALL      PULSE           ;;OUTPUT PULSE TO SERVO
          POP       BC
          DJNZ      AGN             ;;REPEAT N TIMES
          ENDM
;
;
;                    * * * WAIT * * *
;
;WAIT  - A LONG DELAY
;
WAIT      MACRO
          LD        BC,DLYCNT
          CALL      DLY
          ENDM
;
;MAIN PROGRAM
;
          ASEG
          ORG       START
          LD        SP,START        ;INIT. STACK POINTER
```

```
AGN:    TURN    LEFT        ;TURN FULL LEFT
        WAIT
        TURN    CENTRE      ;CENTRE SERVO
        WAIT
        TURN    RIGHT       ;TURN FULL RIGHT
        WAIT
        TURN    CENTRE      ;CENTRE SERVO
        WAIT
        JR      AGN         ;REPEAT SEQUENCE
;
;SUBROUTINES
;
;               * * * PULSE * * *
;
;PULSE - ROUTINE TO PULSE OUTPUT HIGH FOR TIME DETERMINED
;BY CONTENTS OF BC, THEN LOW FOR 20MS
;
PULSE   EQU     $
        LD      A,ONE       ;OUTPUT HIGH
        OUT     (PORT),A
        CALL    DLY         ;SET OUTPUT PULSE WIDTH
        LD      A,ZERO      ;OUTPUT LOW
        OUT     (PORT),A
        LD      BC,1364     ;20 MS DELAY
        CALL    DLY
        RET
;
        END     START
```

What do you do with a computer-controlled servo? I do not really have a suitable application. Cheap servos such as these are rather limited in power output, and not easy to control precisely. It was an interesting exercise, anyway! Perhaps some of you can think of a suitable application. Stepper motors are much more suitable for computer control, and I shall be trying to get hold of a couple to play with.

Leon Heller

Forgotten the name of your system programs?

The following short program will read the name of your system program and display it on the screen.

```
10 INPUT £-1,A$:PRINT A$
```

Mike Gibbons

NOTES FOR BEGINNERS (PART I)

THERE IS MUCH I WOULD HAVE LIKED TO HAVE KNOWN WHEN I STARTED USING THE TRS-80 WHEN MOST OF THE MANUALS, BOOKS AND MAGAZINES ASSUMED I KNEW IT ALREADY NOW THERE ARE AVAILABLE:

1. DAVID A LIEN: BASIC COMPUTING LANGUAGE:ITS EASIER THAN YOU THINK. RADIO SHACK NO.62-2016
   AN EXCELLENT INTRODUCTORY, SELF-TEACHING GUIDE STARTING WITH LEVEL I BASIC. YOU MAY WELL SKIP CHAPTER 8 ON LEVEL I ABBREVIATIONS IF YOU ARE GOING TO USE LEVEL II
2. B.aLBRECHT, D.INMAN AND r.ZAMARA: TRS-80 LEVEL II BASIC. A SELF TEACHING GUIDE. RADIO SHACK NO. 62-2061
3. W.BARDEN: PROGRAMMING TECHNIQUES FOR LEVEL II BASIC
   A LUCID ACCOUNT OF THE USE OF BASIC IN PROGRAMMING
   RADIO SHCACK NO. 62-2062
4. DAVID A. LIEN: THE BASIC HANDBOOK: AN ENCYLCOPEDIA OF THE BASIC CIMPUTER LANGUAGE. COMPUSOFT PUBLISHING, POBOX 19669, SAN DIEGO, CALIFORNIA 92119, USA
   AN ALPHABETICAL LIST OF BASIC WORDS, THEIR FUNCTION AND HOW TO TEST FOR THEIR PRESENCE IN A COMPUTER
5. HUBERT S. HOWE: MACHINE LANGUGE FROM THE GROUND UP + THE SECRETS OF RAM AND ROM. MOLIMERX (a.J.HARDING) 28 COLLINGTON AVENUE, BEXHILL ON SEA SUSSEX.£8.50
   A BRILLIANT INTRODUCTORY MANUAL IN PLAIN ENGLISH EVEN IF YOU ARE NOT READY FOR MACHINE CODE CHAPTER 16 GIVES A CLEAR ACCOUNT OF THE WORKINGS OF DISC
6. HARVARD C. PENNINGTON: TRS-80 DISC AND OTHER MYSTERIES
   MOLIMERX.£12.50 + £0.50 P.P
   THE STYLE IS UNUSUAL BUT BY COLOURING THE TEXT AND DIAGRAMS TO MATCH I HAVE SAVED DISCS WHOSE DRIECTORY HAD BEEN DAMAGED BY DRIVE MALFUNCTION AND RETRIEVED FILES WHICH HAD BEEN ACCIDENTALLY KILLED BECAUSE THEY REMAIN ON THE DISC UNTIL YOU EITHER OVERWRITE THEM OR FORMAT THE DISC
7. 80 MICROCOMPUTING:THE MAGAZINE FOR TRS-80 USERS
   POB 981 FARMINGDALE NY 11737 USA
   $35/YEAR IN US FUNDS OR USE VISA CARD
   COMPLETE SET FOR 1980 $25+$15=$40 FROM 80 MICROCOMPUTING
   80 PINE STREET PETERBOROUGH NH 03458 USA
   OVER 300 PAGES A MONTH FOR ALL LEVELS OF USER. E.G. FROM SEPTEMBER 1980 - APRIL 1981 AN EIGHT PART INTRODUCTORY SERIES BY IAN SINCLAIR OF HALSTEAD, ESSEX. IN MAY & JUNE 1981 AN IDIOT'S GUIDE TO ASSEMBLY LANGUAGE.

THESE BOOKS AND THE MANUALS GIVE SOME IEADF WHAT THE MACHINE CAN DO. BUT ITS LIMITATIONS AND IDIOSYNCRACIES ARE NOT ALL EXPLICITLY SET OUT.

THESE NOTES ARE INTENDED TO HELP BEGINNERS AND SAVE
THEM FROM WASTING SOME OF THE TIME I LOST IN LEARNING
USE THE TRS-80 MODEL I WITH 4 DISCS AND NEWDOS+
aMERICAN PRACTICE REFERS TO 'HITTING' KEYS. BUT THE MACHINE
RESPONDS BETTER TO GENTLE TOUCH SO I PREFER 'PRESS' OR
'TYPE'

IN THESE NOTES N INDICATES A LINE NUMBER
INSET PRINTING REPRESENTS SCREEN DISPLAY
YOU TYPE MEANS JUST THAT
ALL REFERENCES TO DISC OPERATIONS RELATE
TO NEWDOS+
<ENTER> MEANS PRESS THAT KEY
LOWERCASE B WITH A / THROUGH IT MEANS BLANK OR SPACE
0 IS ZERO TO DISTINGUISH IT FROM LETTER O

ASSUMING THAT THE INSTRUCTIONS HAVE ALLOWED YOU TO CONNECT
UP AND SWITCH ON THE MACHINE YOU WILL BE ABLE TO TYPE ON
THE KEYBOARD AND HAVE WRITING APPEAR ON THE SCREEN

YOU CAN TYPE LETTERS, FIGURES AND MOST OF THE SYMBOLS ON
THE KEYBOARD, THOUGH NOT LEFT, RIGHT OR DOWN ARROWS

THE MACHINE WILL RESPOND IN ONE OF THESE WAYS ACCORDING TO
THE FIRST CHARACTER TYPED AFTER LAST PRESSING ENTER
NUMBER(S)

IT WILL TREAT AS THE NUMBER OF A PROGRAM LINE AND STORE
WHAT FOLLOWS, ERRORS AND ALL, IN THE CURRENT PROGRAM.
BUT,IF THE NUMBER EXCEEDS THE HIGHEST PERMISSIBLE LINE
NUMBER FOR THE PARTICULAR MACHINE THEN A SYNTAX
ERROR MESSAGE WILL APPEAR

RAM	HIGHEST LINE NUMBER
4K	20479
16K	32767
32K	49151
48K	65535

LETTERS

IT WILL SCAN TO SEE IF THEY CORRESPOND TO ONE OF THE
'RESERVED WORDS' WITH A PARTICULAR MEANING IN BASIC
(SEE LISTS IN MANUALS). NOTE THAT EVEN WITHOUT A DISC
SYSTEM DISC BASIC WORDS ARE NEVERTHELESS RESERVED.
TO SOME OF THESE WORDS LIKE AUTO CLEAR CLOAD CSAVE CONT
DELETE EDIT LIST NEW RUN SYSTEM TROFF TRON (AND
WITH A DISC SYSTEM LOAD, SAVE AND OTHERS) THE MACHINE
WILL RESPOND AND IS SAID TO BE IN COMMAND MODE

RESERVED WORDS WHICH CAN ONLY BE USED WITHIN A PROGRAM
WILL GENERATE AN ERROR MESSAGE E.G. INPUT FOR WHICH THERE
IS NO NEED SINCE VALUES CAN BE ENTERED DIRECTLY
YOU TYPE A=3:B$="A STRING" <ENTER>
PERMISSIBLE VARIABLES INCLUDE ANY OF THESE
1. A SINGLE LETTER

2. TWO LETTERS NOT BEING THE START OF A RESERVED WORD
3. A LETTER FOLLOWED BY A NUMBER
4. A LONGER SERIES OF LETTERS AND/OR NUMBERS AFTER AN INITIAL LETTER (ALL BUT THE FIRST TWO OF WHICH ARE DISREGARDED) AND PROVIDED THEY DO NOT INCLUDE RESERVED WORDS. E.G. SON IS FORBIDDEN AS IT INCLUDES ON.
5. ANY OF THE ABOVE FOLLOWED BY A DECLARATION CHARACTER, OR PREVIOUSLY DEFINED BY DEFINT DEFSNG OR DEFDBL
   % INTEGER (WHOLE NUMBERS -32769 TO +32768
   ! SINGLE PRECISION (6 SIGNIFICANT FIGURES)
   £ DOUBLE PRECISION (16 SIGNIFICANT FIGURES
   BUT NOT BY A $ (SEE STRINGS)
6. ANY OF THE ABOVE FOLLOWED BY BRACKETS CONTAINING NUMBERS OR VARIABLES TO DEFINE ARRAYS (SEE MANUAL FOR MORE ON ARRAYS)

ANY PERMISSIBLE VARIABLE IF FOLLOWED BY AN = SIGN IS TREATED AS A 'VARIABLE NAME' WHOSE VALUE IS DEFINED BY THE EXPRESSION TO THE RIGHT OF THE = SIGN

SYMBOLS

? IS INTERPRETED AS PRINT
L? IS NOT INTERPRETED AS LPRINT WHICH MUST BE TYPED IN FULL
? CAN BE USED IN A PROGRAM LINE TO SAVE TYPING PRINT
? CAN BE USED IN COMMAND MODE, INCLUDING A BREAK IN RUNNING A PROGRAM, TO
PERFORM A CALCULATION ? 2 * 12
DISPLAY THE PRESENT VALUE OF A VARIABLE
DISPLAY THE FREE MEMORY ? MEM
DISPLAY THE FREE STRING SPACE ? FRE(A$)
WHERE A$ DOES NOT NEED TO BE A STRING IN USE, A 'DUMMY' WILL DO

LEFT ARROW IS A BACK SPACE OR DELETER
SHIFT LEFT ARROW IS A LINE DELETER
uP ARROW IS USED FOR EXPONENTION THUS 2↑3=8
SHIFT UP ARROW ESCAPES FROM EDITING MODE
DOWN ARROW MOVES TO THE NEXT LINE DOWN
RIGHT ARROW MOVES TO NEXT COLUMN EIGHT SPACES WIDE
SHIFT RIGHT ARROW GIVES 32 CHARACTER/LINE DISPLAY
(REVERSED BY PRESSING CLEAR OR CLS)
WITH NEWDOS+ :
. LISTS THE CURRENT LINE
, ENTERS EDIT MODE FOR THE CURRENT LINE
SHIFT RIGHT ARROW GIVES 32 CHARACTER/LINE DISPLAY
SHIFT UP ARROW REVEALS FIRST LINE OF PROGRAM
SHIFT DOWN ARROW REVEALS THE LAST LINE OF PROGRAM
E. <ENTER> ENTERS EDIT MODE FOR CURRENT LINE

D. DELETES CURRENT LINE
L LINE NUMBER LISTS THAT LINE
E LINE NUMBER ENTERS EDIT MODE FOR THAT LINE
D LINE NUMBER DELETES THAT LINE

OTHER SYMBOLS GENERATE AN ERROR MESSAGE

FAST TYPING
==========
SOMETIMES (PERHAPS DUE TO VOLTAGE SHEDDING ON THE MAINS) THE PROMPT IS SLOW TO RETURN AFTER PRESSING ENTER. WHEN TYPING FAST THE FIRST FEW CHARACTERS MAY BE LOST. IF THEY WERE A LINE NUMBER LIKE 12340 THEN THE FIRST DIGITS MAY BE LOST AND ONLY 340 BE CAPTURED. YOUR LINE IS THEN STORED AT THE WRONG PLACE IN THE PROGRAM OR, WORSE, OVERPRINTING THE ORIGINAL LINE. OR YOU MIGHT TYPE RUN 12340 & PRESS ENTER ONLY TO FIND THAT RUN WAS NOT CAPTURED AND THE MACHINE HAS DELETED LINE 12340 BY RESPONDING TOJUST THE LINE NUMBER AND ENTER
MORAL. WATCH THE SCREEN. EVERY 15 MINUTES (SAY), AND CERTAINLY BEFORE RUNNING IT LEST THE MACHINE HANGS UP CSAVE OR SAVE YOUR PROGRAM, BUT WITH A DIFFERENT FILENAME E.G FILENAME1 FILENAME 2. IF YOUR 'IMPROVEMENT' RENDERS THE PROGRAM INOPERABLE YOU CAN STILL GO BACK TO THE EARLIER EDITION AND TRY AGAIN

LINE NUMBERS
============
CONVENTIONALLY GO UP IN 10S. THIS ALLOWS EXTRA LINES TO BE PUT IN. ONLY IF MORE THAN NINE ARE TO BE INSERTED DO YOU NEED TO RENUMBER BEFORE PROCEEDING.
  LINE NUMBERS AFTER GOTO GOSUB OR IF....THEN MUST BE IN FIGURES. THE USE OF VARIABLES OR FUNCTIONS FOR LINE NUMBERS GENERATES AN ERROR MESSAGE. WHERE THE BRANCHING IS DEPENDENT ON THE VALUE OF A CALCULATIONON CALCULATED RESULTS THEN THIS CAN BE
THEN THIS CAN BE ACHIEVED BY THE IF....THEN...ELSE ROUTINE
          N IFA=BTHEN LINE NUMBER:ELSEIFA=CTHEN LINE ....

CONSTANTS DO NOT CHANGE E.G. PI=3.14159
=========
BUT PROGRAMS TREAT THEM AS VARIABLES, IN THIS CASE PI

VARIABLES CAN CHANGE THEIR VALUE
=========
   A NUMERIC VARIABLE NAME IS THE LABEL FOR A BOX IN WHICH THE VALUE OF THAT VARIABLE IS STORED. IT MAY BE A CONSTANT OR THE RESULT OF A CALCULATION SPECIFIED BY THE PROGRAM
WHERE QUALIFIED BY A FINAL$ OR PREVIOUSLY DEFINED BY DEFSTR THEN THE VARIABLE NAME IS THE LABEL FOR A BOX IN WHICH A STRING (SEE BELOW) IS STORED.

VARIABLE NAMES CAN BE:
  1. ANY LETTER FROM A-Z

```
  2. ANY LETTER FOLLOWED BY A NUMBER 0-9          260
  3. MOST PAIRS OF LETTERS BUT NOT THOSE
     WHICH CORRESPOND TO THE FIRST TWO
     LETTER IN THE 'RESERVED WORDS' OF BASIC      610
                                                  -----
     TOTAL VARIABLE NAMES                         896
  4. ANY OF THE FOREGOING FOLLOWED BY ONE OR MORE
     SUBSCRIPTS  E.G. A(1)  A0(2,3)  AA (4,5,6)
     THE COMPUTER WILL RESERVE SPACE FOR ARRAYS
     FOR 11 VALUES,0-10, AUTOMATICALLY. IF MORE OR LESS
     DIMENSION IS NEEDED THEN THE NUMBER MUST BE DEFINED
     BY A DIM STATEMENT INT THE PROGRAM.
     ATTEMPTING TO USE AN ARRAY OF DIMENSION LARGER THAN
     THE DEFAULT VALUE OF 10 OR THAN DIMMED RESULTS IN
     AN ERROR MESSAGE SUSBSCTIPT OUT OF RANGE
     ATTEMPTING TO REDIMENSION ARRAYS DURING A PROGRAM
     IS FORBIDDEN AND GENERATES AN ERROR MESSAGE
     BS = SUBSCRIPT OUT OF RANGE
                  ----------
     THE ORDER FOR INITIAL OPERATIONS IS CLEAR DEF DIM
                  ----------
THE VALUE OF A VARIABLE CAN BE SET BY
  1. A PROGRAM STATEMENT
        N       LET A = 10
     BUT LET IS UNECESSARY AND WASTES BYTES SO
        N       A = 10          IS PREFERABLE
  2. A PROGRAM CALCULATION
        N       B = C + D + E/F +INT (G * H)[K
  3.  AN INPUT STATEMENT TO A NUMERIC VARIABLE
        N       INPUT'ENTER A NUMBER';A
  4.  AN INPUT STATEMTN TO A STRING VARIABLE
     WHICH IS THEN CONVERTED TO A VALUE
        N       INPUT'ENTER A NUMBER';A$
        N       A=VAL(A$)
  5. A LINE INPUT STATEMENT (WITH DISC ONLY)
     THESE HAVE TO BE STRINGS AND SO CONVERTED
     INTO NUMERIC FORMAT
        N       LINEINPUT'ENTER A NUMBER;A$
        N       A=VAL(A$)
  6. BY DIRECT ENTRY EVEN WHEN RUNNING A PROGRAM
        YOU TYPE    A=3  <ENTER>
        YOU TYPE    GOTO  N
        BUT MAKE SURE THAN LINE NUMBER N IS AFTER ANY
        CLEAR DEF DIM STATEMENTS
  7. USING THE READ AND DATA FACILITY. THE VARIABLE TYPE
     MUST MATCH THE DATA, THOUGH THEY CAN BE MIXED IN
     A DATA STATEMENT
        N       DATA1,'2',3,'4'
        N       READA,B$,C,D$
        N       B=VAL(B$):D=VAL(D$)
  8. BY DECODING A RANDOM DISC FILE USING CVI CVS OR CVD
  9. FROM A SEQUENTIAL DISC FILE USING INPUT£
  9. FROM TAPE USING INPUT£-1

WHEN PRINTED OR LINEPRINTED THE VALUE OF A VARIABLE IS
```

```
PRECEDED BY A SPACE, IF POSITIVE, OR MINUS SIGN, AND
ALSO FOLLOWED BY A SPACE TO SEPARATE THE FIGURES.
BUT WHEN STRINGS ARE PRINTED THE PROGRAMMER HAS TO
INCLUDE THE SPACES (SEE STRINGS  5. BELOW)
STRINGS
=======
A STRING CAN PE PUT INTO THE COMPUTER B:
  1. A PROGRAM STATEMENT
        N         A$="THIS":E$="WORDS"
  2. AN INPUT STATEMENT TO A STRING VARIABLE
        N         INPUT"TYPE NEXT WORD";B$
        YOU TYPE  STRING <ENTER>
  3.LINE INPUT (DISC ONLY)
        N         LINEINPUT"TYPE NEXT WORD"
        YOU TYPE  HAS <ENTER>
  4.INPUT OF A NUMBER WITH SUBSEQUENT COVERSION TO
    A STRING USING STR$
        N         INPUT"TYPE A NUMBER";D
        N         D$=STR$(D)
  5. ADDING TOGETHER STRINGS OR "CONCATENATION"
     REMEMBERING TO SPECIFY SPACES BETWEEN WORDS
     NOTE THAT STRINGS CANNOT BE SIMPLY SUBTRACTED
     BUT CAN BE MANIPULATED (SEE 7 BELOW)
        N         E$=A$+" "+B$+" "+C$+" "+D$+" "+E$
        N         PRINT E$
                  THIS STRING HAS 4 WORDS
  6. USING READ, WHICH MUST REFER TO A STRING VARIABLE,
     AND DATA
        N         READ SAINT$
        N         DATA"MATTHEW","MARK","LUKE","JOHN"
  7. STRING MANIPULATION USING LEFT$( ) RIGHT$( ) MID$( )
     LEN( )

REDUNDANCY
==========
THE TRS-80 COPES WELL WITH REDUNDANT OR UNNECESSARY
INFORMATION. THE USE OF LONGER WORDS FOR VARIABLES THAN
THE FIRST TWO CHARACTERS USED HAS BEEN MENTIONED.
PROGRAMS WILL ALSO TOLERATE EXTRA SAPCES. THEY USE UP
MEMORY BUT ALLOW TIDIER DISPLAY WHICH FACILITIATES
READING, CHECKING AND EXPLAINING TO OTHERS
BUT DO NOT EXPECT THE MACHINE TO DISTINGUISH BETWEEN
DAUGHTER AND DAGO BOTH OF WHICH WILL BE TREATED AS DA

DISC OPERATIONS ARE MUCH MORE SENSITIVE TO SPACES
DOS PROTOCOLS DEMAND SPACES IN CERTAIN CONDITIONS
INDICATED BY A SLASHED LOWER CASE B IN THE MANUAL
E.G.  DIR :1  MUST HAVE THE SPACE BEFORE THE :
      FILENAMES MUST BE DEVOID OF SPACES OR THE MAY
      VANISH WITHOUT TRACE

NEW RUN CLEAR DEF DIM EDIT CLOSE  ALL EXECUTE A WHOLE OR
PARTIAL CLEAR. DO NOT USE THEM IF YOU WISH TO PRESERVE THE
VALUES OF VARIABLES OR "PARAMETERS" IN A PROGRAM
```

SYNTAX ERRORS
==========

WHILE SOME MACHINES WILL NOT ACCEPT AN ERRONEOUS LINE THE TRS UNFORTUNATELY DOES. RENUM 0 CAPTURES SOME BUT NOT ALL. SO ITS WORTH RUNNING THAT BEFORE TESTING A PROGRAM.

IN RUNNING A PROGRAM SYNTAX ERROR WILL APPEAR AND THE PROGRAM STOPS, DROPPING INTO EDIT MODE. IF YOU CORRECT THE ERROR THEN THE PROGRAM ENDS, DISC FILES CLOSE, VARIABLES ARE LOST AND YOU WILL HAVE TO RE-RU THE PROGRAM INSERTING ALL THE VARIABLES ALONG THE WAY UNTIL YOU MEET THE NEXT ERROR.

THIS CAN BE AVOIDED IF, ON GETTING SYNTAX ERROR YOU TYPE L TO DISPLAY THE ERROR LINE. NOTE THE ERROR. IF IT IS NOT IMMEDIATELY APPARENT THEN COPY OR LPRINT THE LINE. TYPE Q TO QUIT EDITING. ENTER ANY VARIABLE WHICH WOULD HAVE BEEN CAPTURED BY THE ERROR LINE IN DIRECT MODE. TYPE GOTO LINE NUMBER AFTER THE ERROR LINE. SUBSEQUENTLY EDIT THE ERROR LINES

OR YOU CAN INCLUDE IN YOUR PROGRAM

```
N          ON ERROR GO TO 1000
1000       PRINT"ERROR NUMBER";ERL/2+1
1010       PRINT"ON LINE NUMBER";ERL
1020       PRINT"PLEASE NOTE THE MESSAGE ABOVE"
1030       INPUT"PRESS <ENTER> TO CONTINUE ";Z$
1040       RESUMENEXT
```

THE PROGRAM WILL THEN REPORT ERRORS BY THEIR CODE (SEE MANUAL FOR INTERPRETATION) AND THEIR LINE. THE PROGRAM WILL THEN RETURN TO THE NEXT STATEMENT IN A MULTI STATEMENT LINE, OR THE NEXT LINE.

INVISIBLE SYNTAX ERRORS
==========

WHEN YOU CAN SEE NOTHING WRONG CHECK FOR THESE POSSIBILITIES

SHIFT 0 PRINTS AS BLANK AND IS NOT 0
SHIFT @ PRINTS AS @ BUT DOES NOT WORK
ON ... GOTO WHERE THE VALUE OF ... IS ZERO
ON .. GOSUB LIKEWISE
REQUESTING A RANDOM FILE RECORD NUMBER ZERO

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TRS-80 EDUCATIONAL USERS GROUP

NEWSLETTER 4

This month's education news is a bit rushed, anyway I only intended to write every other month! But Brian said, what with Christmas and an early edition could I do a bit on Education, so here it is.

I hope that sooner or later we will have more contributions from our 120 odd Educational Users.

What about other simple program tips from Education & General members? There are always complaints about nothing for beginners. Could this be the way to help! Send your programming tips, but make them simple to me.

PROGRAM TIPS FOR USE IN EDUCATION

PRINTING ON THE LAST LINES OF THE SCREEN & CLEARING THAT PORTION ONLY

Sometime ago a member wrote to me about the facility that you have on the 380Z that enables you to write on the last 4 lines of the screen For once I was able to offer a suggestion. Say youwant to have a diagram taking up most of the screen & put a message or instructions at the bottom, try this:-

```
1 REM *** SCREEN CLEARING A PORTION
5 CLS
10 FOR A = 0 TO 1000
20 PRINT @A,"A";
30 NEXT A
35 FOR D = 1 TO 1000 : NEXT D
40 PRINT @10*64,CHR$$(31);"THIS IS THE MESSAGE"
50 FOR D = 1 TO 2500 : NEXT D
60 PRINT @10*64,CHR$(31);"YOU CAN NOW USE THE DIAGRAM AND
ANOTHER MESSAGE HERE "
70 GOTO 70
```

DO YOU CSAVE A LOT ?

With children & teacher loading in their own Program, we have found it very useful to do multiple dumps of Programs. Rather than CSAVE & move the tape, we have found this routine a great time saver.

```
CSAVE"FILENAME":FOR X = 1 TO 2000 :OUT 255,20:NEXT
CSAVE"FILENAME":FOR X = 1 TO 2000 :OUT 255,20: NEXT
CSAVE"FILENAME"
```

NOTE OUT 255,20 keeps the motor running to give space betweeen dumps. X size varies space size.

DATA WRITING WITH A BLINKING STAR

We have recently been using one of our for data Processing withchildren. They, like some teachers, get worried when you don't have a flashing star on the screen when you are writing dta to tape. Try this routine in your Program:-

```
1000 FOR I = 1 TO 100
1010 IF PEEK(15360)=32 THEN POKE 15360,42 ELSE POKE 15360,32
1020 PRINT #-1,A(1)
1030 NEXT I
```

SIMULATION

One of the greatest things that a computer can do in Education is to simulate events, & put children into a problem solving situation. Many of the TRS-80 American mags carry listings of simulations which are sometimes useful in schools.
I've just been sent a great simulation called FOREST RANGER which has generated some fine decision making & is ideal for 10 to 14 year olds. The following would also be appropriate:- EVEREST, WESTWARD HO! and WESTWARD 1847.

The above are now in our library, so is a DRAKE simulation converted by Steve Luucas. Now there must be many more NON-COPYWRIGHT simulations that general members of the users group have & would like to donate to the library for school use.

MILKO

Talking os simulations, a brilliant one has come from a Primary school in Wallsall. You are a milkman & you have to deliver milk to your customers. Watch out for notes for extras!

UPDATES

Phrases from NEWCOPS has been improved with the removal of a scrolling bug. Trains from NEWCOPS has had the negative number bug removed.

WESTWARD 1847- you can now actually shoot the fod & get to the end of the trail.

Send a tape for updates to me, inc the postage.

IF YOU IMPROVE ANY OF THE LIBRARY PROGRAMS SEND US A COPY

VHS VIDEO TAPES BY BRIAN PAIN

Brian has commenced the above on BASIC & DOS for his college. It might be a useful teaching aid for those schools which are beginning to use Computers in class. Brian's number is 0908-566660

LOWER CASE DRIVER PATCH

Tom Drake has patched ULCBAS with a pound sign at shifted @ following Alun Evans idea in Practical Computing a few months back, and is now in the library.

SECONDARY LIBRARY

Recent weeks have seen a great influx of secondary prorams, thanks to Steve Lucas, Ian Bruce and Tom Loran. Full details in the next Software Directory due out after Christmas.

PRIMARY PROGRAMS

Teachers in Wallsall and Bristol kept our Library full of primary material, and many thanks for their efforts.

NEW EDUCATIONAL SOFTWARE FOR SALE

BRYANT'S EDUCATIONAL 1 The Hollies, Chalcraft Lane, ?

The above now have a full range of cheap & good software for schools-DECIMAL DAN, CROCODILES, MONEY BOX are just a few of their many offerings, which are worth looking at & adding to our schools' library. Detailed reviews to follow

GED SOFTWARE 15 Arran Drive, Frodshah, Warrington have produced a new range of programs. I am about to see the latest programs so more news next month.

DAVE FUTCHER 01-574-3506 01-743-5310 out

**********HAPPY CHRISTMAS TO EVERYONE THERE**********

WORKSHOP REPORT 14th NOVEMBER 1981 Southall London

The new equipment we saw for the first time was the colour computer brought by Os House, which members enjoyed seeing at a lunchtime recital, given by Os. The documentation for the "LAST ONE" was also made available by Os, which attracted plenty of attention from those present.

The location for the workshop was the Dave Futcher's school in Southall, with an excellent car park and a first class spread put on by some Dave's ladies.

We had to have two systems rooms due to the congestion experienced before, and at the next meetings the school hall will be made available for the systems and the library. Once again members were able to meet our hardworking librarian Leighton Davies who is now married, and we owe a vote of thanks to PAT for allowing him to continue his timeconsuming job with such enthusiasm.

It had been hoped to run two lectures throughout the day, but the afternoon did not go quite as planned.

MORNING

ROOM 1 EPROMS HOW TO USE THEM.
Andrew Donald once again very clearly showed members where they can go in this area if the patience and ability is there. Having had many discussions on this subject, all that is required is a goal, a phone, several articles from the popular mags and plenty of time. The majority of members who keep with their machines for a reasonable length of time have proved that with a little perserverance just about anything can achieved. The goals can be the simple first basic programs, then some graphics, then some messages, then a few voices either your own or perhaps somebody famous taken from the television. You will of course have to convert those simple basic programs into assembler. Laurie Shields' can help in that direction.

ROOM 2 ELECTRIC PENCIL IN A PRINTERS OFFICE

John Carne has for some time been explaining to members how he uses the above for non W.P. purposes and having seen how effective this can be I asked him to do a more formal session. If others would like some ideas on this please do not hesitate to ring John and he will be only to pleased to outline & perhaps detail his experiences with electric pencil. We both have used E/P to such an extent that SCRIPSIT has hardly had a look in, and I find the switching between the two very awkward.

DATABASE MANAGEMENT

Leon Heller gave an insight into how a bought-in Package can be used on a variety of aPPlications, with the same Package being interfaced by BASIC. PerhaPs those interested in how this is down would like to take a few notes when they contact Leon on this toPic.

ASSEMBLER FROM THE GRASSROOTS

Once again the London area members had the Pleasure of Laurie Shields comPany for the day. It had meant travelling down from Chesterfield on the Friday evening, eating a suPPer cooked by me, before going on to accomodation that I had booked him into, just uP the road.

The long session was given over to members seeing an exPlanation of assembler and machine code, with 9uestions being answered as they occured, which is always aPPreciated. One of the things that Laurie must now do is to continue with examPles of simPle BASIC routines being coded into ASSEMBLER, as a member rang while this was being PrePared asking for more useful things to be exPlained in the newsletter, or in the seParate booklet written by Laurie(1.49 from the office)

The session finished with Jeremy San showing his efforts on an EPson Printer where he can Produce a handwriting style from the Printer. He is now working on either Hebrew or Arabic, but this really was an examPle of one member having an idea (John Newgas) and another writing the code.

BRIAN PAIN

WORKSHOP REPORT 20/21/22 NOVEMBER 1981 MILTON KEYNES

This will be a very short on our busiest meeting so far. At last we had over one hundred members attend on the Saturday, with 40 in rooms,3 in a flat and several in caravans. Over 40 made the Friday evening and this really gave the weekend a fine start There were 4 systems rooms with around 40-50 machines brought along, and no fuses were blown but I believe it was close Os House and StePhen Bird were in attendance and many travelled some distance to see them.

All the scheduled lectures ran with nearly 50 in Laurie's session in a rather large room to allow that number to feel comfortable! The one extra session that Brad Daniels did on Sofware Protection for the Saturday evening was as Dusty Miller suggested "the only time he had heard Laurie and Leo Knaggs silenced for over an hour". If only we could have video(d) that session. Sunday was made sPecial by the sight of Chris Cain hurrying along to join the Sunday session by Leo Knaggs-his motorcycle having been naughty-with Leo saying where's Chris Ntimes.Once again we are losing another member abroad this time Chris to Saudia Arabia, so all the best Chris. So this was the last weekend we will have at Milton Keynes College and I am now hunting for a fresh venue.

WORKSHOP REPORT GLOUCESTER 26th SEPTEMBER

I know this is rather late but one or two things did happen which are continuing to be of interest.

This was again held at the Gloucester Crest with multitudes of iced water jugs and ink blotters. The food & wine were excellent, with wine enjoyed as it was Eric Atkinson's last workshop. Good luck in Australia and try to interest them in setting up workshops that have proved so popular with the UK members. I am not sure what the day's feature was, as they all generated considerable interest.

HIGH RESOLUTION GRAPHICS

John Christie and Eric Atkinson gave an update on several earlier sessions with the attraction being a chess set. John would like to interface this with a popular chess program.

8088 INTERFACING TO TRS-80

Leon Heller went through the project to date, and obviously it was not about our machine, but the chip that major companies are backing eg IBM. From the questions & enthusiasm this chip must feature in forthcoming hardware projects, and I must say the best way of ensuring CONTINUING progress of this project is to goad Leon into forecasting exactly when will the next stage be completed.

BUSINESS APPLICATIONS

Jim Norris went into the above from his own position, and as a result I have a page of packed notes. All I can say is that once again Jim was very lucid about the problems and solutions used, and will always be a mental reference point when I am tackled about something similar. As this was being prepared for this issue a member came on and asked if anything could be done on DOS file handling. Well, when it comes to TRSDOS file handling Jim is the person to do this and we would be quite happy to publish this as a separate matter on behalf of Jim just as Laurie's notes on assembler are also available. Perhaps Charles Davies would dictate into a tape for me to transcribe his notes on file handling as others have been very complimentary about his own efforts on filehandling using NEWDOS80 1.0

ASSEMBLER USING MACRO - EDIT - LINK - MICROSOFT & SCRIPSIT

Leon went through the above explaining why the above should be considered as an alternative to the programs commonly used by members. Unfortunatively I missed the applause for the program working, as the hotel had to be paid and we have yet to have a receptionist chase after me for an unpaid bill.

Brian Fain

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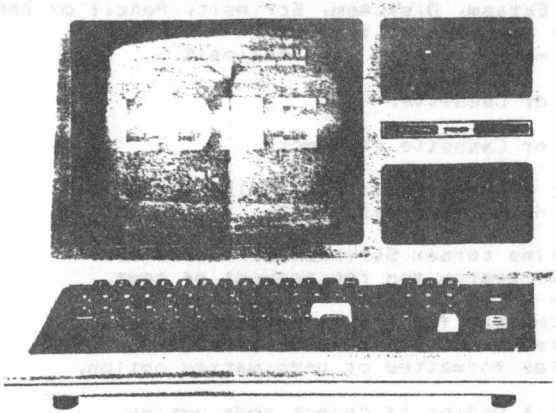
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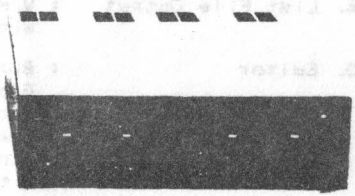
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D. Swann	Tony Packer	Steve Bird
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For Additions & Deletions please contact Brian Pain on 3-566660

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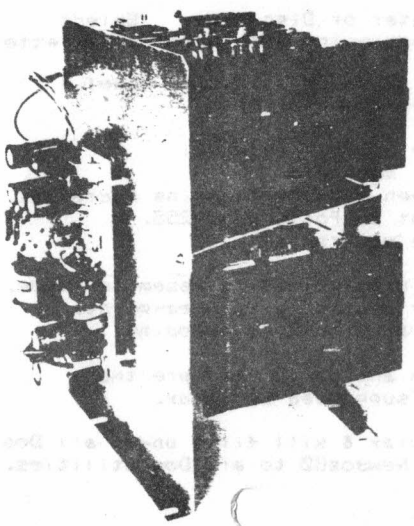


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==========

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Model 3 software:
==========

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