NATGUG NEWS

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OFFICIAL JOURNAL OF THE

National TRS-80

& Genie Users

Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. 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 from time to time. Sub-groups also exist for medical and educational users.

The Group runs 80-NET, a computerised bulletin board service that is available to all users of microcomputers.

The Group maintains three software libraries (Models I, II and III) which are free to members. Library lists are obtainable from the Secretary. The medical and educational sub-groups maintain their own libraries.

A membership list is obtainable on disk from the Secretary.

Back numbers of the Newsletter are available.

Please send all contributions for the Newsletter to the Editor.

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EDITORIAL

We have now gone over to the new A5 booklet format, assuming the printer has carried out our instructions! I hope most of you like it. My thanks to David Washford for the new front cover.

It is about time I did a new sub-groups listing. I'll try to get it done for the next issue.

David Swann asks if I could provide coded headings to articles so that readers could rapidly see which articles applied to their particular system. Sorry, David, but I just do not have the time. Articles are just pasted up as they come in, and I don't want all the hassle of getting out the typewriter and adding the additional information. Moroever, many articles are of general interest, and not easily categorised. The same applies to the advertisements and smaller items; I just squeeze them in wherever there is a bit of blank space.

The PCW show at the Barbican will be upon us in a couple of months. We will be having a stand there as usual, and volunteers to help on the stand will be needed. Free tickets/passes will be available to helpers, of course.

Leon Heller

GUIDELINES FOR CONTRIBUTORS

1. If possible, send material in printed form.
2. Scripsit or Pencil disks/cassettes are acceptable.
3. Ensure your ribbon is in reasonable condition.
4. Printer output should be on A4 paper if possible.
5. If you send in handwritten material, write legibly.
6. Do not fold the sheets when posting them. Use a large envelope and keep them flat.

Leon Heller

FOR SALE.

Video Genie Parallel Printer Interface EG 33016. Little used, in original box. A bargain at £25 (list £43.70)

Bernard Mantell, Winchester 884316

MEMBERS' LETTERS

Several members queried the availablity of Newos 80 v 3.0 which was due out about now. According to one source close to Apparat, there will be a delay owing to the introduction of the Model IV. One factor affecting specification is the small amount of memory left in the Model IV mode. The Model IV seems to be what the Model 111 should have been. It has the advantages of the Model 11 without the snags. As far as I can see the only controversial point is the built in key board.

I think it is grossly unfair of Tandy to bring out both the Model IV and the Model 100. I need both and can afford neither. Even Epson have now come out with a printer which has the facilities missing from the MX-80 at less than I paid for mine. Perhaps if I save two installments on the frige and one on the tele I would have enough for the deposit on a....Perhaps not.

At least I have now got the case for my Ambit modem. They must have redesigned it as it is much smarter than the picture. Just hope I can get it to work.

Derek Trayler.

88. Grosvenor Drive,
Hornchurch,
Essex RM11 1PW.
25th. June 1983.

Just a note to let you know that I have moved again and my new address is as above. If it is possible I would like to know if there are any local members and/or groups around here.

I was interested to see the review of the Gnomic DP 1000 in the last Newsletter as I have ordered the DP 2000 (which includes a BASF disk drive) with double density. Unfortunately it has not arrived yet as adding the DD board apparently means taking a unit out of their production line and building in the DD facility.

As a result of the above I have a surplus printer interface and would be obliged if you would arrange for the enclosed advertisement to be inserted in the next Newsletter.

Many thanks to you and Laurie for all your work, it is much appreciated.

Bernard Mantell
57a Fraser Road,

Kings Worthy,

Winchester,

Hants

PROBLEM SECTION

Dear Group

First of all let me say how much i enjoy reading the newsletter, i've only been with the group for about 2 months and already i've got alot of very usefull information.

I need some help on 2 points, my machine is a model 1 with 48K, 2 disk drives, and a Centronics 737/2 printer, (my wife says i've got more money than sense).

My first problem concerns the printer. When i write a Lbasic program that produces a letter head i seem to be sending alot of printer codes to get the desired print effect.
If i send a seqence of codes 15;27;17;27;14"text"14 this prints the text underlined in elongated proportional.
Then i send 27;19 this produces proportional text, everything is alright untill i change the code to get a different typestyle, it then has an effect on every other code and produces a completely different typeset. I overcame this by inserting alot of 27;14 (sometimes up to 3 in a row) to get over the problem. Now, i've had the machine checked and everthing is alright, the computer is alright as well.
If someone could show me an easy way to get the printer to print what i want first time and every time i would be very gratefull.

My second problem is with the Hi-res unit suppled by Tandy. I cannot get the STR3/CMD routine to exist with LDOS, although i don't even load it to access the first 64 graphic characters, but i would like to be able to use all of the 128 available and unless you load STR3/CMD this just cannot be done. If anyone as got machine code routines to draw circles and the like i would like to hear about them.

I have 2 versions of LDOS 5.0.2 & 5.1.3, if anyone would like a loan of 5.0.2 + manual + the quarterly newsletter with patches for Scripsit & Viscalc, before you buy the 5.1.3 version, please let me know. I also have Scripsit + training tapes + manual which i don't use (i'm using AJEDIT).This is not a invitation for a rip-off.

I would like to thank Leon Heller for his note telling me about the modem that he uses, i've been in touch with the people concerned and should recieved it about the 15 July.

David Joseph
9 Bay Tree Close
Birmingham B38 9SH

FOR SALE

48k Model III very good condition £300
or with 2 40 track Drives £800
Robert Vieira 01-500-5594 Evenings.

Thanks for giving me Jim Bartholemew's address. We are in touch. Also for Gordon Wheelwright's number for S100 boards. However, I have not contacted Gordon because I am having Expansion Box edge connector corruption problems, which is why I am writing to you now.

Are gold-plated contacts the answer? I ask this because recently Molimerx advised strain-relief connectors on the computer end of the cables (for TRS 80), whereas on my V-G the problem seems entirely corrrosion (oxidisation?) on the expansion board only, (I find that a few rubs with an india rubber produces an instant cure, but it is still infuriating). Obviously the answer is strain relief AND gold plated contacts; but I would be interested to know how all you old hands have coped.

Change of subject. re Paul Willey's letter on P4 & P5 of the May issue of the Newsletter. I can help him with the self-changing program problem, but only if you get no answer from anyone else, because I am in the Summer holiday trade and rather busy just now. Incidentally, you are still not giving the addresses in the newsletter of correspondents. It would save you trouble, and surely if they are seeking an answer to a problem they don't want to be uncontactable.

Chris Lovell
5.Montpelier Road
Ilfracombe
Devon
EX34 9HP

(* There seems to be a bit of confusion regarding the gold edge connectors. Most of them incorporate strain relief for the ribbon cable, but it is the better electrical contact that solves the problem, not the strain relief feature. Strain relief just means that the cable is clamped, so that pulling the cable will not affect the integrity of the joint between the ribbon cable and the connector. LFH *)

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IS WELCOMED!

Telphone Harrogate (0423) 62526 for further information

From David Washford

A few months back, Laurie described some problems that people had rung him about; I don't know if my recent experiences will help them or not.

My Model I, 48k 3 disk, system has always periodically suffered edge-connector problems and I have fitted gold-plugs to each end of the CPU/EI cable. However, just lately I have suffered similar, but more disastrous, problems, the symptoms being :

> A repetitive Basic input programme crashing with the message "Syntax Error in n". It was noticed that 'n' was not always the same line number, and after the initial, and fruitless, investigation, the problem was always overcome by typing 'CONT'.
> The system suddenly freezing up, only remedied by a reboot.
> The program - any program, basic or m/c - crashing and the screen displaying a rapidly changing graphic picture. Disks would start up, and if drive doors were not rapidly opened, then the disks suffered fatal damage! I have learnt a lot more about zapping in the last fortnight, rebuilding data files!

My system is housed in a Blandford Box, and frequent suggestions caused me to have the power supplies checked. This was kindly performed by Carl Rabe, who has access to things called 'scopes' and 'meters', but no fault was found. I then tried a different CPU, a different CPU cable, a different doubler, all to no avail. Then, because I don't understand electronics, and so wouldn't appreciate that it couldn't possibly make any difference, I took the RS-232 board out. That was a week ago, and I've had no trouble since!

So come on, you geniuses (or is it genii?), tell me two things : WHY did the RS 232 cause these hassles, and WHAT do I do now if I want to use my Maplin Modem?

Phone calls, during the day, to 0202 671122, or letters to 1 Alexandra Road, Bournemouth, BH6 5JA. The best advice will be rewarded by a stick of Bournemouth rock (which I was going to use to demolish my beloved Tandy!)

David Washford.

For Sale :
48K Holmes Int Expansion Board : £30
Acculab Floppy Tape Unit with 20 tapes and some programs : £70 + carriage
Mike Brindle - 0553 672825 evenings

CMD"O" IN IMMEDIATE MODE

The aim in programming is to reduce the code the minimum and I was trying to get a points calculator running. The points are based on 6 for a win down to 1 for 6th place and therefore I started with IF R=1 THEN P=6:IF R=2 THEN P=5 etc. Later it dawned on me that P=(7-R). The saving in code is useful but the difference in speed is amazing.

I also started off trying to calculate the number of competitors each club had entered. I therefore picked up the first club name and compared it to all the other names and checked the number of matches. I had to loop through for each name and reject previously counted names. It worked but took ages.

Later I sorted by club and counted until the club name changed. N$(n) <> N$(n+1) then printed the Club Name and the value of the counter. This took seconds and also showed up misspellings. ie

RUNEYMEDE 1
RUNNYMEDE 12

I also learnt recently that the CMD"O" SORT in NEWDOS 80 can be used in the Immediate Mode. By pressing <BREAK) while in BASIC I was able to sort the array and print its contents before returning to the program. A slight problem arises if you get a Syntax Error but I found that I could get back to the program with GOTO 50 which in my case was the MENU. This protected the variables. While I am sure this is a very bad practise it can be a life saver.

I had only a few minutes to renumber 400 competitors. I knew the competitor numbers were in an array and that I could get the correct order by Sorting on the Time array. I therefore Sorted the array and then used a FOR N = 1 to 400 loop to put the value of N in the competor number array.

In our sports program we have had problems with the garbage routine. We have used up most of the string space and when the String reorganisation (Garbage collection) comes around there is a 4 minute wait. Now 4 minutes is not much in a lifetime but when you have 400 kids waiting the result it seems like an eternity. Worst still, if you find that there was an incorrect entry, you have to go back and correct the mistake. By this time everyone knows about your error. Now just about everything that could be done has been done to help. We use MID$ replacement and keep as much free space as possible but there is still 40 minutes lost.

So we tried out TRASHMAN. Don't ask me how it works, all I know is that with TRASHMAN our delays are minimal. You still get breaks but they are considerably shortened.

The computer seems to hang up but by the time that you notice it is back on its merry way. I reckon that in my tests, 4 minutes is reduced to 4.5 seconds. Thoroughly recommended.

Derek Trayler.

88. Grosvenor Drive,
Hornchurch,
Essex RM11 1PW.
29th. June 1983.

TANDY MODEL VII LINE PRINTER FOR SALE
V.G.C. £100

TANDY (MODEL 1 LEVEL 2) EDITOR/ASSEMBLER
CASSETTE VERSION £12.50

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SG18 8LL

(0767) 312399

BASIC screen-print for EPSON MX80

My Epson MX80 type III does not produce the TRS-80 graphics blocks for character codes 128-191. Instead, it has its dot-addressable graphics mode. It would no doubt be possible to reconstruct the graphics blocks dot by dot, but the resulting print-out routine would be bound to run very slowly.

The short Basic subroutine below, adopts a reasonable compromise. Using Epson condensed characters we can get the 128 pixel positions on a printer line. The @ character is used, as the largest and blackest in the repertoire, to represent a pixel. The subroutine is called by GOSUB 9000, and it dumps on to the printer a character by character, and pixel by pixel, copy of the current VDU display.

```
9000 LPRINT CHR$(15);CHR$(27);"3";CHR$(22);:
     FOR VI%=15360 TO 16320 STEP 64: GOSUB 9002: LPRINT:
     GOSUB 9005: LPRINT: GOSUB 9008: LPRINT: NEXT: RETURN
9002 FOR CH%=0 TO 63: PK%=PEEK(VI%+CH%):
     IF PK%<128 LPRINT"  "; ELSE PK%=PK% AND 3:
     IF PK%=0 LPRINT "  "; ELSE IF PK%=1 LPRINT"@ ";
     ELSE IF PK%=2 LPRINT" @"; ELSE LPRINT"@@";
9003 NEXT: RETURN
9005 FOR CH%=0 TO 63: PK%=PEEK(VI%+CH%):
     IF PK%<32 LPRINT CHR$(PK%+64);" ";: NEXT: RETURN
     ELSE IF PK%<128 LPRINT CHR$(PK%);" ";: NEXT: RETURN
9006 PK%=PK% AND 12: IF PK%=0 LPRINT"  ";
     ELSE IF PK%=4 LPRINT"@ "; ELSE IF PK%=8 LPRINT" @";
     ELSE LPRINT"@@";
9007 NEXT: RETURN
9008 FOR CH%=0 TO 63: PK%=PEEK(VI%+CH%):
     IF PK%<128 LPRINT"  "; ELSE PK%=PK% AND 48:
     IF PK%=0 LPRINT"  "; ELSE IF PK%=16 LPRINT"@ ";
     ELSE IF PK%=32 LPRINT" @"; ELSE LPRINT"@@";
9009 NEXT: RETURN
```

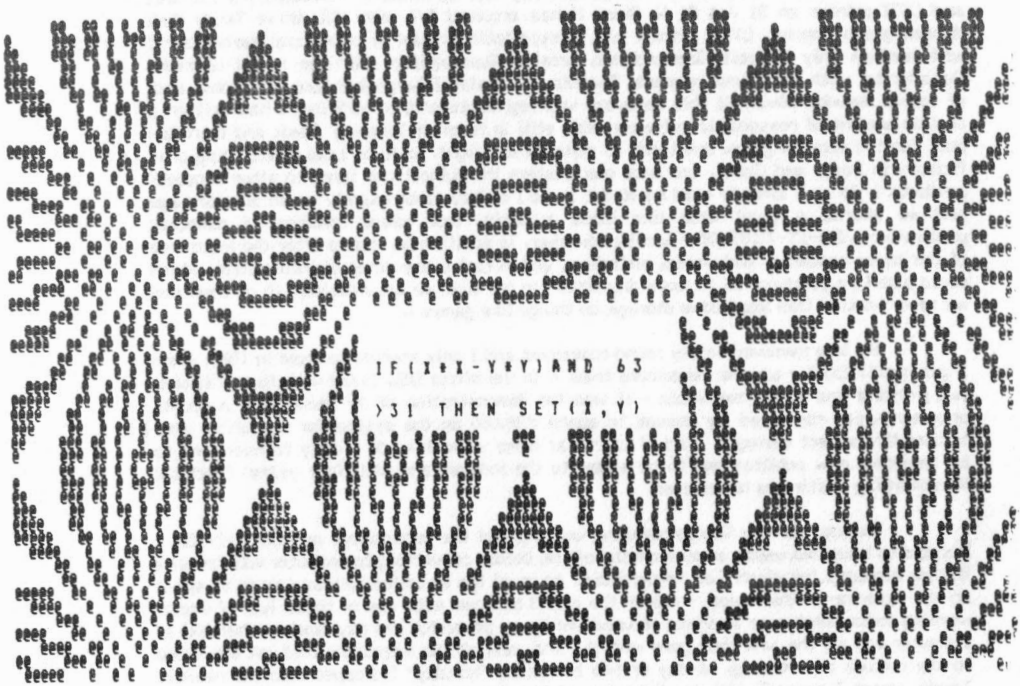
On entry the subroutine sets condensed mode, and a line spacing of 22/216ths inch per line. These settings remain in force on exit. The vertical scale of the print-out can be changed to taste, by amending the line spacing code CHR$(22) in the first line.

The subroutine works by scanning across each of the 48 pixel rows on the screen, and printing each row as a 128-character line. On the second of each three scans, a test is made for printed characters as well as for pixels. It takes from 30 secs to 3 mins to dump a complete screen, depending on the screen content. A screen with a lot of graphics blocks takes the longest. Here is a specimen of the output.

John Gale Hemel Hempstead 0442 - 53643

FOR SALE

ACULAB FLOPPY TAPE for Model 1.
Loads of software on 30 tapes.
M.Duggal 0990 25089 (h), 01-584-5324 (w)


IF(I+I-Y*Y)AND 63
>31 THEN SET(I,Y)

=*=*=*

TRS80 MODEL 4
(First impressions)
(in chronological order)

For almost two years I lived contentedly with my Model 1. (I bought the 16K unit and LVII printer on 31 Jul 81). Since it has acquired E/I with 48K, three Tandy disk drives, green monitor, LVIII printer and a respectable amount of commercial software - I will mention only Scripsit, Superscipsit, Accel 3, Superutility+ with the latest upgrade, Data Writer with the latest upgrade, Taranto Associates Intergrated Accounts, Cobol and, of course Newdos 80v2. All this software was legitimate and, in addition, I had written a certain amount of reasonable software when still in fever of learning Basic and then Cobol. Isn't it suprising how one tends to struggle and fight, as in my case in attaining proficiency in Basic and Cobol, and once one masters the subject one turns to other peoples' products ? So as I already said my Model 1 and I rubbed along happily as an old marriage and we shared a great deal like Home accounts, four years' indexes of computer publications, DO-IT-YOURSELF and Woodworker. In addition we looked after the insurance of the house contents, addresses, birthdays, and in fact every scrap of information, which could justify a purchase of 10 more discettes (in our time we accumulated 110 of them and we never wasted this expensive storage on things like games).

My life revolved lately round computers and I only started on them in 1980, when I got myself ZX80 - anyone remembers them ? In the office DEC 11/23 with four stations, two printers and 20MB removable - it was the demonstration of my Home made Accounts program, which convinced my bosses to spend £38,000 on the system for the office and I became the project manager. And of course at Home so much to do - daily transactions to be recorded, new publications to be added to the indexes and still four years' Practical Woodworking waiting to be indexed.

Having got the Wordprocessing working and the subscribers on file (12+MB) I decided to take two weeks away from the office, before converting to computer maintenance the six accounts for which I am responsible. As usual the so called holiday was to be spent on the exterior of the house - run of the mill 3 bedroom with one of these full of woodworking tools, machinery and bits of wood which may be useful one day, and another full of computer and all the junk that goes with it. And, yes, all the magazines that get subjected to the torture of indexing. A day or two before my "holiday" I dropped into the nearest Tandy, where I normally get handed a box of ten diskettes without a word being spoken, and there it was in the window -MODEL 4 !! I have always hankered after one of these 64K CPM boxes. although the store did not have any software to run Model 4 and probably they had no idea how to switch it on - I said to myself "I MUST HAVE IT". On the way Home I told my boss what I wanted and she said "Have it - I will give you the money". (My boss does not bother about keeping any accounts, but she makes sure that I pay all the house-keeping and the bills and she keeps her money herself). The first question was how to recover any of the £3,500+ spent on Model 1 and the software. As everybody knows, if there is any problem associated however loosely with computers one always rings Brian. (What would we do without him ?). Brian told me that I might get some £800 for the hardware but the software would be a problem. He also mentioned that Os House was giving good terms on part exchange for Model 4. Another addition to the telephone bill (the boss pays that herself) and I got offered Model 4 in exchange for hardware, most of the software and £620. Whether it was a good bargain or not I dont know but I accepted eagerly as this saved me all the botheration of trying to sell, putting up with the calls from prospective buyers who had £15.06 to spend and so on. So it happened that either on the 6th or 7th July my Model 4 has arrived. I never will know the exact date because neither I nor my boss remember, whether it was before or after midnight. What we will remember will be the awful storms in the evening, few hours of power cut which put out the time clocks on the village street lighting, very thick fog and I, personally, standing for about two hours with a powerful torch on the turn off to our part of the village (they call it that although it is really an estate of sorts), stopping every car approaching from the right direction and saying "Are you Mr House ?". I am sure some people must have thought me mad, but it was

almost as in the early days of my 35 years' army service doing the guard duty - only in those days we shouted "Halt - who goes there" and on receiving a satisfactory reply "Advance and be recognised". So the Model 1 went, wires and cables have disappeared and I am left with the computer, printer, 3 boxes capable of storing 50 diskettes each and three programs - Superscripsit, Cobol and Superutility+.

The Model 4 came with TRSDOS 6.0 (at least I think there are some zeros in it). The box looks nice, dirty/grey colour like most computers. The keyboard is smaller than Model's 1 although it contains more keys. Leon Knaggs described it in the June issue. The first two thoughts were - the screen background could be darker and it would be nice if the keyboard would be detachable. Disk drives, if you are used to Tandy Model 1 drives, seem very noisy or grinding and one wonders, when they are going to grind to a halt or fall apart. As I have read somewhere there is no "ON" indicator, but if in doubt one can always press the RESET, yellow recessed square located in the top right hand corner of the keyboard.

Of course I did not go to bed that night. After a quick glance at the Manual I found a REPAIR program, which the Manual says will convert any TRSDOS 2.0 - 2.3a Model 1 diskettes to TRSDOS V6. Manual does not make it however clear that the conversion applies only to the Directory. Well great - there were still a few hours left till I had to leave the newly acquired treasure and face the boss across the breakfast table, so let's convert as many of my Model 1 diskettes as time permits. The first REPAIR done so let's run the program. What SYNTAX ERROR in first line ? (To divert - I have just discovered that whilst using Superscript in Model III mode the CTRL key acts as a Shift key). Back to the Syntax Error - well let's delete it and run again. What another SYNTAX ERROR ? IN FACT YOUR WHOLE BASIC PROGRAM BECAME ONE GREAT COLLECTION OF SYNTAX ERRORS!!! If you like an electronic wallpaper try to list it. You will get just about everything - reverse video blocks, large letter, large spaces, suddenly cleared screen after two lines of what was your program and so on. It is quite fascinating watching a listing of a 16K program, which used to be my very own accounting program, which was good enough to convince the Committee to spend £38,000. There is nothing left of it, which could in any way be recovered, amended and made to work again. So now I have Model 4, the 64K CPM box without CPM, and no programs to run. I am discovering the old habit of talking to the boss - at least whilst I wait for Data Writer Model III, Newdos 80v2 Model III and TRSDOS 1.3. And I was always saying that I would not have Model III even if given for nothing. What I did however discover was that the REPAIR has not distorted the only data file, which was on the disastrously REPAIRED diskette.

I know that I will be able to convert my TRSDOS programs - not ACCELLED - to work in Model III mode. Mr House also tells me that I will be able to do the same with my NEWDOS programs once I get Model III version. So as I wait I read the Manual. TRSDOS v6 seems to me powerful enough to satisfy customers, who want to run or write the application programs. The Basic is powerful though not structured and, if you get used to the Performs of Cobol you do miss them (Did someone at some time ask in the Newsletter "Who would want to program in Cobol?"). Well whoever it was may think differently when it comes to programming in Model 4 Basic. The days of creating long, sequential files, CLEARing25000, DIMing God knows what are over. With the 28+K memory availiable to Basic there is no space for long sequential files, which can be loaded wholly in memory, added to, amended, sorted and so on and then dumped back on diskette. There is a very interesting statement in the Manual under DIM -"Arrays can be created implicitly, without implicit DIM statements. Simply refer to the desired array in a Basic statement. For example, A(5) = 300 (don't forget the spaces) creates an array and assigns element A(5) the value of 300. No need to reserve memory as arrays can be created dynamically and erased when no longer required with the ERASE statement. Our Basic programs will have to access the disk rather frequently and this is where the extra 64K and MEMDISK will come useful. As I imagine it, one will load the data disk to the extra 64K, work on it (less wear and tear on the disk drives) and, when ending, dump the phantom drive onto the disk.

But all that for the future. The immediate problem is to convert as many programs to Model III mode and to start working. Time permitting one can get the programs listed in MODE III and start typing to get them converted to Model 4 Basic. If you tend to write programs, which are at least 16K (as my smallest programs happen to turn out) typing is going to be quite a test. Is it worth it ? Well the Basic is more powerful, machine speed is better but....surely somewhere there is a wise guy, who will get a notion on making money out of a little program, which will convert Model I/III Basic programs to work on Model 4. There is money in it all you boffins. I would not hesitate to pay now £100 for a program, which could do that.

The manuals supplied with the machine are Owner's Manual, Getting Started With TRS-80 Basic (Mod I/III) and the Introduction to the Disk System. I cannot imagine that anyone, who already has used Mod I/III will find much use for the latter two manuals, although the last mentioned Manual tells how to run the Maillist program supplied on the system diskette. There is also a Technical Reference Manual available from the Tandy shops. I think this is a must for a programmer as, I expect, this will provide memory addresses for different drivers etc. The Owner's Manual is in three parts ie. TRSDOS, BASIC and APPENDICES. Of course I was very interested to see what changes and improvements have been made to the Basic. Bad news to start is that the Edit has not been improved. Still the same Edit (Line number) or Edit . (don't forget the space). But after that all is good news. To start with variable name can be 40 characters all significant. This means one can use meaningful names and not worry about the reserved words. REMs can be limited to the description of program module function. Using long variable names will eat up the memory, but the answer is in writing small programs, which will either CHAIN/MERGE or call upon each other by use of RUN. Having a MEMDISK one does not have to worry about the constant drive trashing.

Now what new goodies has Tandy provided ? Going through SHIFT@ pauses program execution, pressing any other key re-starts it. Sequential files can be opened now in E mode to extend. Direct Access files are not restricted to 255 record blocks and mathematical acrobatics are no longer required to obtain smaller records. Fifteen buffers can be used for disk access. CDBL converts a number to double precision. CHAIN is an interesting one. Expression is CHAIN (MERGE) file ,line ,all ,delete line-line. Chain file must be in ASCII format. MERGE option overlays the existing program and normally closes files and cleares variables. The expression ALL permits however to carry all variables to the chained program. Line allows to start running the chained program from any wanted point and combined with DELETE lines in the overlay the function can give the same power as Cobol's PERFORM/THROUGH. Care should be taken that the overlay should not over-write any DIM lines in the original program. There is no need to carry all variables from the resident program to overlay. To carry selected variables only a COMMON statement must be in both programs. 20 COMMON G, J, X( ) (notice one blank in the brakets) carries variables G, J and array X from the resident program to the overlay, providing this statement has been included in both programs. Option ALL is not used in such cases in CHAIN statement.

CSNG converts a number to single precision. CV's and MK's are still there and I dont understand them, and whilst I am at it 45 years after leaving school ATN, COS, LOG & Co mean nothing to me so I am not in the position to say whether there are more or less of them. Never bothered to look at them in my other manuals. ERR$ returns system error number and message. EXP calculates natural exponent of number (Did we have that one before ?). FIX returns the TRUNCATED integer so -5,8 becomes -5 and not -6. There are both FRE and MEM doing the same thing of showing you how much memory you have (or have not). FRE syntax is FRE(dummy number) or FRE(dummy string) and they both show you the same as no special memory is reserved for strings. MEM can be used within a running program ie 500 IF MEM < 100 THEN ERASE J. Running program would on encountering line 500 check the free memory and if this is less than 100 bytes (close run to OUT OF MEMORY) erase array J.

HEX$ calculates hexadecimal value of number - useful in obtaing special cha-

racters. OCT$ does of course return octal value but the question is what ever for ? INP and OUT are still there and I don't understand them. I believe that VG owners have to struggle with them. There are three INPUT now - INPUT as normal, INPUT# as normal and also INPUT$. INPUT$(number) inputs number of characters as specified in bracket from the keyboard. Characters are not displayed on the screen (good for passwords). No ENTER is required. INPUT$(number1)(number2) inputs into a variable (number1) characters from a sequential file through buffer (number2). INT converts number to integer (-8.3 becomes -9). In addition to the nornal LINE INPUT there is also LINE INPUT$. Syntax is LINE INPUT$ buffer variable. This one inputs an entire line of data from a sequential file into a string variable (Second parameter). LOC(buffer) returns current record number. A useful program is given to find a variable and it's number in Direct Access file. NAME permits changing of file name in Basic command mode. OPTION BASE permits setting minimum value for an array subscript. (Remember all those wasted Variables(0)? You don't have to have them anymore). POS(number), number being dummy argument, returns position of the cursor. It cannot reposition the cursor. Little program is given to use this to turn the printer into a typewriter. The program uses INKEY$ for input and will watch for the end of line so that no word is divided (Quote from the Manual). Wonder of wonders - renumbering function is now called RENUM - how unusual - and still does not permit to renumber parts of a program only. Syntax provides new line, line and increment. To quote from the Manual RENUM 600, 5000, 100 will change the number of line 5000 to 600 and renumber all the subsequent lines by increment of 100. RENUM will however give warnings of undefined lines.

PRINT @ has two options - either the old type of location, which must be between 0 and 1919, or (row, column), which appears to be easier to use. There is also ROW, which returns row position of the cursor. RUN has an addition of R, which loads, executes the program and leaves OPEN files open. SAVE has the usual option A and, in addition option P, which protects the program from listing or editing. Programs saved with P option can only be run, loaded, merged and chained. SGN now determines the sign and can be used in programs (GOTO/GOSUB). SPACES returns a string of number spaces ie. PRINT "TITLE" SPACE$(10). Similarly SPC prints number of blank spaces. SWAP is now included, which will make the sorts easier. SYSTEM returns to DOS, but SYSTEM/Command executes DOS command and returns to Basic without affecting the program or variables. There is a thing called WAIT, which suspends a program until to quote " a machine input port develops a specific bit pattern " (All double Dutch). The long criticism of the lack of "WHILE...WEND" in Basic is over - WHILE/WEND is there. Finally WRITE writes data on the display and WRITE$ buffer, data writes data to an open sequential file.

Well that is about all about the Basic additions. As I have already said, I am delighted with the machine, but I wish that the screen would not jerk every time the disk starts turning. The TRSDOS offer quite few new facilities, which did not exist in Model I or Model III, but I have not had the time to look at the TRSDOS properly yet.
(* The writer of this article wished to remain anonymous. LFH *)

MORE DATA-WRITER BUGS. (Model III and Epson MX-80).

Having recently become the proud possessor of the New, Improved, Enhanced, Updated DATA-WRITER I was somewhat suprised to discover two new improved enhanced bugs which had not resided in the original.

The secrets of LINE 83.

Attempts to print out a series of letters using the LETTERS programme were frustrated because the only answer I got in reply to "Press ENTER when Printer is ready" was "Unprintable Error at Line 83". By the devious and tedious method of removing the format controls one-by-one until the problem cured itself I discovered that the Bug was the Special Printer

Control Code "(*27*)E" described on page 60 of the DATA-WRITEI Manual as appropriate for the Epson emphasized mode. Indeed I had used it successfully with the original DATA-WRITER programme.
Discussions with Molimerx revealed that this Error message hac also occured when another user had attempted to use the TAB codes that the new DATA-WRITER version should support. Clearl therefore this new version does not like Printer Codes.

There is Garbage at the bottom of my File.

I normally utilise SCRIPSIT with DATA-WRITER to compile the Data Files and Text. Having therefore written and formatted the letter described above with SCRIPSIT and terminated the File with "...." as normal, I was suprised to find, whilst trying to cure the Printer problem, that using Option 4, ("Enter EDIT mode to review and/or change letter") produced th Letter in question but the terminator was followed by a load c Garbage. Symbols I had never set eyes on appeared as if by magic on the screen. Being a tidy person I duly erased this rubbish only to find when I subsequently reloaded the letter with Scripsit that I had erased half the letter as well, yet i the EDIT mode it was now correct.

At the time of writing, Software Options Inc. have supplied Molimerx with a cure for the Printer Code problem but the accumulated Garbage on the EDIT programme files remain uncollected.

C. Phillip,
19 Coolhurst Road,
London N8 8EP

MBASIC TIPS

If you are using MBASIC under CP/M on a Model II, or any other system, come to that, and you are generating lots of pretty screen formats for data entry, you have probably found that the MBASIC interpreter occasionally generates unwanted line feeds when the line buffer gets full, although you are using direct cursor addressing for printing strings, and an INKEY routine for keyboard input.

The answer to all your problems is WIDTH! Just include the statement WIDTH 255 at the beginning of your program, and MBASIC will never output an unexpected and unwanted linefeed.

A minor difficulty is that when you list the program, line longer than 80 characters will be truncated, causing problems when you edit them, but you can always use WIDTH 80 in direct mode to overcome this.

This also works on the Sirius and IBM PC, and similar exotic hardware using MBASIC under MSDOS, PCDOS or CP/M-86

The CPMUGUK (CP/M Users' Group) Journal had a useful tip for MBASIC users which should apply to Tandy disk BASIC. Apart for their application in direct access file handling LSET and RSET can be used to left or right justify a string within its existing length. Apart from their convenience, these functions re-use the existing string storage, and therefore avoid delays caused by garbage collection.

Leon Heller

WE'RE ALL BEGINNERS SOMETIMES

Two items in the May newsletter prompted me to put my fingers on my typewriter. Both covered hardware upgrades from General Northern Microcomputers and I felt I ought to relate my experiences.

As an aside I have had some sympathy with Paul Willey's comments about publication dates for the newsletter. I once rang to see when it was coming and was told it went to the printers "6 days ago". I was a little irritated when it still took a fortnight to arrive. Now I just expect it a month late. I sometime wonder if some renewals of subscriptions are lost because of the delays.

However, back to the beginning. I purchased my L2 system in November 1980 when the price dropped to £459 for 16K, monitor, cassette etc. I've never had any problems at all with the system and during 1981 I added l/c with help from Eric Hartley. Also during that year I lashed out and bought an Expansion Interface (ØK) from Tandy at £159 and added the memory myself for £16. Disks were next, I hoped.

Meanwhile I played games, copied in programs from magazines, encouraged my eldest who was taking computer-studies at school and didn't do a lot of programming. I joined the Users' Group and took out a subscription to 80-Micro and bought all the back copies. Best thing I ever did and I've had no delivery problems at all.

During 1982 I changed course somewhat. Early in the year I decided that I couldn't afford disks in the forseeable future and swapped my E/I for two Aculab drives. Missing the extra 32K I very daringly bought the 32K internal expansion kit/unit from General Northern and managed to install it successfully first time. For £50.95 it has been a reliable buy.

I got on reasonably well with the Aculab drives although the range of software available was and probably still is very limited. With the recent major drop in the price of Exatron units and the very wide of software available they seem a good buy.

Coming to this year I experienced a serious cash-flow problem in the spring and sold my Aculabs to the local chemist for £200 pounds. Then in March we sold our house and moved to Wolverhampton and I could see the green light for disks. I read Richard Stockwell's review and decided to take the plunge. I rang General Northern and discovered that they sold a DP2000—disk/printer interface and disk drive combined. £220 plus VAT. That seemed great value and I passed on my flexible friend's number.

A week, they said! A week passed and nothing. So, onto the phone to discover that the S/S 40track Canon drives hadn't arrived. Oh dear! All was

not lost as General Northern had in stock some double-headed Canon drives for an extra £40. So I agreed and also paid for Datapost delivery to get the unit to me on the Saturday, which did happen. Big unpacking and in goes my copy of TRSDOS 2.3. obstined from Tandy for £4.50 plus a Disk Basic Manual for £5 and press re-set. "DOS READY" it said. Great. However, problems at once. Try as I would I couldn't backup my TRSDOS. So I left it and on the Monday afternoon I went into the Birmingham Computer Centre and they very kindly allowed me to backup the DOS onto 10 disks.

I rang General Northern and started my long-distance relationship with their workshop manager, Barry Dunn. May his bytes be ever sharp. He at once sent me a copy of smal-LDOS (having a very low opnion of TRSDOS) and put on that disk a test-program. All this for no charge.

No luck with backup or format. "Can I speak to Mr. Dunn, please?....." The result was I sent the unit back. More Datapost profits for the Post Office. I received a replacement unit seven days later. Mr. Dunn also very kindly made me a copy of double density LDOS as I had in the interim decided to tread that path and he said I'd find it rather difficult with only one drive. Genuine LDOS, I hasten to add.

I could have screamed when the unit returned on the Friday as there was no connecting cable for the keyboard/unit link. Fortunately I managed to make one up with Tandy's help.

So, after nearly 18 days of a mixture of waiting, frustration and more waiting I was there with D/D, D/Heads and an impressive amount of storage space on each disk.

Armed with my LDOS serial number I found Molimerx very willing and helpful and I've done Mr. Dunn for more help.

New into disks I'm very impressed with the speed and efficiency. LDOS seems really good but will take some getting into. Coverting from S/D to D/D is something the LDOS manual is <u>not</u> good at, I feel. You need the help of someone with two drives —like Mr. Dunn!

I tried the NATUG help line via Brian Pain. Of the three LDOS experts listed, none could help. I was told not to bother ringing Nigel Dibben — "too busy, answer-phone". I was given John Rutherford's telephone number — wrong. He could be found in the directory either by Directory enquiries or by friends in York. My last hope, Al Redhouse seems permanently in transit. His wife(?) was most helpful but I couldn't reach him. I was eventually saved by ---Mr. Dunn!

What are my conclusions about this new beginning? Well, I give the NATUG help line 1/10 at the moment and wish I could find some LDOS users in my area. Tandy at Birmingham get 10/10 for their kindness and so do Molimerx, so far. But my vote for President goes to Barry Dunn, workshop manager at General Northern Microcomputers, plus one or two other voices — probably called Owens. That firm loves their customers. It is true as E.C. Kilpatrick said they can be remiss in communications on occasions. But, they work many nights to gone 9pm dealing with orders, problems and the demands of their customers. I have found that the telephone is the best and an SAE usually helps. There does seem to be a problem with their unit which concerns TRSDOS. I'm not the only customer who has been unable to backup TRSDOS 35 track disks. They're working on it. However, LDOS works fine as does smal-LDOS on a unit that's not faulty.

By the way, I've £300 worth of cassette software I want to get shot of —no rip-offs. Going dirt cheap the lot or swop for something useful in the software line (disk).

Robin Davies: 13, Paget Road, Wolverhampton. WV6 ODS (0902) 23735

MORE ON SET/CMD

First I would like to than Mike Tomlinson for his SET/CMD printer type setter in Vol 4 No 12 of the Newsletter. It is just the thing I have been looking for. However, as he mentions in his letter, there are some differences to the Model III and Model I, one of which he mentioned. There are a couple of others which may be of some use to someone using the same system as I have, which is a Model I, LDOS and a FX-80 printer.

In line 250 Bit 3,A dosn't work with the FX-80. Bit 4,A will. This will test for all fault conditions, including out of paper or off line. Bit 5,A will just test if the printer is switched on or off. It would appear that the MX-80 uses the low nibble and the FX-80 uses the high nibble. If this is the case, line 500 would be wrong, but as it is it works fine with the FX-80 and Model I. Or the difference may be with the Model I.

Though there is no ROM routine to display a message on the video with the Model I, there is one in the DOS. A call to 4467H in SYS0/SYS will do it. This works with LDOS, NEWDOS80 2.0 and TRSDOS 2.3. A call to 446AH will send the message to the printer. The text can be terminated with a 03 which will suppress the CR.

A little addition to the programme is an error trap after line 820 to detect an illegal parameter and print a message to that effect.

```
Add at line 820             LD      HL,PERR
           821              CALL    VDLINE
           822              RET

Add at line 1681  PERR      DEFM    'Illegal Parameter'
           1682             DEFB    0DH
```

Also a RES 5,A instruction after line 410 will convert all parameters to upper case allowing the command to be entered in either upper or lower case.

Donald Sutherland

Cpl D S Sutherland
1 CHESHIRE
Shackleton Barracks
BFPO 802

My TANDY'S got my BACKUP

EPISTLE TO 23175

At long last the problem I have had with my computer has been solved and the following notes, from north of the border, may be of assistance to other users should they experience similar difficulties.

The problem first came to light when I tried to BACKUP one of my LDOS disks. The BACKUP was aborted with a "Directory Read Error". At first the disk was suspected and others were tried but even although I went back through several generations of disks, each one having given satisfactory backups before, they all gave the same error. This problem arose a week after I had fitted gold plugs between the CPU and the Expansion Interface and after I had just congratulated myself on their effect in eliminating hang-ups and spurious reboots. Perhaps after all I had damaged something in fitting them!!

Various diagnostic programs were run and they all pronounced the machine healthy. All my programs seemed to run OK so I battled on. I then discovered, when trying to MERGE a subroutine onto a program, that although it returned with "READY" nothing had been added. On investigating this further I found that Basic programs saved under the ASCII format would not LIST or RUN even although it said "READY" after loading. Using TRSDOS as the operating system, MERGE worked OK, although I found that DIR in TRSDOS took ages to come up with anything, if at all.

On mentioning this to one of the experts in our local User Group at one of our meetings, I took the machine down to show him the faults I was experiencing. Low and behold everything worked OK - ever felt a fool!! The next night I tried again with the machine in its usual place and the faults were all back again. I naturally thought it must be something to do with the connections and I painstakingly cleaned them all to no avail. I further discovered that if I tried to save a Basic program with the write protect tab on the disk, the error shown was "BAT WRITE ERROR" instead of "DISK WRITE-PROTECTED". This caused panic once again until I discovered I had forgotten to remove the tab.

At our next Group Meeting the faults this time were present. Hurray!! - various members tried out their theories - one member tried his connecting cable as it used the same gold plugs as mine but again no joy. He took away one of the disks that wouldn't work to try it on his identical machine and reported back that it was OK. We now began to suspect the disk drives and as usual, with only one week to go on their guarantee, panic again!! In desperation I phoned Tandy Customer Services and Brian Pain in the National Group none of

whom had had experience of this problem but Brian was able to give me further contacts who could possibly assist. From these calls a few clues materialised.

To test if the disk drives were working a suggestion was made to load an ASCII formatted program into memory from a cold start and then go into DEBUG and look through memory for the program. I tried this and low and behold, it was all there. This seemed to prove that the drives were working OK but that somehow the computer couldn't find the start. Why?

In our Local Newsletter someone was offering for sale one Percom Data Separator. According to the adverts this was supposed to eliminate disk read errors and CRC errors. Now I had never had a CRC error before but, you guessed it, the next night, I had one. I bought the separator and fitted it. It cured the CRC error but made no difference to the other problems. What now?

I noticed that one of the diagnostic programs (TEST 1A) on TRSDOS occasionally had hiccups when running - these were becoming more frequent and eventually, everytime it was run, it would display something on the screen and immediately REBOOT before you could read it. I finally twigged that if I removed the disk immediately the program started it hung up before it could REBOOT, leaving the error message on the screen, and lo and behold it said .....

00 MEMORY ERROR AT 5A87
SHOULD BE 22 WAS 26
BAD RAM IN KEYBOARD CASE:- Z18

Fantastic --- at last it's now telling me what's wrong and even where!. I converted this HEX number to DECIMAL (23175 - I'm still not happy working in HEX) and wrote a short program to POKE & PEEK at this memory location with all numbers from 0 to 255 and LPRINT the result if they didn't match. I was greeted with yards of printout (pity I forgot about the comma) but at least I had something to work on now. It seemed that 1 in gave 5 out, 2 in gave 6 out, 3 in gave 7 out but 4 in gave 4 out and 5 in gave 5 out etc. On checking against the binary code it appeared that the third BIT from the right was stuck at 1. I modified the program to test all memory locations in case there was a similar fault elsewhere but, I had to abandon this test, when I timed the first loop and calculated that it would take the next 2 days working non stop to complete. I swapped this chip into another location and a completely different set of faults occurred. The disks would not BOOT up at all. I thought it would produce errors in another memory location but found it produced different errors in the same memory location. This was baffling at first until I realised how the 8 chips each handled a different BIT and by swapping the chip merely moved the sticky BIT to another location in the binary code. I put it back to its

old position so that I could use the computer again until I could get a new chip.

Tandy's special offer of one chip reduced from £6.99 to £4.99 sounded great until I discovered the same chip was advertised elsewhere at 80p - no guessing as to where I bought the chip!!

I fitted the new chip and all is now well. Many thanks to all those who offered assistance. The experience did nothing for my sanity but it certainly taught me a great deal about the workings of the computer, so if any of you have similar problems have a POKE (not of chips) but at 23175.

Ted Gladstone
031 661 4558

PRESTEL AND TELESOFTWARE SEMINAR

The Institute of Information Scientists Word Processing and Computer Information Systems Special Interest Group are holding a seminar on Prestel and Telesoftware aimed at providing the non-expert user or potential user with an explanation of what Prestel has to offer, how it works, how to connect up microcomputers to Prestel, and how to upload and download software.

The seminar will be held on 7 September at Manchester Polytechnic, and the cost will be £20.70.

Further details from :-

Mr. G.R. Turner,
CIBA-GEIGY PLC,
Plastics and Additives Company,
Industrial Chemicals Division,
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MENU FLASH SUBROUTINE

The following short subroutine may be of interest to those members who do any BASIC programming. I developed it after I saw a demonstration of the IBM PC. In the program, used for demonstration, I was intrigued by the way in which the selected item on the various menus was flashed in reverse video when a selection was made. Unfortunately we do not have reverse video but I have devised the following program to demonstrate how the item can be made to flash and altered, if necessary, before finally pressing <ENTER> to activate.

Ted Gladstone

031 661 4558

```
1 '
       ****  Flashing  of Item Selected from Menu  ****
2 '
            **       By :-  Ted  Gladstone       **
10 '-------------------------------------------------------
19 '
          ****   Set up variables  ****

20 IM$(0)="Select No. You Want":IP%(0)=661:IM$(1)="1st Item
---- 1":IP%(1)=215:IM$(2)="2nd Item ---- 2":IP%(2)=279
25 IM$(3)="3rd Item ----- 3":IP%(3)=343:IM$(4)="4th Item ----
 4":IP%(4)=407:IM$(5)="5th Item ---- 5":IP%(5)=471
39 '
          ****    Display Menu    ****

40 CLS:PRINT TAB(25)"M E N U"
50 FOR X=0 TO 5:PRINT@IP%(X),IM$(X);:NEXT:X=0
69 '
          ****    Selection Routine   ***

70 PRINT@IP%(X),IM$(X);:FOR Z%=1 TO 40:X$=INKEY$:IFX$<>""THE
N 80 ELSE NEXTZ%
75 PRINT@IP%(X),STRING$(LEN(IM$(X)),32);:FOR Z%=1 TO 20:X$=I
NKEY$:IFX$<>""THEN 80 ELSE NEXT Z%:GOTO70
80 PRINT@IP%(0)+62,"Or :- Press <ENTER> if OK.";:IF ASC(X$)=
13 THEN90 ELSE PRINT@IP%(X),IM$(X);:X1$=X$:X=VAL(X1$):GOTO70
89 '
          ****     Rest of Program   ****

90 PRINT@910," OK --- You Selected :-";IM$(X)
100 '     X  =   Selected Value   for use in rest of Program
```

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Peter Wilson 021-355-4173

IMPRESSIONS OF THE MODEL 100

Last week I went along to our local computer club meeting, and a member who manages one of the local Tandy stores had one of the new Model 100 portable systems. Needless to say, I quickly grabbed it and put it through its paces.

Unlike most Tandy products, the Model 100 has received some very favourable reviews in the computer press.

For about £500, you get a system the size of a rather large book, with a full-size keyboard (quite a nice feel to it, as well), and what must be the largest liquid crystal alphanumeric display on the market. The display format is eight lines of 40 characters, with quite high resolution graphics available. Being LCD, the display is rather slow, which made me think the system itself was slow, but when the display was not used, the system seemed about as fast as my old Model I, which is not surprising as it uses a CMOS version of the 8085 processor.

It was very easy to use, and had quite a lot of useful software built-in, such as a Microsoft BASIC interpreter, simple word-processor, address book, appointment scheduler and communications software. Plenty of I/O is provided, such as a parallel printer port, RS-232 serial port, and expansion bus.

The BASIC is quite comprehensive, but it was the word-processor that really impressed me. I was able to use it quite effectively without looking at the manual. The manual was excellent, by the way.

Disk drives will be available eventually (probably the new micro-floppy format), and a TV interface. Since it uses the 8085 processor, CP/M would be a possibility.

RAM is expandable to 32K, and being CMOS, memory contents are maintained when the machine is switched off by a set of NiCad cells. Normally, power is provided by dry batteries, or an optional mains power supply.

I really was very impressed by this little machine. They seem to be selling like hot cakes - one large company has bought 500 of them to give to all its sales staff! I would quite like one myself, for general correspondence, and writing of source code that would then be loaded into a larger machine for compilation and testing.

Leon Heller

NEWSFLASH - MODEL 100

The above talks quite happily with PRESTEL, using Don Bannister's modem. Richard Creak can help members on the above, with free games for those interested. Charles Davies can also help with ideas on talking to the outside world, and Geoff Henshall from Milton Keynes will give hands on demos for those with time on their hands. Brian Pain

MODEL 111 IN BUSINESS - JOHN JEFFERY

I read with great interest the letter which was printed in the current issue of NATGUG regarding the above.

First I was surprised that a 'small' business thought it necessary to acquire a Model 1 T***y and then replaced this with a Model 111.

My interpretation of the article was that, as Dairy-persons, (in the South-East, we only have the large combines - the small Dairy and shop disappeared a million years ago) they prepare weekly records and accounts and compile VAT where applicable. Surely, even with three (3) rounds-persons and a minature army of young-persons (they cannot solely 'employ' men and boys anymore - Sex Discrimination Act) with deliveries every day bar Christmas Day the purchase of a Computer was, surely, an extravagance? To 'scrap' the Model 1 and replace it with a Model 111 must have been even more extravagant and caused their Accountant to have night-horses.(not night-mares - see SDA above). How much does a pinta cost in KIUBURN ?

Seriously though, if their business needed such a system how many other small dairies or similar businesses in their immediate area could benefit either by buying a computer with the system or for them to process others' financial problems through their system? If the computer has eased or helped to solve one businesses financial accountancy headaches can it solve or ease those in other businesses? Why should they settle to be 'just' Dairy-persons. Why not Dairy Computer Persons and recoup some of their investment?

It seems as though everyone has trouble with T***Y. Never mind, we are all learning to do without them in terms of hardware support. Their software is almost non-English and non existant. Trouble is, they produce 'good' c*******s, at least, touch wood, my Model 2 is still working after three (3) years hard labour - but is this a record? Can anyone beat that?

I wonder how many other owners of small to medium size businesses have created their own software? Is this not the time to seriously consider a section covering business application software and to submit reviews of both home brew and professionally produced programs?

Can anyone tell me why the financial programs are still being written in the Amercian style - Accounts Receivable (Sales Ledger) - Accounts Payable (Bought Ledger) etc., etc., and why are these all offered as single, stand alone programs. Surely, a fully interactive Menu Selection System, covering the usual 'paper book-keeping' methods which thousands of offices currently use is the answer now that hard-disk storage is readily available and reasonably priced. Is this not the real, long term answer to handling complex Direct Access Data-base driven Accounts?

Consider the thousands of industrial applications. Are none of our members actively involved in writing fully interactive industrial production control programs? If so, without breaking any secrets can they not guide us into the inner sanctum of industrial microprocessor systems and how they see the future developing? There must be a great deal of untapped knowledge and information of projects currently on hand which would be of great interest to the majority of the 'older' (in terms of membership - not necessarily in age) NATGUG members.

The information regarding future workshops covering CP/M has again come too late. I would like to have attended but other pre-arranged matters make this impossible. Could we not get earlier notice when whole day sessions on a single subject are being planned?

With the next issue, could you provide coded headings to the articles thus avoiding wasted time reading something of no interest. Say 1 for Model 1 - 2 for Model 2 etc.,

Could you also provide an Ordnance Route Map so that we can trace the various articles through the odds and sods, small-adds which occur here, there and everywhere? Thank you in full anticipation of your co-operation which, as usual, will, I assume, be readily and speedily forthcoming.

David J. Swann.

67, North Road,
Kew.
RICHMOND
Surrey.
TW9 4HD

Word4Word, Epson, and Chr$(0).....a quick and simple solution.

For those who require Chr$(0) and have not the time or ability for patches, the simplest method is to use Escape;Chr$(64). This will enable you to cancel Enlarged, Super & Sub script, and underlining. It is not a perfect solution, but it is easy! It will put all printer codes back to normal, but it is easy enough to reinstate condensed or what have you mode. The effect is the same as turning the printer off and on again, so it best used for simple letters where not many printer codes are in use.

Chris Lovell
5. Montpelier Road
Ilfracombe
Devon
EX 34 9HP

May I bother with some queries whilst fingers on keyboard! My set up is Model III 48K Twin Disc and LPVIII. With TRSDOS 1.3 and NEWDOS/80.2

(1) I want to switch cassette on/off for audio use from Basic. On the Mod I this would be the "OUT 255,x" and whilst the command appears in the III manual it does not work on the III. Tandy locally thought it should, but Tandy H.Q. say it will not! but apart from saying its "complicated" didn't help. Any suggestions?

(2) I use PROFILE 3.2 but the "Sort" time is becoming an embarrassment! There was a letter from Laurie Shields in V.4/2 Page4. where he mentioned the problem and running Profile under Newdos to overcome it. Was information on the conversion ever published?

(3) I recently saw a copy of the U.S. magazine "80 MICRO". Is it available on subscription in the U.K. and do you know the cost? * Not to our knowledge

Ken Rogers 8 The Crescent,
Worlebury,
(0934)24070 Weston-S-Mare.
BS22 9SR

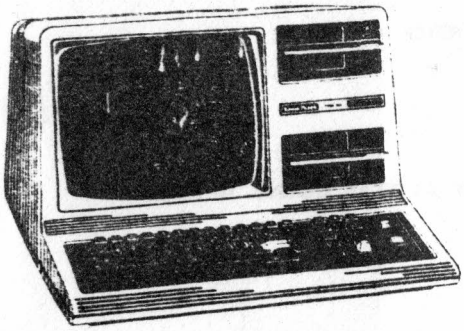
```
10 '-----------------------------------------
20 CLEAR 1000:'SORTING IN BASIC TRS80 & SIRIUS
30 '=========================================
40 '
50 '
60 '
70 ' FROM HOWE PAGE 124
80 DEFSTR A 'SAVES ALL THOSE $$$$$$
90 DEFINT B-Z ' HELPS THE PROGRAM TO RUN FASTER
100 INPUT"FILE SIZE:-";N
110 DIM A(N)
120 'FIRST LOOP - THE OUTSIDE LOOP
130 FOR C = 1 TO N
140 ' SECOND LOOP - THE INSIDE LOOP
150 FOR CC = 1 TO 5
160 D=INT(RND(26))+64  ' FOR SIRIUS, CHANGE 64 TO 65,RND(26) TO RND*26
170 'BUILD UP 5 CHARACTER STRING
180 A(C)=A(C)+CHR$(D)
190 'INCREMENTING THE INSIDE LOOP
200 NEXT CC
210 'INCREMENTING THE OUTSIDE LOOP
220 NEXT C
230 'PRINT OUT TO THE SCREEN TO PROVE HOW CLEVER YOU ARE
240 FOR I = 1 TO N : PRINT I;A(I), :NEXT I
250 'SETTING UP THE LOOPING INSTRUCTIONS
260 FOR I = 0 TO N-1:FOR J = I+1 TO N
270 'COMPARE THE CURRENT ARRAY ELEMENT TO THE NEXT
280 IF A(I)<=A(J)THEN 360
290 'A(J) ABOVE COULD EASILY BE A(I+1)
300 ' IF CURRENT IS GREATER THAN FOLLOWING, SWAP OVER
310 DU$=A(I):A(I)=A(J):A(J)=DU$
320 'TRY & USE DU$ FOR THE DUMMY VARIABLE, WHICH IS BEING CONSTANTLY CHANGING
330 PRINT DU$
340 'PRINT OUT HOW MANY TIMES THE STRINGS ARE SWOPPED
350 CO=CO+1:PRINTCO;
360 NEXT J : NEXT I
370 PRINT
380 LPRINT"SIZE OF FILE :-";N;" NO OF PASSES :-";CO
390 'PRINT   OUT THE SORTED ARRAY
400 FOR I = 1 TO N : PRINT I ;A(I):NEXT I
410 END
420 ' USE THE FOLLOWING, AS THE PHONE MIGHT GO, MINE IS ALWAYS RINGING.
430 ' ALTHOUGH I NEVER KNOW THE ANSWER.
440 SAVE"SORT/HOW"
450 END
460 '
470 ' BRIAN PAIN JULY 1983
```

```
SIZE OF FILE :- 10  NO OF PASSES :- 29
SIZE OF FILE :- 5  NO OF PASSES :- 6
SIZE OF FILE :- 15  NO OF PASSES :- 51
SIZE OF FILE :- 20  NO OF PASSES :- 103
SIZE OF FILE :- 25  NO OF PASSES :- 145
SIZE OF FILE :- 30  NO OF PASSES :- 248
SIZE OF FILE :- 35  NO OF PASSES :- 302
SIZE OF FILE :- 40  NO OF PASSES :- 424
SIZE OF FILE :- 45  NO OF PASSES :- 478
SIZE OF FILE :- 50  NO OF PASSES :- 764
SIZE OF FILE :- 100  NO OF PASSES :- 2548
```

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NATGUG NEWS

VOLUME 5 No.2 August 1983

OFFICIAL JOURNAL OF THE

National TRS-80 & Genie Users Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. 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 from time to time. Sub-groups also exist for medical and educational users.

The Group runs 80-NET, a computerised bulletin board service that is available to all users of microcomputers.

The Group maintains three software libraries (Models I, II and III) which are free to members. Library lists are obtainable from the Secretary. The medical and educational sub-groups maintain their own libraries.

A membership list is obtainable on disk from the Secretary.

Back numbers of the Newsletter are available.

Please send all contributions for the Newsletter to the Editor.

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Model III: Nick Clay, 6 Rectory Lane, Byfleet, Surrey. KT 14 7LL. Tel: (09323) 42348.

FUTURE WORKSHOPS & MEETINGS

OCT 8th FINISHING OFF THE MAPLIN MODEM (with the ACC)
The whole day is on the above, and members can look forward to finishing this Project. The day will be in the West End and there are no Parking Problems.

MKMUG our local club, every TUESDAY, around 80 - 110 enthusiasts, 5 Erica Road, Stacey Bushes. Very Close to the concrete cows and Central Milton Keynes Railway and Bus stations.

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FUTURE WORKSHOPS & MEETINGS

SEPT 29/30 and OCT 1/2 PCW SHOW LONDON (BARBICAN)
Volunteers required to man our stand - free ticket of course.
Come to the hospitality room to see a range of hardware add-ons and software. Os House will be there with a range of goods and can help on upgrades and part-exchanges.
Derrick Rowe will be in 11.00 to 3.00 showing his Model 100 database and we could have one or two others showing their wares. Interested ? then please ring Brian Pain.
Hospitality room - Chartered Accountants Students Library, London Wall just off Moorgate.
We finish off with a trip to Samuel Pepys and will sample their cold table and view over the Thames.

EDITORIAL

Since I have not heard any howls of anguish concerning the new format, and the couple of members I have actually asked were quite complimentary, I shall assume that most of you are in favour of the "new look" newsletter. I quite like it myself, especially as it involves me in no more work than did the old format.

I have included a new local and special interest group listing. Please let me know of any errors and ommissions. I'll try to produce a sorted version when it is next included, in a couple of months time.

Howard Wright, who normally prepares the annual index, is unable to do it this time. Can anyone else help out? Please give me a ring first; I don't expect lots of you to immediately start indexing, but I would like to avoid duplicated effort. It would be an ideal application for MDBS, but I just do not have the time to input the data.

Please excuse my enthusiasm for the C programming language. I am in good company, though, as Microsoft, Digital Research and MDBS all do their software development using C, and the current issue of Byte is a special C issue. I hope to have available shortly a low-cost (£30 or so) small C compiler for the Model I/III.

Leon Heller

GUIDELINES FOR CONTRIBUTORS

1. If possible, send material in printed form.
2. Scripsit or Pencil disks/cassettes are acceptable.
3. Ensure your ribbon is in reasonable condition.
4. Printer output should be on A4 paper if possible.
5. If you send in hand-written material, write legibly.
6. Do not fold the sheets when posting them. Use a large envelope and keep them flat.

Leon Heller

FUTURE WORKSHOPS & MEETINGS

DECEMBER 17/18 OR JANUARY 7/8 MODEL 16 and MACHINE CODE Now in Milton Keynes, transferred from London due to costs. With Derrick Rowe, Jim Norris, John Newgas, Leon Heller, John Couch and Laurie Shields.

FEBRUARY 1984 Woughton Campus, Milton Keynes with the same caterer as we had last year. Remember this is being held in 1984, and MK is the centre of Purpose built IT units. Cambridge, Gloucester, Birmingham and York are back next year. Please support these days and all feedback is most welcome.

NOV 18/19/20 SWINDON Details on Page 14

MEMBER'S LETTERS

You may be interested to know, if you don't already, that Micronet (Prestel for micros) is expected to be available for Tandys fairly soon. The machine must be at least 32K and an acoustic coupler at about £50 to £60 must be purchased. The waiting list is now open and I expect more detailed information by the end of the month.

Laurence Cohen,
17 Gracefield Gardens,
Streatham,
London SW16 2SU
Tel. 01-769 6350

(* And about time too! Micronet have had our software library for about a year. In fact, the library has been accessible on Micronet for a few weeks now. You can access Micronet with an ordinary 300 baud modem, of course, but it means a call to the London Dryden computer, rather than your local Prestel computer. The software downloading from Micronet worked very well when I tried it on a Beeb recently. It would of course be possible to access the TRS-80 library with a Beeb, download programs, and then transfer them over to a TRS-80 for execution and saving to disk/cassette. LFH *)

I would be interested to contact other Tandy users, both business and educational, in the London area.

Mrs Wendy Datta,
41 Walnut Tree Road,
Greenwich,
London SE10 9EU.

At present I am running the following unit:-
TRS-80 Model I Level II
CTR-80 Cassette Recorder
Expansion Interface with 48k total
Microline U80 Line Printer
4 Cumana Disk Drives - 2 * 100 tpi & 2 * 96/48 tpi
Modifications to the basic cpu include a 80-GRAPHIX high resolution graphics, Tandy lower-case & data separator modes.

My main interests are hobbyist, Basic & software DIY.

You may be interested to know that the two dual Cumana disk drives are contained in the one case only slightly larger then one of the older Cumana drives. They were originally designed for the BBC computer but have been adapted by them for me to run with my Model I. I have found them an excellent product.

This combination of drives does allow me to use all the commercial programs available for disk that I have found and copy them on to 88 track disks at both 100 tpi & 96 tpi format.

If any group member has a disk that they want to copy into any of the arrangements I have, I would be happy to do the copying for them for the cost of the return post. If they would send me a formatted disk in the DOS they require to use.

A. E. Flight,
Chobham 7663

PROBLEM SECTION

I would be most grateful for your help on the following point. I have a two Disc system TRSDOS, model I, which I have been using for 18 months (the Trs80 was purchased two years before the discs) There have been many Bugs in my programs and,naturally, I assume that the are due to me.
However,I find a consistent problem which I cannot explain. When I am in the BASICR mode and have renumbered and Merged I get a BUG when I save to disc with the "A" option.
This is such a bad BUG that it messes up the Directory completely and any other saving or LOADing that I may try later without turning off.

I would like an explanation if possible,also advice on how I may resurect the DIRECTORY.

My TRSDOS is REV2.3 and I use most of the double saves that are recommended;but even so have some discs I would like to revive.

Dr. John Farrer,
Ingleborough Estate,
Clapham,
via Lancaster,
LA2 8DR.

(* This problem obviously calls for one of the ZAP programs such as Superzap or Super Utility. Molimerx sell several programs of this type. LFH *)

I am hoping to upgrade my 16K to 48K with one or two disks, and would be grateful for any information on how to put my system programs and cassette-based packages onto the disks.

I am also looking for a set of dust covers for my keyboard and black and white VDU. Can anyone help?

Laurence Cohen,
17 Gracefield Gardens,
Streatham,
London SW16 2SU.
Tel. 01-769 6350

(* The various incarnations of Newdos include a utility called LMOFFSET, which can be used to get system programs off cassette onto disk, and modify them so that they load into memory at a high address clear of DOS. When the loaded program is executed it is moved down in memory to its normal execution address. The program might not work in a disk environment because it clobbers the keyboard driver code, but if you first LOAD the program and then go into Level II by pressing RESET and BREAK together, and then run the program from SYSTEM, but using the new start address in high memory, it should work as usual. LFH *)

A FILE LISTING PROGRAM IN C

The following program is based upon one published recently in Byte. It lists a file to the display a screenfull at a time. To move onto the next screenfull press <ENTER>. It is written for the Model II, but could be adapted for the Model I quite easily. If anyone would like a copy of the object code (for Model II CP/M) just send me a disk.

Incidentally, the listing was transferred from the Model II to my Model I for printing, using my smart terminal program (also written in C). The smart terminal program will shortly be placed in the CP/M Users Group library.

```
/* list */
/* a file listing program for the Model II */

#include "printf.h"

/* define constants */
#define SCREEN 23
#define EOF -1

/* global definitions */
char c;
int n,nl;

main(argc,argv) char **argv;{
   n = fopen(argv[1],"r");
   if (n==0) error();
   nl=0;
   cls();
   while ((c=getc(n)) != EOF){
      putchar(c);
      more();
   }
}

more(){
   if (c == '\n') nl++;
   if (nl == SCREEN) cmd();
}

cmd(){
   nl=0;
   getchar();
   cls();
}

error(){
   printf("\nfile not found\n");
   exit();
}
```

Leon Heller

TBUG 2

At long last I am writing to let you know that I have left a copy of a modified TBUG in the program Library, under the heading of TBUG2 (on tape and disk). There is also a copy of PRBUG which is a printer routine for TBUG or TBUG2.

To operate the printer rountine (PRBUG) with either TBUG or TBUG2 you have to load PRBUG via the "System" command prompt,then load either TBUG or TBUG2 under the second "System" prompt. If TBUG has been loaded then for the third "System" prompt enter /17321, if TBUG2 has been loaded then enter /.

The modifications to TBUG were carried out using Ref:1,which was cited in Ref:2. My thanks to Michael Bootes (of Brighton) for a copy Ref:1.

The modified TBUG2 supports the following commands:

1). Verify (V) ,verifies a program on tape against the same program in memory.
2). Dump (D) ,dumps 16 consecutive memory addresses to screen.
3). After the M < address > command you can step through memory with the ENTER key forwards, and the SPACEBAR key steps backwards.

Ref:1, Curtis,H.A.,"TBUG for II"
80-Microcomputing, April,1980 pp.84-86.
Ref:2, TRS-80 Assembly language made simple. Earl.S.McCaul.

PS. I forgot to mention the modified commands :-

1) Some of the TBUG subroutines have been replaced by ROM subroutines, this has increased the available memory capacity.
2) P ; Punch command :- write to tape. Must conform to the following format P <aaaa> <bbbb> <cccc> <filename> where <aaaa>=start,<bbbb>=end,<cccc>=entry hexadecimal addresses of the program. The <filename> should comprise of six characters. This subroutine has been replaced by an equivalent ROM subroutine.
3) B ; Breakpoint command :- CD 80 43 is replaced by a one byte instruction *** EF.
4) F ; Fix command :- retrives a set breakpoint, and is used in conjunction wih the B command. This new command is now compatible with the new B command which includes an error message (E). If F is pressed when the instruction at the address is not EF (Breakpoint), then the error message "E" will be displayed.
5) (a) Space-bar ; advances from the current to the next address in conjunction with M-command, or to the next sixteen addresses with the D-command.
(b) ENTER ; backsteps from the current address in conjunction with the M-command, or with the D-command.
6) D <nnnn> ; Dump command :- displays sixteen consecutive addresses starting at nnnn, displaying the hexadecimal values and the corresponding ASCII equivalents.
7) V ;Verify command :- Verifies a tape against a program in memory. If any byte does not correspond with that in memory the recorder is stopped and an error message is displayed (E).

The remaining commands retain their original format :-

8) M <nnnn> ; Memory command :- Displays memory address, nnnn = 4-digit hexadecimal number.
9) J <nnnn> ;Jump command :- Jumps to address nnnn , nnnn is loaded into the program counter (PC) and the program is executed from this address.

10) G ; Go command :- executes program from address currently residing in the PC register.
11) R ; Register command :- displays registers

A'F'	B'C'	Alternate prime registers
D'E'	H'L'	" " "
AF	BC	
DE	HL	
IX	IY	Both with msb,lsb
SP	PC	" " " "

12) L ; Load command :- loads a machine language tape into memory.

Note :- J0000 returns to DOS if using a DISK system , or to BASIC if using a CASSETTE system. However, if the latter is being used then the "BREAK" key must be held down prior to entering the command.

****

PRBUG.

From TBUG2 use the command #J7D00 . Nothing will appear to happen until the H-command is used (press the H key).

H ; H-command :- gives a Hard copy by dumping the screen to the printer. Can be used to produce multiple copies.

BREAK ; The break key halts the screen dump. Reactivation is with the H-command.

SHIFT @ ; Returns control to TBUG2 . However, the screen dump will require to be terminated prior to this command.

J. Iman,
79 Wren Road,
Sidcup,
Kent,
DA14 4NE

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---

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

ANIMATION GRAPHICS BOARD

This is a short form of the features included on the Animation Graphics Board which is currently being sold for use with the Nascom Computer but can be used with the TRS80. My price for the board is £33.80 plus £1.75 p. & p., which includes the i/o Decoder Prom, building instructions, circuit description, software manual and software tape.

I am currently talking with TRS80 people who are getting it up and runnihg and doing a TRS80 version of the tape and will let you know as soon as we have anything concrete.

I hope this is of interest to the TRS80 User Group since the TRS80, like the Nascom, is sadly lacking in colour graphics and i/o facilities.

The animation graphics board has been designed to be Nas-bus compatible and fit into Nascoms which will accept the 8" x 12" Nascom mother board together with its associated backplane. This board contains all the essential elements necessary in creating animated audio-visual presentations, together with a real time clock and CMOS battery back up ram. These two features are useful for such applications as data gathering where the whole computer must "wake up" at a specific time, storing information in the CMOS memory and to go back into standby to be "woken up" again at the next data gathering interlude. Alternatively, an electronic diary can be formed where messages may be stored in the CMOS ram and automatically retrieved and displayed when the future time and date occur.

For inputting data an eight channel A-D chip allows inputs from sensors such as joy sticks and position indicators. Twin sound generators give the possibility of multiple wave form generation in stereo for increased animation. Any animated presentation invariably requires timing sequencesto be generated and this is most readily achievable with the on board CTC. This CTC can also be used for external timing/counting procedures since three of its outputs/inputs are available on a plug for the user.

The heart of the system is the TMS9929 video display processor. This is a very large integrated circuit developed by Texas Instruments for use with their home computer and allows very sophisticated control of pattern generation with the emphasis on shape and 3D animations. This integrated circuit is addressed as an i/o port and interfaces directly with 16k of dynamic ram, the TMS9929 supplying all the refresh and address multiplexing signals. The 16k of memory is basically used for the screen ram but is allocated dynamically dependent upon the information to be displayed. Four modes of operation are possible - graphics one, graphics two, multi-colour mode and text mode.

In the highest definition mode, the resolution is 256 x 192 pixels in 16 colours (with a restriction on 64 changes of colour per T.V. line). In the multi-colour mode the screen is broken into a grid of 64 x 48 positions each of which is a 4 x 4 pixel within which one of 16 colours can be defined. The text mode allows a screen display of 40 x 24 characters whose shapes are supplied dynamically by the user e.g. an Ascii set can be loaded into the screen ram and called up as required. There is no restriction on doing this in the graphics mode except that 32 characters x 24 are more easily addressed than the 40 x 24 in the text mode.

The video display may be visualised as 34 planes one behind the other. The lowermost plane is a back-drop plane whose colour is defined by the user. Next comes the pattern plane, defined above, where fine detail graphics designs are formed. Above these two planes are 32 sprite planes. Sprites are defined as 8 x 8, 16 x 16 or 32 x 32 pixel blocks and can be made to move in each of their appropriate planes and when overlap, eclipse the sprites, graphic and back-drop planes beneath them, hence the highest order sprite will never be eclipsed, whilst the lowest order sprite can be eclipsed by up to 31 other sprites. Objects can be formed by using a number of sprites if required and the whole object moved about the screen by defining the XY position of each of its sprites in their respective attribute table. It can be seen that shape animation movement can be most readily obtained by simply altering the XY co-ordinates on the sprites involved for their position or flipping internal pointers to point to a different set of sprite shapes in the video ram enabling a "cinema effect" e.g. an object can have four snap shots of it rotating the shapes held in video ram by sequentially altering the shape pointer and thereby strobing different rotating views on the screen.

S. J. Holmes,
"Tanelorn",
Bank End,
Micklethwaite,
Bingley,
West Yorkshire.
Tel. (0274) 568380

MAGAZINE LIBRARY

The most popular magazine for Natgug members, next to our own of course, seems to be 80-Micro, closely followed by Byte. Our Secretary, Commissar Pain, has been extremely clever in acquiring for the Group some 26 issues of 80-Micro, from January 1980 through to February 1982, plus a few copies of 80-US and Creative Computing. To be of use to Members, these should be made freely available, but the bad thing about journals is that they do not lend themselves to much handling and postage (and one copy of 80-Micro costs £1 to post anyway!).

It is intended therefore to offer a photocopy service; to do this we need both an Index to the contents, and to know how many pages each article takes. I have just completed entering this information into a commercial database program - the output is on 17 pages!

So much for the easy job! The next action is to physically update each article with the corrections that followed over the ensuing months! This will obviously take time and I am targeting this for October month end - hopefully about when you are reading this letter. Since I personally possess all copies of 80-Micro from 1982 onwards, plus many copies of Byte etc, and have access to a photocopier (@ 7p per sheet), it made sense for me to volunteer as 'magazine librarian' and when I have completed the work on Natgug's magazines then I will add my own to the listing.

Obviously the library will really be effective if any other Members care to donate their unwanted publications to the Group - single copies or a whole year's issues. Creative Computing and Computronics Magazines would be useful additions, but in particular we would like copies of the following to replace issues which unfortunately have had some pages removed :

80-Micro = 3/81,4/81,9/81,1/82,2/82
Creative Computing = 1-2/78
Byte = 4/82

You can ring me during the day, 8.30am-5.30pm, on 0202 671122, or during the evening (though I'm rarely there) on 0202 423064. If I'm not available, leave your number and I'll call you back. Alternatively, you can write to me, David Washford, at 1 Alexandra Road, Bournemouth, BH6 5JA.

Elsewhere in this Newsletter you should find a reference to the Catalogue Index for the above articles. Just watch this space for an announcement of how to obtain *your* Library listing!

David Washford

CBASIC COMPILER (CB80)

I am currently working on a massive medical records system using the MDBS III database management system on Onyx hardware (MP/M, three users, 256K RAM, a 40Mb hard disk and a tape streamer). The host language is Digital Research's CBASIC (CB80) compiler which runs under the CP/M and MP/M operating systems. A couple of people whose judgment I respect recommended CB80 to me, and I have not been disappointed.

CB80 is based on the CBASIC language, but whereas CBASIC compiles to intermediate code, which is then interpreted by a run-time system, CB80 compiles to quite compact, fast, native code. You write your programs using a text editor (I am using Wordstar) and the compiler generates a .REL file, which is then linked and loaded in the usual manner, to produce an executable .COM file. CB80 does not use line numbers, and labels can be numeric or meaningful alpha labels. Nice long variable names are allowed. The nice thing about CB80 as far as I am concerned is the multi-line function facility. You can use these functions just like procedures and functions in Pascal, with variables local to functions. Moreover, using the library manager you can create a function library which can be called from within several programs, provided you define the functions as external to your program.

To illustrate the flavour of CB80, here is the initial menu program for the aforementioned medical records package. Points of interest are the inclusion of the file SUBS.INC, which contains all the external function definitions, which look after things like screen handling, input validation, etc. Functions are CALLed by name. I must say that I prefer the Pascal and C approach where you just use the function name to call it. In C, for instance, you would just put:

```
cls();
```

to clear the screen, provided you had such a function available, of course.

The one drawback to CB80 is the price; it will cost you about £300, I think. However, it is a must if you wish to write programs to a professional standard, but don't want to learn a completely new language.

```
REM* * * MENU * * *


REM MAIN MENU PROGRAM
REM WRITTEN BY LEON HELLER
REM VERSION 1.0 - 8/8/83

REM BRING IN EXTERNALS


    %INCLUDE SUBS.INC

REM DISPLAY MENU
REM ************

    CALL CLS
    CALL PRSTRING(1,23,"* * * XXX MEDICAL DEPARTMENT * *
*")
    CALL PRSTRING(3,1,"MAIN MENU")
    CALL PRSTRING(5,1,"1. ADD A MEMBER OF STAFF")
    CALL PRSTRING(6,1,"2. EDIT STAFF DETAILS")
    CALL PRSTRING(7,1,"3. ADD PERIODICAL EXAMINATION
DETAILS")
    CALL PRSTRING(8,1,"4. VIEW/PRINT STAFF DETAILS")
    CALL PRSTRING(9,1,"5. QUIT")
    CALL PRSTRING(24,1,"SELECT OPTION:")
100 N%=GETNUM%(24,16,1)
    IF N%<1 OR N%>5 THEN 100
    ON N% GOSUB 200,300,400,500,600
    GOTO 100

200 CHAIN "PROG1.COM"
300 RETURN
400 RETURN
500 RETURN
600 CALL CLS

    END
```

Give me a ring if you would like more information about CBBO.

Leon Heller

WEST LONDON GROUP

Nick Robinson wishes to remind members living in the West London area that the West London Group still meets at Northwick Park Hospital. Contact Geoff Smith on 01-950 6345 or John Carne on 01-993 1462 for further details.

Word processor update. COPYART 2

Copyart 1 was described as a word and graphics processor, and consisted of a word processor which included pixel graphics and giant characters. The new version, Copyart 2, is described as a **word graphics data processor**, and really comes into the same category as CPM word processors like Spellbinder, which call themselves Office Management Systems since it now includes sorting, simple maths and a mailing list programme.

There are a few changes in the actual **text processor**, which is still the easiest to learn and use of the many I've tried. A rapid *line delete* simply eats lines ,very fast,as long as your finger is on the Q key. In-line *italics* and super- and sub- scripts have been added to **boldface** and <u>underlining</u> as single control key commands, the *cursor speed* is easily changed, delete and insert can now be done by word (w, of course) as well as character and line, and the buffer can be e unloaded a line at a time. *Wild cards* can now be used with the Find / Replace function although there is still no case independent search. If you previously used **Scripsit** then Copyart will load and automatically convert your Scripsit files, and it can also read **Visicalc** files (I've not tried this myself).

For **printing** the main changes are the addition of *two column* printing, although this can't be used with Hi-res graphics, and needs two disk drives and if your printer has *Hi - Res graphics* command SZ=5 puts Copyart into Hi Res mode.

The **pixel graphics** now include *automatic drawing* of lines, circles (or what passes for circles on the Model 1) and squares / rectangles. The ends of the lines, radii or diagonals are simply set when the pixel is in position, and a single key command draws the shape.



This was drawn using automatic graphic functions and printed in Hi-res mode, after the main body of the text

The **sort** works on single lines of text and simply sorts by column, starting wherever you put the cursor. It will sort alphabetic or numeric text, ascending or descending, and seems to be as fast as CMD "O" or "Q" on the small amount of data I've tried it on. The most likely use for this function is obviously indexes and mailing lists and if you want to sort multiple line data like name / address lists , you need to convert it to single lines (easy with the W command) before sorting, then use W to restore it to its original layout. Since Copyart allows lines up to 255 characters wide, most lists can easily be sorted in this way

The **math** function allows simple addition, subtraction, multiplication and division *either in columns or along* lines, with subtotals if wanted. The only restriction is the obvious one of making sure columns of figures are

correctly lined up.

The manual has been enlarged and the ommisions rectified. It is now over 150 pages, plus appendices for each of the printers now supported ,but remains simple and easily understood. There are summaries at the end of each section, as well as a list of contents AND an index - all of course done with Copyart itself. A quick reference card is also included, but seemed to have a few omissions. Apart from that it seemed to me a good example of what a manual should be. Like the earlier version you are unlikely to need to refer to it much, after the first run through and if you do forget a command there is now an on-line HELP file.

In **summary**, a lot of new features, which, while not strictly word processing ones, will be useful to anyone who wants to do a bit more than write simple letters with their word processor.
There are of course, separate programmes which will do all these extras, but the advantages of being able to do them without changing programmes or putting data into a Basic programme are self-evident.

Naturally there is a price to be paid and in this case it is not cost but size. The 5 CMD files that now make up the package take up over 80 K which means that they will not fit on to a 40 track single density system disk. However, it is not necessary to have them all on one disk. The HELP file and Mailmerge are each 11 Grans,and if prepared to do without these files single drive single density owners will be able to do everything except Mailmerge and multiple column print ,without disk swapping, as long as the text file is less than 14 Grans. Larger files are a bit more inconvenient as you have to remember to change disks between reading/saving the text file and using the Graphics/sort/math or DOS functions.

Over the last few months I have been looking at CPM word processors for our laboratory system (20 Mb Superstar and Video Genie 3) and, thanks to Colin Ashford and Heinz Woolf, was able to try out Wordstar , Magic Wand and Spellbinder (we decided on Spellbinder) . The Genie 3 runs equally happily under Newdos 80.2 or CPM 2.2 and the fact that, wherever possible, I prefer to use Copyart should speak for itself.

Ariela Taylor
54 Barn Hill
Wembley

FUTURE WORKSHOPS & MEETINGS
==========

NOV 18/19/20 SWINDON
FRI Case Studies by Leon Heller, Dave Washford, Brian Pain, Laurie Shields. (Stock 3 Depots & reading cards via RS232)
SAT Patching Scripsit Geoff Smith, Machine Code-Graphics & Reading/Writing to Disk Laurie Shields,Model4 & Hard Disk Leo Knaggs, Model 100 & Prestel (Prov) Charles Davies, Speech Synthesis Carl Rabe, Hooking the 68000 or 8088 to the Model One Leon Heller, sorting Demonstrations Laurie Shields & Brian Pain.
SUNDAY EPSOM and ROMS How to get more out Don Bannister(0232-668899)
EPSOM and SOFTWARE Jim Bartholomew will give some of his ideas on how to get more out of the printer.
********* This day could be just a little unique
********* so try & support this weekend

EXTRA MEMORY FOR YOUR VIDEO GENIE

You can fit 64k RAM chips to your Video Genie, and provide a full memory bank from 0000H to FFFFH free of any Prom based operating system. This is done by replacing the 16k RAM chips located at the top of memory, in addresses C000H to FFFFH, by 64k chips, and making some address selection changes to give the necessary bank switching. Obviously this should not be attempted unless you are fairly confident of your hardware design abilities. The mods are relatively straightforward, quick, and cheap. In my case, I am using the extra memory to run CP/M, but there are many other possible uses for the extra bank of memory.

The key to the modification is in the design of the 64k RAM chips. The pinout of these devices is almost identical to that of the 16k RAM chips used on the expansion unit board. In addition the refresh requirements are the same, and the power supply arrangements can be changed to allow for the single rail requirements of the 64k chips. The data that you will need to understand and take into account, is available in the following:

Hitachi Data sheet for HM4864 Dynamic RAM Video Genie Service Manual Video Genie EG3014 Expansion Technical Manual

If you are still interested in carrying out this modification, I suggest that you aim to produce the software interface described below:

MODES-two modes of operation; TRS and RAM. There must be an external switch such that the system can be powered up in the TRS mode, or switched into this mode if all else fails. The TRS mode is identical to the standard Video Genie with a full set of memory chips. The RAM mode switch allows software switching via an input/output port between the two modes. When in RAM mode the memory map is replaced by 64k of RAM, with the top 16k common to the TRS mode. This enables communication between the two modes, and is particularly suited to CP/M operation.

MODE SWITCHING-this is accomplished using bit 6 of port FFH. Logic 0 for RAM mode, and logic 1 for TRS mode.

The first step in the modification must be to change the operation of Z9 on EG3014 sheet 2, in order to multiplex the top two address bits (A14 and A15) from Z9. The standard circuit uses pin 9 on Z9 as an inverter for Z10 pin 6 output (presumably to save gates). Tack in an extra quad two input nand gate, cutting the necessary tracks in order to do this. This change can be tested now since it hasn't altered the basic operation at all. The next stage is to set up the mechanism for providing a bank switch signal from port FFH into the expansion interface. I used the spare gates and flip flops on the VG interface board (sheet 2 in the Service Manual). See Figure 1 at the end of this note. The link to the Expansion Interface can be made using the Phantom line and Memdis if you link pins 4 and 36 of the 50 pin S100 connector. This stage can also be tested independently. The next stage is to carry out some surgery on the EG3014 Expander

board.Refer to sheet 1 of the Technical Manual,and Figure 2 at the end of this note.The objective is to ensure that when MEMDIS is pulled low and all memory is switched out,the 48k signal into Z37 pin 9,Z32 pin 2,and Z22 pin 13,goes low and enables the RAM chips Z1 to Z8.The final step is to remove decoupling capacitors and unwanted supplies from the RAM and connect up the extra address line to Z9 pin 9.Buy the 64k RAM chips and plug them in.By pure luck and step by step testing,my modification worked first time!

The instructions I have given have been aimed as guidelines only,and it is recommended that you spend a couple of weeks thinking about the modification before starting.Don't start unless you feel confident, since it is possible to do a great deal of damage.However,if you do succeed,you can have a remarkably cheap CP/M system.

Malcolm Kennerley.

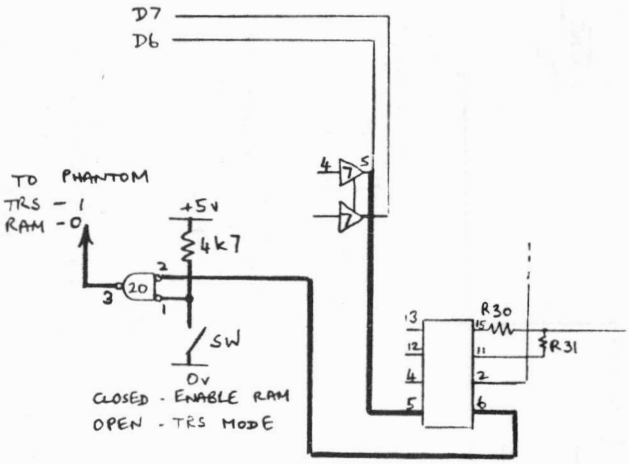


FIG 1 BANK SWITCH

(EXTRA MEMORY FOR V-G)

WMK 8/8/83

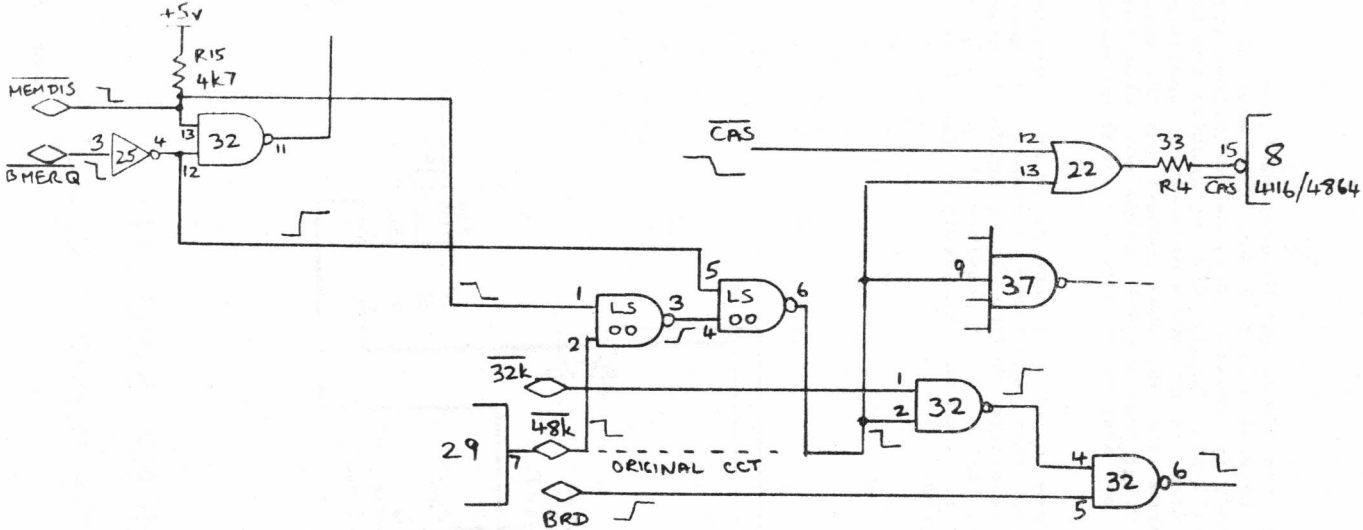


FIG 2 64k RAM ENABLE

(EXTRA MEMORY FOR V-G)

WMK 8/8/83

MICRO NOVICE NOTES
— ONE YEAR LATER

Fellow-novices, -- for I am still one of you -- I want you to know that I hear your occasional muffled cries of desolation. (Example: C. Philip, "Any others out there like me?". Newsletter, Jan. '83.) In fact, those cries are still one of the few parts of the Newsletter I completely understand.

Nearly two years after the micro plunge, I can cross my heart and repeat what I wrote in last October's Newsletter -- that my system is still the bare bones, Level 2 and Epson 2 with cassette Scripsit and without any of the usual enhancements, c/o Holmes or stringy floppy or disk or Graftrax chips.

We TRS True Primitives (TRS-TP) must stick together. There can't be many of us left now. I haven't a single act of upgrading to confess to except the one noted first below -- and that hardly disqualifies me from the TRS-TP club.

1. SCRIPSIT PATCHED AND SPEEDED

The patch (for Epson) I already possessed from early days. The integration of the patch I also had when I wrote. But the fast-load copy just missed being celebrated in that article. It supplied the most crying need of my first micro year so satisfyingly that I lost all urgency to supply any further needs in my second.

It wasn't just that it was faster, reducing Scripsit loading from 3 minutes to 1. Much more important, it was incomparably surer. I had been at my wits' end with Scripsit, or more exactly with Scripsit patched: it was getting to take 10 tries or more to get it loaded just once, and even a successful load was a nail-biting and brow-mopping ordeal.

It was like going from purgatory to heaven to be able to seal my volume control and never touch it again, and to be able to start in the morning by slipping in the cassette, pressing the play button, and forgetting all about it while whistling a tune and putting paper in the printer. It has been so much like heaven to see my program autostart in a minute, time after time and month after month from the same tape copy, that the hankering for upgrading was held at bay for a year by the instinct to leave well enough alone. When you've been in purgatory you never want to go back there.

This breakthrough I owe to the program-for-making-fast-copies-of-programs "B17", publicized in the Newsletter and later lent to me by ERNEST BEBBINGTON. His name must be addition no. 1 to the P. DIGAN HONOUR ROLL OF HELPFUL TRS-VG USERS that I listed last year. The only snag with B17 is that it is made to work only with 16K, which explains more precisely why I have stuck so long with 16K, doing my word-processing a page at a time. To be ready for operation with 48K, thanks to a Holmes board or equivalent, would require copying Scripsit and patch again with another program for making fast copies. I got such a program, "Rapid System

Loader 3.0", from MICHAEL J. CROSS (another name doubly qualified for the Honour Roll), and have got to the point of making copies of my patched Scripsit with it, and even to the point of getting one copy loaded -- once! Alas, that's not yet different enough from the way it used to be in purgatory. I don't know whether the difficulty is with the 16K, but I'm not yet ready to take a chance on 48K.

OTHER DISCOVERIES IN YEAR 2

Anyone who has read the foregoing will not be expecting too much from what follows. Let some other contributor blow NATGUG's mind: let this piece be of some humbler use to some "others out there like me".

(2) Has anyone else overlooked the Scripsit "Insert Block" command? I did for over a year, misled by that same oversight in the Scripsit Instruction Summary Card. The operation is properly provided for in the Scripsit manual; but in the card the instructions for "Inserting Text" provide only for inserting one character or several. What an omission! I know of no other such failure of the card to do justice to the powers of Scripsit. It would have been much less of a loss if they had forgotten the "Exchange Block" command, since it can be useful much less often than the "Insert (i.e., copy) Block" command, and indeed could be easily replaced by the latter.

(3) About the one-character-in-a-million "stubborn" discrepancy between screen and printer I mentioned last year, I got all the light I needed on it in a kind letter from BILL COWHIG, including the tip to deal with the offending word by deleting and reinserting, which I hadn't thought of but which always works. More recently I am having a new kind of rare discrepancy, this time affecting several characters but not stubborn, i.e., not consistent from one printing to the next. I think it happens only after the system has been out of use for a while. I am wondering if this is where those gold-plated edge connectors I read of become indicated.

(4) On the question of whether it is really necessary to avoid turning on or off the printer during computer use, I was assured by others and have proved by experience that there is no such need whatever with Tandy and Epson. You can feel free to have the printer on only when you need it. In my experience the danger of hanging is nil; and Scripsit will even remind you when you need to turn on, at least the first time you forget.

(5) On the negative side, one finding I have been reconciling myself to is that my Reset button doesn't seem to deliver the goods. It doesn't work even for getting out of Scripsit, much less for getting back in. It hasn't worked in the other few cases also where I have had occasion to call on its services. When anything goes wrong, I know only one thing to do: switch off and start again from zero. What bothers me is whether this is one of the sleeping spooks that are going to haunt me if and when I brave the terrors of disk. I haven't spent a penny on repair or maintenance since I started. Can my luck hold?

(6) Ever find yourself typing a lot of text between two other slabs of text? Your problem will be to keep from overtyping the second slab without having to push it away repeatedly with "insert line" commands. Simple: put a block marker at the beginning of the second slab. Though the manual doesn't mention it, a block marker is made of sterner stuff than other characters. It never lets itself be overwritten, but jumps out of the way of the cursor automatically, together with all text that follows.

(7) Ever explore that "widow suppress" facility? You'll have found that, like "delete para.", it works only when you have defined your paragraphs with paragraph end markers.

Ever try it when PF=2 -- that is, when you are leaving blank lines between paragraphs? You'll have complications with that if you leave it to Scripsit. Suppose a blank line is going to be the first line on a page. Scripsit steps in to prevent it, not sensibly by just suppressing such a line altogether, but by dragging forward a line from the previous page to make the blank line come second. What this overlooks is that an "orphan" line ending a paragraph on the first line of a page is just as unsightly and undesirable as a "widow" line beginning a paragraph on the last line. In fact you end up with even more orphan lines than you would have by chance alone.

For me that is one more reason not to leave it to chance and to Scripsit to decide where a page is to end. I already had these other reasons: the paragraph command is no faster anyway; the alternative of using the enter/return key and the space-bar is easier on the fingers; and the resulting display is pleasanter to the eyes. Having thus stripped Scripsit of control of my paragraphs, I prefer further to strip its margin format controls of the last word on where a page is to end, by beating these controls to it with page markers whenever and wherever I see fit. That, of course, takes more time, not less, but it's what you must do if your concern for layout embraces orphans as well as widows.

UNFINISHED BUSINESS FOR YEAR 3

Apart from memory expansion for less plodding word-processing and for a beginning on data-processing, my big need remains still better Scripsit access to Epson capabilities: graphics, alternative character sets, Graftrax italics, mid-line print mode changes, and easier underlining with justification.

Merely being stuck at the MX-80-2 stage of Epson technology doesn't mean you can't have luxuries like underlining with justification, subscript and superscript, and even mid-line print changes. You can fake all of these with the existing Epson patch if you're crazy enough to take the time.

You can even underline the last character of the last word of a justified line by letting Scripsit do it for you. Just print any other character (a full stop will do) anywhere apart on the underline line. Scripsit justification will then

```
; WRITE/DEM
ORG 8000H
LOAD 8000H

VID:EQU 33H
VDCB:EQU 401DH
ERROR:EQU 4409H

INIT:EQU 4420H
VERE:EQU 443CH
READ:EQU 4436H
CLOSE:EQU 4428H
OPEN:EQU 4424H

AREAD:EQU 13H
AWRITE:EQU 1BH

START:EXEC START
LD A,28 ; HOME CURSOR
CALL VID
LD A,31 ; CLEAR TO EOF
CALL VID
LD HL,NAMEB
LD B,24 ; NUMPER OF CHARTERS
CALL 40H ; GET INPUT FROM KBD
LD HL,NAMEB ; SORCE POINTER
LD DE,DCB ; DES POINTER
LD BC,25 ; BYTE COUNT
LDIR ; COPY MEM FORM HL => DE FOR BC
LD HL,IOBUFF
LD DE,DCB
LD B,1
CALL INIT ; OPEN/MACK FILE
JR NZ,ERRH ; JUMP NO ERROR

INLOOP:CALL 49H
CP '@'
JR Z,DONE ; JUMP IF EXIT KEY
PUSH AF
LD DE,VDCB
CALL AWRITE ; WRITE TO SCREEN
POP AF
LD DE,DCB
CALL AWRITE ; WRITE CHARTER TO DISC
JR NZ,ERRH ; JUMP IF ERROR
JR INLOOP ; GO GET NEXT CHARTER

DONE:LD DE,DCB
CALL CLOSE ; CLOSE THE FILE
RET; JP Z,402DH ; RET TO DOS
ERRH:OR 0C0H ; SET BITS 6 & 7



CALL ERROR ; PRINT THE ERROR
RET;  JP 402DH ; RET TO DOS

NAMEB:DS 25
DCB:DS 32
IOBUFF:DS 256
END
```

This page is discussed on page 37. At the moment they are on my college MODEL 3, but could be made available on model one.

DOT/ASM: Aug 83

```
ORG 8000H
LOAD 8000H
ZEN:EQU 5693H
START:CALL 2BH
JR Z,NOCH
CP 13
CALL Z,ZEN
LD(DELAY+2),A
NOCH:LD HL,(DOT1)
CALL MOVE
LD(DOT1),HL
LD HL,(DOT2)
CALL MOVE
LD(DOT2),HL
LD HL,(DOT3)
CALL MOVE
LD(DOT3),HL
JR START
MOVE:PUSH HL
LD A,R
RLA
RLA
RLA
RLA
RLA
LD E,A
LD D,0
ADD HL,DE
LD A,H
CP 40H
JR C,NOTBIG
LD H,3CH
NOTBIG:LD A,R
LD(HL),A
DELAY:LD BC,2A00H
LOOP:DEC BC
LD A,B
OR C
JR NZ,LOOP
POP DE
EX DE,HL

EX DE,HL
RET
DOT1:DW 15705
DOT2:DW 15815
DOT3:DW 16000
END
```

'push the stop to the left margin and the underline all the way to the right. You can then erase the stop with Tippex if you want to. Crude but simple and effective, as you can see from the example.

But what's this about "mid-line print mode changes"? How can you fake that with Epson 2? Again, as in the case of underlining, subscript, and superscript, the trick is to make the most of the Epson line-feed versatility. A line-feed of one dot, or .014 of an inch, which is what you get with the command ">PVA1" on my patch, will look to the eye almost like no line-feed at all. When it is a question of switching in mid-line from normal to double printing, or vice versa, you can even reduce the discrepancy to .007 of an inch, because double print **comes down half a dot below normal print.** To be sure, you have to juggle with spacing to make one mode begin naturally where the other leaves off. But I never promised you a rose garden with Epson 2 and a cassette Scripsit patch.

The real question is: when can we of the micro underclass get something less cumbersome and more comprehensive by way of an Epson tape patch? I can't underline or embold as often as I would want to as long as it is that much trouble. I'd feed Graftrax chips to my Epson if I could get at Graftrax italics within Scripsit (and, again, get at them easily at any point in a line). I want to use French and Spanish characters or accents, but can't at present get at most of them even if I could switch between international character sets. I haven't done a thing yet with graphics except to verify that my Epson can do bit image graphics and do them in high resolution.

When I raised this yowl last year, A. J. Harding told me a more advanced patch was in preparation. When I inquired about it early this year, I got no more light on that point. Meanwhile the sirens of new-new and cheap-cheap technologies are beckoning. Yet I feel I could happily stick with Level 2 and Epson 2 and cassette quite a while longer, if only I could simultaneously solve the problems of (a) expansion to 48K, (b) fast patched Scripsit working as well with 48K as it is working now with 16K, (c) an italic capability in the Epson, and Scripsit access to same, (d) further patch capabilities for accents, graphics, and easy mid-line print changes. I could even live with just (a) and (b) for a while if I could step into that higher heaven without fear of falling back into the old purgatory.

MEANWHILE, WHAT'S WITH TANDY?

One more good question raised by C. Philip. Here they are, still calling themselves "the biggest name in little computers" (PCW. Aug. '83); even claiming to be "first to the $1 billion line" in '83 (Micro, May '83); with models 16, 4, and 100 to keep them in the news. Yet to judge by most of the market figures I see (wildly inconsistent anyway, God knows), and by the lack of TRS advertising in the media I see, they're getting lost in the crowd. Does anyone know the truth?

Parig Digan, Dalgan Park, Navan, Ireland

Can I formally advise the current membership that all of us regulars, weekenders & veterans enjoy helping those with a problem. Just pick up the 'phone or jot down the necessary background and send it in. Over the last 5 years (nearly) just occasionally I hear somebody be a little patronising, which given the human psyche can only be expected. Brian Pain.

GENERATING HISTOGRAMS

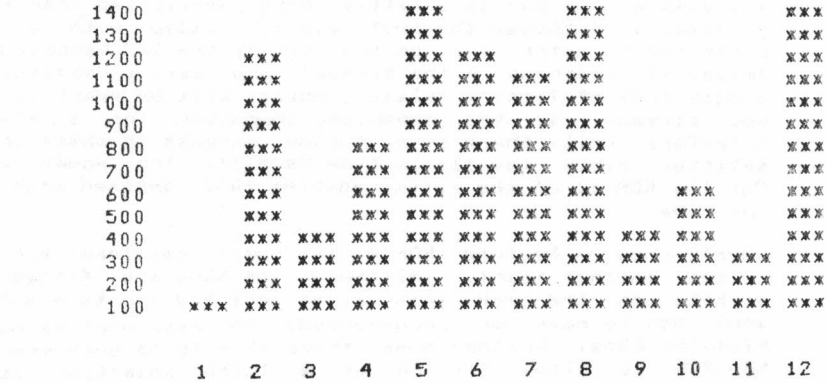
Whilst it is quite easy to generate histograms or bar charts if they are turned on their side, by using the ordinary PRINT or LPRINT statements, the production of histograms running up the screen or page is slightly tricky. The following program for the Model II written in MBASIC illustrates the technique. The histogram is first stored in an array, using a pattern of ones and zeroes, and then output to the screen or printer a line at a time, from the top downwards. The data are normalised first to suit the Model II's 80 by 24 display. With a few minor changes this program will work with the Model I/III.

```
10 RANDOMIZE
20 INPUT "MAXIMUM";N
30 MAX=0
40 DIM A(12),B(12,15)
50 FOR I=1 TO 12
60 A(I)=RND(N)+1
70 IF MAX<A(I) THEN MAX=A(I)
80 NEXT I
90 '
100 FOR I=1 TO 12:A(I)=INT(A(I)*(15/MAX)):NEXT I
110 '
120 FOR I=1 TO 12
130 FOR J=1 TO A(I)
140 B(I,J)=1
150 NEXT J
160 NEXT I
170 '
180 PRINT TAB(15);
190 FOR I=1 TO 15
200 IF 15-I<>0  THEN PRINT USING "####";(15-I)*N;:PRINT "
";
210 FOR J=1 TO 12
220 IF B(J,15-I)=1 THEN PRINT "*** "; ELSE PRINT "    ";
230 NEXT J
240 PRINT
250 PRINT TAB(15);
260 NEXT I
270 '
280 PRINT TAB(20);
290 FOR I=1 TO 12:PRINT USING "####";I;:NEXT I
```

Leon Heller

Maxwell Stamp would like to buy, for personal use, interesting, fully documented, error-free secondhand programs for Model 1 (with MX80 III), such as Electric Webster, Zorloff II, Copyart II, Data Writer, ENB, Crayon De Luxe, GEAP, Dot Writer, Corplan, Orchestra 80.

Please write or phone to:
Mulberry Green Farmhouse,
Copford, Essex.
(0206-210231)



REVIEW of GNOMIC FEATURE ROM "B"
.....

The Feature ROM'B' from General Northern Microcomputers contains several utilities that are normally loaded from tape as required, with all the bother that the procedure involves, such as CSAVEing your program first, setting MEM SIZE, CLOADing a renumber program or compress utility and then reloading your program etc.,etc.

The ROM sits in an area unused by the Tandy ROM, so takes up no user RAM (again, unlike most tape utilities). It contains the following aids:

0 Return to Basic.
1 Keyboard Invert.
2 Basic Renumber.
3 Single Basic Keywords.
4 Flashing block Cursor.
5 Basic program Merge.
6 Basic program Compress.

These options are displayed by SHIFT/BREAK, once a short initialisation routine has been typed in direct mode. The number of the option required is then entered.

Renumber changes all line numbers, GOSUBs, GOTOs, ON GOTOs etc., starting at 10 with increments of 10. Single keywords are perhaps a little strange, (P=3.141526535898?); it would be attractive, though no doubt increase the cost, if the user could define these keywords when ordering. Nice to see that the those followed by brackets, such as STRING$, CHR$ etc., have the first bracket symbol included. These keywords are called by SHIFT/A-Z. Flashing cursor changes the standard character to a graphics block, CHR$(176). Merge allows a Basic program in memory to be protected while a second programs is loaded. Renumber is called automatically at this point; it would have been better to omit this call because, if merging a suite of sub-routines with defined line numbers, these will be changed. Compress removes all redundant spaces and REM's.

Installing the ROM is a little more complicated than first envisaged. Although the neat PCB is fitted with an edge connector to match that on the rear of the TRS keyboard, it leaves it 'flapping in the breeze' and easily damaged. So a case (one of Tandy's plastic boxes) will be required. If you already use the expansion connector for a printer interface unit, there is a further expense in obtaining a splitter cable (available from GNOMIC). The power supply for the ROM is of the mains adaptor type combined with a 13 amp plug.

GNOMIC show a Feature ROM'A' in their catalogue and this raises another point. Although the ROMs are fitted into sockets on the PCB, this is an ordinary IC type and it would not be easy (or recommended) to keep unplugging and plugging ROMs. Neither does there seem to be much space on the PCB to allow fitting of a 'zero insertion force' socket. Such a socket could b fitted to the case, with a connector to the PCB ROM socket, but this is all extra cost again.

The instructions are rather poor copies and while covering the basic operating details, could be expanded. The instructions also fail to mention the Screen Print facility, (though in the ads), called by holding down keys JKL. This can be done at any time, even when a program is running. There does seem to be a slight bug here: if the last line displayed is:

PRESS ENTER TO CONTINUE

when JKL are pressed, the last character (E) is erased and not printed. It's easy to overcome this, just leave a space in the program line after the last character. If you have a full screen of graphics though . .

On the whole, once installed, the Feature ROM is well worth the cost and the time saved over using tape utilities when developing long programs is a big bonus.

Pete Bamfield
****

MODEL 100 IMPRESSIONS

As a new owner (one week) of the new Model 100 I thought others might be interested in my first impressions.

In general, I can confirm the more widely publicised reviews which are highly enthusiastic, however I do have a few reservations. These are:-

BASIC. This is quite comprehensive, although, I would disagree with the reviewer in July 8C MICRO who states "The Model 100 gives you a Basic that is more powerful than any I've ever seen,far better than the Basic on Radio Shack's other computers" in fact it has definite disadvantages. There is no DEFFN, DEFUSR, DELETE,or AUTO commands, neither is there a RENUM facility.
There are some new keywords such as ON TIME$ GOSUBNNN and ON KEY GOSUBNNN which whilst they make use of the extra interrupt facilities in the 80C85 CPU I cannot, at the moment see their practical use. Again, to those accustomed to the EDIT facility in the other Tandy models will find it ratner tiresome having to go back and forard between the Text Editor and the Basic Programme to make even the slightest correction. That is unless you opt to rewrite the line completely.

TEXT,SCHED,ADDRS Modules are very good and extremely useful for the travelling business man, with speedy look up for notes and telephone numbers etc.

RS232/TELCOM. This appears to be a very sophisticated piece of software (the hardwire modem is non existent on the U.K. model - separate acoustic coupler has to be used - this I understand has to do with British Telecom approval).
I have been able to connect to bulletin boards without difficulty.

One can get used to the missing parts of basic, but I consider the most serious drawback is, there is no real provision for operating a serial printer through the RS232. I have managed to make one work through the TELECOM mode but so far it has not been entirely satisfactory, I cannot get the machine to handshake, so have to operate at 110 baud, also there is the problem of embedding printer control codes(provision is only made to embed these in text for outputting to a parallel printer). I contacted Tandy - Wednesbury but they could only tell me that I would have to experiment, as they do not have a serial printer at Tandy's !!!!.
To put it mildly this seems absurd, as if this machine is designed for the travelling businessman then when he arrives at another office, he would be tied to a parallel printer only. In my experience a fairly high percentage of companies using word processors (especially those using CP/M are on Serial printers).

To those of you who have read the July 80 MICRO I would in general endorse all comments, with the exception of my above comments, and that I am pleased with my purchase - doubtless things will improve on closer aquaintance or I shall have learned to live with them.

The portability cannot be denied, I am writing this in bed,and will be printed out later on the Silver Reed EX55 Daisywheel Typewriter (with a serial interface).

Charles H. Davies
01-393-9255

(* Charles has just told me of another problem. He is unable to download files from a remote system. It looks like a hand-shaking problem to me. Has anyone got any ideas? LFH *)

EDGE CONNECTOR PROBLEMS

I have been meaning, for some time, to write in connection with complaints about edge connectors.

So far I have not had a lot of trouble with the edge connector on my keyboard, but I have had some possibly relevant experience with a printer.

The trouble in that case stemmed from exactly the same type of edge connector as the TRS80 edge connector, that is to say one in which the insulated wires are pressed into connections on the back which bite into the wiring. Briefly what happened was that I suffered a head burn out which proved to be due to a failure to re-set on switch-on. After a good deal of research I discovered that the connector which connected the mains transformer to the PCB was the insulation displacement type and there was an erratic connection which resulted in the supply voltage falling below 5V. Cutting all these off and soldering them has resulted in a complete cessation of the trouble.

I suspect that some of the complaints of edge connector trouble with the TRS80 may be due to this cause, although a further contributary case may be the relative stiffness of the ribbon cable used.

M. C. MATTHEWS

SWITCHING THE MODEL III CASSETTE MOTOR ON AND OFF FROM BASIC

The following may help Ken Rogers and others with this problem (Newsletter 5(1), p. 25). See Model III Technical Reference Manual pp. 21-3 for documentation. The Model III cassette motor is switched on by setting bit 2 of Port 236, and switched off by resetting it. Hence in most programs OUT 236,2 will switch it on and OUT 236,0 will switch it off. In immediate mode one must enclose the OUT 236,2 in a loop e.g. FOR N=1 to 1000:OUT 236,2:NEXT. Port 236, however, also affects other things e.g. the video double-size characters, video waits, alternate character set, and I/O bus. If you have a beautiful screen display with double-size Japanese characters and use OUT 236,2 to switch the cassette on, you will find your display showing single-size Greek characters instead! If you are using the I/O Bus the effect could be more serious. You can check for these conditions by reading INPUT from Port 255. The following page gives a demo for alternate characters and double-size characters.

```
5  INPUT "SET CASSETTE RECORDER READY TO PLAY, THEN PRESS
ENTER";Y
10 PRINTCHR$(23);CHR$(21);CHR$(22);"TESTING"
12 X=(INP(255) AND 8) + (INP (255) AND 4) 'check for large
& Jap. chars.
20 ON X/4+1 GOTO 50,70,90,110
49 'Lines 50-110 switch on cassette for loop, then off
again
50 OUT 236,2:FOR N=1 TO 1000:NEXT OUT 236,0:GOTO 150
69 'Next Preserves double-size chars.
70 OUT 236,6:FOR N=1 TO 1000:NEXT OUT 236,4:GOTO 150
89 'Next Preserves Jap. chars.
90 OUT 236,10:FOR N=1 TO 1000:NEXT OUT 236,8:GOTO 150
109 'Next Preserves both large and Jap. chars.
110 OUT 236,14 FOR N=1 TO 1000:NEXT OUT 236,12
150 PRINTCHR$(230)
160 GOTO 160
```

Christopher Currie

41 Elmar Road,
South Tottenham,
London N15 5DH.
01-802-7947

80 Micro mag from Nov 81 to date for sale. Contact G.H.O'Reilly, 96 Boulevard North, Dublin 13.

I have now got TRS80 to SPECTRUM, but now need SPECTRUM to TRS80. A fiver for the solution - cassette ports Please Brian Pain.

ODDS and ENDS
==========

John Reid asks is there a patch to get NDOS 1.0 to work on the TANDY Double-density kit.
Can we have a review on DOTWRITER
A member has donated MICROSOFT DECODED for members to browse through at meetings etc.
Are C5 cassettes available? A COCO user rang for any ideas.
80MICRO - Dave Washford has some of the above in his boot, and wants relieving of them.
Gold-edge connectors 34 & 40 from Richard Creak.
RS232 boards 10 Pounds
Lower case kits 15 Pounds
Eric Hartley-Blackburn.
Old 80US & COMPUTRONICS still available.
Brian Pain.

MORE ON GENERAL NORTHERN MICROCOMPUTERS UPGRADES

Since buying my Genie System two and a half years ago I have added several pieces of hardware as supplied by GNOMIC, 8, Whitworth Rd., S.W. Industrial Est. Peterlee, Co. Durham.

The first addition was their lower case kit. Once installed this gives l/c (of course) with true descenders plus up arrows, down arrows, left and right arrows, some interesting graphics symbols and a POUND sign.

The hardware as it stands requires a software driver which is supplied. (See later for hardware driver) The fitting of the kit requires the removal of the keyboard. The instructions clearly take you through the stages of removing the character generator chip; inserting the new generator chip; replacing the video memory IC; making three wire links and cutting one track. The next instruction tells you to have a cup of tea or coffee before checking everything and trying it out.

The second important addition was the ROM. This was in fact fitted at the same time as the l/c kit. The ROM replaces the first of the three Genie ROMS and is easily fitted once the keyboard is removed. Taking the precautions given in the instructions to avoid static the original ROM is unplugged and the ROM is inserted in the same socket.

The ROM adds several useful features which are transparent to the user. Particularly useful is the option to have your own message appear on power up instead of just READY? There is a l/c driver, an option to have normal typing in UPPER or lower case; a keyboard debounce routine; and there is a printer re-route (for Genies using TRS80 expansion). If you have a TRS80 then I am told that the improved tape loading offered by the ROM is very good. A further feature is a routine to initialise Feature ROMS. (See later).

Another of the additions was Feature Rom A. This is an EPROM which can be plugged onto the bus at the rear of the Genie System. The more daring can fit it internally as a more permanent fixture. There are actually two Feature Roms available, A and B, but I can only speak for A. It is necessary to buy a made up PCB which plugs into the bus at the rear of the Genie, the Feature Roms are then plugged into this PCB (One at a time). The Feature Roms can be initialized in either of two ways. One way is to use a short software routine, the other is to fit The ROM. The latter method is by far the best since initialization is automatic and transparent. Once fitted and initialized the Feature Rom is called by pressing shift and @ together, this puts a menu on the screen.

The options for Feature Rom A are:-

0 To abort the function.
1 Shift lock. This toggles between UPPER and l/c and back.
2 Auto repeat. This gives a repeat on all keys after a short delay.
3 Single key commands. Press shift plus a letter.
4 Cursor flash. This can be toggled on or off.
5 Machine code Monitor and Editor. This allows the examination and alterations of any location. (Like T-BUG). There is J for jump command and B to return to BASIC
6 System Load and Save. This option has a further menu.
L = Load 500 Baud M/C Program. No names needed and after loading the NAME, START, ENTRY and END addresses are given.
S = Save a M/C Program. Just copy NAME, START, ENTRY and END addresses from screen and the work is done for you.
R = Run the resident M/C Program.
B = To exit function.

Option 6 is useful for making M/C backups and for checking to see if you have any resident M/C Utilities.

I have used a Genie I which has similar built in functions but find Rom A easier to use. A further bonus is that the plug in PCB can be used for other EPROMS e.g. Lowes HIRES Driver.

One of the really beneficial changes was to upgrade the onboard RAM to 48K. This was probably the most difficult but only because the Genie finished up in more pieces during the process. The keyboard and CPU board have to be removed before cutting two links. The CPU board is then replaced before removing the existing eight RAM chips. The replacement 48K is then inserted in the original RAM sockets followed by the making of several soldered connections. Now for another cup of coffee!! PRINT MEM and up comes 48380

It is fair to say that not every thing I fitted worked first time but a call to GNOMIC on (0783) 860314 at almost any time brought uncomplaining assistance. Colin and Tom at GNOMIC demonstrate what the words BACKUP and PUBLIC RELATIONS really mean.

All the hardware described has been designed to fit all Genies and in most cases TRS80's. A phone call or s.a.e to GNOMIC will soon answer your questions about compatibility with your particular version of the machines.

Prices:- VAT to be added after cost and p.and p.
p and p is eighty pence on small items like those described.
The ROM = £14.95 Rom A or Rom B alone = £18.95
Rom A or Rom B with plug in PCB = £29.95 for Genie
= £34.50 for TRS80
L/c kit = £19.00 48k Expansion = £43.50

If you would rather not fit your own upgrades there is a charge for fitting and testing by GNOMIC.

All the additions are running on my Genie System with smalLDOS and I find that all is satisfactory. Apparently the Feature Roms are not compatible with Aculab's Stringy.

Lynn Smith (Mr.) GUISBOROUGH (0287) 77479

MAGAZINE INDEX

Before describing the Index, several words of caution are in order. Firstly, watch the date of publication - many articles have been overtaken by events. Examples would be the old Model I ROM, and Graphics in the pre-Mark Leduc days! Secondly, although every attempt will be made to include subsequent amendments, this cannot be guaranteed. Thirdly, the categorisation is what I thought it should be, and that might not be what the Author intended! I have not included articles such as the regular Kitchen Table Software series, popular though it might be, but I have tried to indicate where an article was one of a series. Now read on:

Cataloguing:
This has been accomplished using Datawriter. The following information has been recorded:

Single numeric digit to identify magazine, e.g.:
0 = BYTE 1 = 80-Micro
2 = 80-US 4 = Creative Computing

4-digit date reference (YYMM).

2 digit (alpha) to denote respective Model. I have tried to follow the Harding format for this, A=Model I,B=Model II, C=ModelIII, D=Models I&III,I=Colour,P=Pocket. I added the suffix 'D' if the article was Disk-based. You must understand that 80-Micro did not introduce their Box Identification system until Jan 82 - the allocation between I and III has depended on my noticing any reference to OUT or PEEK/POKE or Graphics Blocks.

24 character Title

One char Classification code:

B	Business
E	Education
G	Game
H	Handicapped
L	Language
M	Hardware modification
P	Programming, Basic
Q	Programming, machine code
R	Review
S	Strategy or Simulation
T	Tutorial
U	Utility
Z	Z80

32char Remarks. (omission of any is of no significance)

2digit reference to the number of pages. NOTE: These are the number of photocopy pages - don't blame me if 7/8 of a page is full of advertisements!

The initial entries now need tidying up, after which listings can be by Model I, Disk, Utilities, or whatever. Currently the full list occupies 17 pages.

David Washford

SOME USEFUL C FUNCTIONS

If you are using a small C compiler like C/80 or LC, some of the following functions might be of interest.

Most of them were filched from Kernighan and Ritchie's book on C, or Kernighan and Plauger's Software Tools.

```
/* function len - returns length of string */
len(s)
   char *s;{
   int n;
   for(n=0;*s!='\0';s++)
      n++;
   return n;
}

/* function strcopy - copy string */
strcopy(s,t)
   char *s,*t;{
      while(*t++ = *s++);
}

/* function gets - get string from standard input */
gets(s)
   char *s;{
   char c;
   while((c=getchar())!='\n')
      *s++=c;
   *s='\0';
   return s;
}

/* function puts - places string on standard output */
puts(s) char *s; {while (*s) putchar(*s++);
   putchar('\n');
 }

/* function gotoxy - position cursor (like Pascal's GOTOXY
functon) */
gotoxy(x,y)
   int x,y;{
   putchar(27);
   putchar(61);
   putchar(32+y);
   putchar(32+x);
}

/* function cls - clear screen */
cls(){
   putchar(27);
   putchar(58);
}
```

```
/* function ctoi - convert character string to integer */
ctoi(s) char *s;{
   int l,digit,n,number,weight;
      weight=1;number=0;
   l=len(s);
   for(n=l-1;n>-1;n--){
      digit=s[n]-'0';
      number=number+weight*digit;
      weight=weight*10;
   }
   return number;
}

/* function getnum - get number from standard input */
getnum(){
   char s[5];
   gets(s);
   return ctoi(s);
}

/* function shell - integer shell sort */
shell(v,n)
int v[],n;{
   int gap, i, j, temp;
   for (gap = n/2; gap > 0; gap /= 2)
      for (i = gap; i < n; i++)
         for (j=i-gap; j>=0 && v[j]>v[j+gap]; j-=gap){
            temp = v[j];
            v[j] = v[j+gap];
            v[j+gap] = temp;
         }
}
```

Leon Heller

Dick Lea of:

Caldecott,
Market Harborough,
Leics. LE16 8RR.
Tel. (0536) 770251

would like to meet/communicate with Model II users who are using their computer as a terminal via a modem. He is also interested in business applications (will be purchasing Multiplan).

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01-574 3506 (School) 01-743 5310 (Home)

LONDON MACHINE CODE WEEKEND

Putting all feelings of self pride behind me, I decided to attend the weekend on m/c programming held in London on 13/14 August.

Although the session was for beginners I still approached it with some misgivings - there are beginners and beginners and when I admit you could easily fill a 16p stamp with my knowledge of m/c you will appreciate the problems. Anyway I had no problems as I was immediately made to feel at home by Brian and Laurie and the others.

Laurie seemed to go out of his way to help me - even to the extent of starting with first principles. Even a greenhorn like me got great value from the weekend. Having worked for several months - most of the time not knowing which way to turn it was marvellous to have the principles explained in such simple and clear terms.

I only wish there were more of these sessions because the speed of data fed into my brain didn't help me grasp some of the information. It would be nice if a few more beginners (and I mean beginners) would attend these meetings

Geoff Holland, 2 Whitecliff Gardens, Blandford, Tel 52507

I asked Geoff to write the above to the mag in an attempt to maintain the flow of contributions from newer members. The weekend was set up as a result of feedback from members who suggested a long session on m/c. The weekend was expensive for most members due to the costs and small class required to make it a success.

The material covered by Laurie was as per published and some of the routines explained are shown on page 21. The programs will be done again at Swindon on the Saturday, where Geoff's problem of moving objects around is called DOT, and the Swindon session will interface to the Keyboard and hopefully joysticks. Dave Washford and myself wanted the read/write routines to be accessed via USR in BASIC which as always looked so obvious.

If anybody wants explanations about the programs we were given over the weekend, ring Geoff on DOT and Dave Washford on WRITE who should have documented their copies by now, else I am sure Peter Knaggs would be only too pleased to provide answers.

I can set up an el cheapo weekend on the above subject where only graphics are dealt with, as I had no idea Laurie enjoyed zapping ikons out of the smoke. For ease of organisation this would be at York House or Woughton Campus, Milton Keynes.

MILTON KEYNES WEEKEND WORKSHOP JULY 29/30/31
==========

The above was held for the first time in an old private school building now used as a youth club and community centre, and we had sole use over the three days. All the published lectures ran with the addition of MODEL 4 AND MODEL 100 with the HARD DISK also covered. The weather was fantastic and we had three barbecue sessions inspired by our librarian Leighton Davies and maintained by chef of the year - Bradley House.

Everybody seemed to gain from the sessions by Peter Tootill and Alan Redhouse, but due to the lack of policing on my part, the Sunday sessions were spoilt by long discussions, not part of the overall plan. Commissar Pain will take 1984 steps to prevent this in the future.

Don Bannister came again and wired the 3 storey building up for the Model 100 hook up to Prestel through his modem, with the telephone looking like a sorry victim of vandalism. Geoff Henshall was seen with his new Model 100 hooked to another '100 running a game, just to keep his hand in at trying out programs ! Peter Hall brought his dual Model one/three along which literally has a three way switch, with model four mode being the third option now being contemplated. John Rutherford was seen playing ELIZA on lager, with others chipping in with the odd suggestion. Tim Bullock had a CIPHER terminal hooked on to his MODEL ONE with the Omikron mapper/CPM plus the 8" Drive. At last the Gen. Northern Products were with us and members found their presence of use, as they represent excellent alternatives for expansion.

As a result of the success in asking members to travel and do a specific presentation - Peter Tootill and Alan Redhouse - we are to meet Jim Bartholomew from Fife at the Swindon meet, with Don Bannister on the EPSOM/ROMS and Jim on the EPSOM/SOFTWARE potential. Thanks must go in Dave Washford's direction as his 'Phone calls certainly keep me on my toes, and his feedback is most useful.

Brian Pain.

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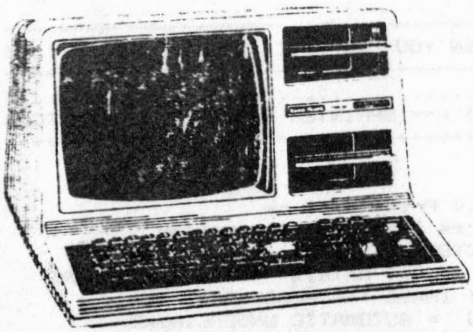
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NATGUG NEWS

VOLUME 5 No. 3 September 1983

OFFICIAL JOURNAL OF THE

National TRS-80 & Genie Users Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. 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 from time to time. Sub-groups also exist for medical and educational users.

The Group runs 80-NET, a computerised bulletin board service that is available to all users of microcomputers.

The Group maintains three software libraries (Models I, II and III) which are free to members. Library lists are obtainable from the Secretary. The medical and educational sub-groups maintain their own libraries.

A membership list is obtainable on disk from the Secretary.

Back numbers of the Newsletter are available.

Please send all contributions for the Newsletter to the Editor.

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Model III: Nick Clay, 6 Rectory Lane, Byfleet, Surrey. KT 14 7LL. Tel: (09323) 42348.

FUTURE WORKSHOPS & MEETINGS
==========

OCT 8th FINISHING OFF THE MAPLIN MODEM (with the ACC)
The whole day is on the above, and members can look forward to finishing this project. The day will be in the West End and there are no Parking Problems.

MKMUG our local club, every TUESDAY, around 80 - 110 enthusiasts, 5 Erica Road. Stacey Bushes. Very Close to the concrete cows and Central Milton Keynes Railway and Bus stations.

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FUTURE WORKSHOPS & MEETINGS
==========

NOV 18/19/20 SWINDON
FRI Case Studies by Leon Heller, Dave Washford, Brian Pain, Laurie Shields. (Stock 3 Depots & reading cards via RS232)
SAT Patching Scripsit Geoff Smith, Machine Code-Graphics & Reading/Writing to Disk Laurie Shields, Model4 & Hard Disk Leo Knaggs, Model 100 & Prestel (Prov) Charles Davies, Speech Synthesis Carl Rabe, Hooking the 68000 or 8088 to the Model One Leon Heller, sorting Demonstrations Laurie Shields & Brian Pain.
SUNDAY EPSOM and ROMS How to get more out of this tremendous combination. Don Bannister (0232-668899)
EPSOM and SOFTWARE Jim Bartholomew (0383-822667) will give some of his ideas on how to get more out of the Printer.
********* This day could be just a little unique
********* so try & support this weekend

EDITORIAL

Once again we have an excellent and varied selection of articles. Membership still seems to be falling off, but what members we do have seem to keep on providing me with plenty of material.

I now have my own Model II system, in addition to my venerable Model I. Some time ago I seem to remember a letter from someone wondering who had the oldest system. My Model I was one of the first systems brought into the country by Tandy - a Level I 4K keyboard, cassette recorder and monitor. I seem to remember paying nearly £600 for it! I upgraded it to 16K myself, at a cost of £108, using chips imported from the States. Tandy were charging £250 for the memory upgrade at the time. You can now get the chips for under £8!

There seems to be quite a lot of interest in the C programming language, so I will try to include some relevant articles in every issue from now on. I now have the source code on disk for the C compiler I shall be producing for the Model I/III, and will try to get something working by the next issue.

With a bit of luck you should get this issue before the PCW show at the Barbican ends. Brian and I, together with a number of volunteers, will be manning the Group's stand at the show.

Leon Heller

GUIDELINES FOR CONTRIBUTORS

1. If possible, send material in printed form.
2. Scripsit or Pencil disks/cassettes are acceptable.
3. Ensure your ribbon is in reasonable condition.
4. Printer output should be on A4 paper if possible.
5. If you send in hand-written material, write legibly.
6. Do not fold the sheets when posting them. Use a large envelope and keep them flat.

Leon Heller

****
* FOR SALE *
****

TRS-80 Level II, 48K with upper/lower case, monitor, cassette recorder (CTR-80), sound box, DP1000 printer and disk controller interface, joy stick, over 40 programs on tape (Games utilities etc.) and quite a few books. Cost well over £850. Asking only £450 o.n.o.

Please telephone me on 061-748 8062 if interested.

Martin Speakman

MEMBER'S LETTERS

I wasn't sure who to send an advert to, but as I wanted to thank you for organising a very enjoyable weekend at York House, I have attached it to this.

Out of the weekend, I have now got the new chips for my printer (as per this letter), and yet more ideas. All I want now is some spare time to put some action behind the ideas! My Model 4 is now 64K, but no disks yet - hopefully early next month. Just a point that I haven't seen mentioned, even in cassette Model III mode you can switch to the 4MHz clock by OUTing as per the manual.

I must compliment you and Leon on the booklet format of the Newsletter - it is very presentable. Thank Leon for his short note on 'C', any more comments would be welcomed by me. This is down as one of my projects. Hope to see you at the PCW show, I am going to Belgium around that weekend so I don't know which day I will go.

Robert Vieira.

Recent letters to NATGUG have finally convinced me that I am not alone!

One ex-member stated (Feb: 83) that he was 'saturated with info and ideas, with no time to explore either' while another member commented (Jan: 83) '95% of the Newsletter was incomprehensible'; I suspect that many members would echo these views.

The problem is that to the commercial user, and the computer buff, the micro is a major tool which merits extensive study, and often considerable capital expenditure. While to others such as myself, a teacher and a radio amateur (G3OCG) it is a very useful accessory for calculations, satellite predictions, telegraphy, teleprinting, etc: always providing that the demands on time and money are not too unreasonable. However, please allow me to emphasis that the micro itself is of secondary interest, my primary interests being radio and electronics, and there's 24 hours only in one day.

At the moment I am investigating the economics of extending my VG2 to word processing, if this is a viable proposition! The views of some local users vary from 'Throw it away, and buy a Beeb, with matching peripherals' (anyone know a generous merchant banker?) while the contrary view is 'The Beeb is a non-standard micro (surely, they all are!) stick to the VG,

why waste money?' Obviously, I have great sympathy with the latter view, but considering the ever increasing popularity of the BBC micro, particularly in schools, is the writing on the VDU?

One scheme was to expand using the Watford 'Ultimum' hoping that the 'Ultimum' could be transferred to the Beeb should I change micros at some future date. Unfortunately, Watford stated that their system was 'not much use on the BBC, add-ons already exist, and the RAM could not easily be used'. An unfortunate state of affairs, so the question remains are there any truly universal expansion systems? and also how do the various 'pick and mix' systems compare with the manufacturers matched systems?

It follows therefore, that I would be very interested indeed if NATGUG would publish far more reports on typical installations detailing the reasons behind the choice of equipment, particularly expansion systems, printers, etc: and finally an honest appraisal of the overall installation after a reasonable working period. Three recent accounts namely, 1) Review of Gnomics Disc/Printer by R. Stockwell. May, 83. 2) Model 3 in Business. 3) Upgrading Model 1. both by J. Jeffery. June, 83. are all excellent examples of reports that provide considerable useful information; certainly for my type of computing. Equally, the booklet 'Modifications to the Genie' by K. Robinson. contains a wealth of information, clearly expressed, and often applicable to micros in general.

It is also rather sad that weekend workshops appear to be unknown up here in the North-West. Unfortunately, like many people no doubt, my work is such that my only 'free time' is at week ends, hence mid-week visits to local computer clubs are impracticable. Any offers?.

Finally, may I express my sincere thanks to all those members associated with the NATGUG Newsletter, an unenviable time-consuming task, for in these days of 'high tech: its almost impossible to satisfy everybody!

Eric. H. Lewis.

FUTURE WORKSHOPS & MEETINGS

DECEMBER 17/18 OR JANUARY 7/8 MODEL 1G and MACHINE CODE Now in Milton Keynes, transferred from London due to costs. With Derrick Rowe, Jim Norris, John Newsas, Leon Heller, John Couch and Laurie Shields.

FEBRUARY 1984 Woughton Campus, Milton Keynes with the same caterer as we had last year. Remember this is being held in 1984, and MK is the centre of purpose built IT units. Cambridge, Gloucester, Birmingham and York are back next year. Please support these days and all feedback is most welcome. *** Possibly with others from COLOUR GENIE and the LYNX.

MKMUG our local club, every TUESDAY, around 80 - 110 enthusiasts, 5 Erica Road, Stacey Bushes. Very Close to the concrete cows and Central Milton Keynes Railway and Bus stations.

PROBLEM SECTION

1. PROGRAM LIBRARY. Many members must spend many hours keying in programs from mags. In addition, I buy quite a few issues of LOAD 80. Surely these are not copyright and could therefore be included in the Library if members were encouraged to donate cassette or disk copies?
2. GAMES. 80 Micro now has a score board showing top scores on various games. How about the Newsletter including a similar score board for members' scores, including UK games not listed by 80 Micro? Better still, why not run a games Olympics as a side show to one of the weekends?
3. GAMES 2. There are a number of games which I have bought on cassette which I can't transfer to disk (for personal use!) using conventional transfer programs like LMOFFSET. Examples are Caterpillar by Soft Sector Marketing, and Galactic Firebird by Kansas. Any ideas as to how I could transfer them?

Paul Bodlier.

83 Trinity Road
Wimbledon
London SW19 8QZ

I would be grateful if you could give me a reference explaining communications between computers in simple terms, particularly to what extent data can be transferred between computers using different operating systems.

P.S. I am also interested in the possibility of micro-PROLOG being implemented on a Tandy microcomputer. If you have any information on this topic, I would like to know about it.

J.K. Sampson
22 Lugano Road
Bramhall,
Cheshire
SK7 3HX
9.9.83.

(* Micro-Prolog from LPA Ltd., 36 Gorst Rd., London SW11 6JE, costs £185. It will run on the Model 4, II or 16 under CP/M. LFH *)

FUTURE WORKSHOPS & MEETINGS
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Would you please send me details of the above. I own a VIDEO GENIE System EG3003 with the 48K Expander a TANDY Line Printer VII and a Dual Disc Drive, the system is currently running under smal-LDOS, but I am considering upgrading to full LDOS in the near future. Any advice which you could give me regarding this or any other topic concerning my system will be gratefully recieved.

I am particularly interested in information regarding the addresses and Parameters of the Basic ROM routines and also the LDOS routines as I am keen to expand my knowledge of assembler.

Peter Bashall

50 Seymour Rd,
Ashton,
Preston,
LANCS.
PR2/2EU.

TRS-80 and Wang

Four years ago this department bought a TRS-80 Model I with four disk drives, TRSDOS and NEWDOS and Visicalc. Many programmes and masses of data have been created. Now a Wang OIS word processing, list processing and personal computer system has been installed.

Has anybody information on a simple way in which to translate programmes from TRS-80 Microsoft basic into Wang Microsoft basic which demands a space where there is not a punctuation mark following a reserved word, uses locate x, y instead of PRINT @ and a different disk file addressing protocol.

Ideas would be most welcome as to how the programmes and files on the Tandy can be converted into a Wang format and transferred into its disk files?

Christopher J. Perraton,
Education Department,
County Hall,
Trowbridge, Wilts.

Telephone: 02214 3641 Ext. 2305
Evenings: Melksham (0225) 703294

(* Transferring from the Model I to the Wang is quite easy. You just need a serial interface on the Model I and some communications software like ST80III on the Model I to transfer programs and data between the two systems via a serial link. The Wang system should have a utility which will accept input data via the serial communication port and write it to a file. You could then use a word processor such as Wordstar to modify the programs using the global search and alter Wordstar functions. Alternatively, you could write, or have written for you, a program to convert the Model I programs to MBASIC format. This could be done in BASIC, but would be rather slow. Assembler could be used, but a decent systems programming language like C would be preferable. The conversion could be done either on the Model I or on the Wang. Any data files should work 'as-is'. LFH *)

Congratulations on the new A5 format for NATGUG News; now I shall have to find a space on my bookshelves for the magazine instead of burying it in my dead letter filing system. This will force me to read more carefully the contents and strive to understand the machine language therein.

For slow progress I have the excuse that every piece of equipment (yes every damned component) I bought to build up my system has malfunctioned, if it functioned at all, and necessitated return to supplier with a subsequent wait of weeks if not months for a replacement. Even now my struggles continue with the software side of things. A Word4Word Plus package put on floppy tape for me promises wonderful facilities but it demands I complete an obstacle course of bugs before it starts to deliver. Half a dozen practice print runs are needed before near desired results obtain, note the lack of right margin justification. Now though, with a second new printer newly arrived, I should like to exercise the capabilities of my costly setup and try to make it earn a little for its keep - once upon a time, a slide rule and Parker pen were all one hankered for as the ultimate in computational and word processing sophistication!

On to my request for HELP. My NEC 8023 printer promises many wonderful turns but I find the manual less than highly informative when it comes to go-go detail. Furthermore, I seem unable to access the many and varied character sets and fonts, if only because my Model 1 returns forbidden territory messages when I try to enter LBasic statements - it seems my Aculab is not good enough, Tandy demand I purchase disk. Text writing is not much better; I am having many hours and hours and hours of 'fun' embedding control codes in text and noting the printer's response, if any, but I want to get old before I die. Joyous I would be should anyone be able to help me exploit some of the machine's potential.

In your August issue of NATGUG, Mr Lynn Smith mentioned that Aculab is not compatible with Gnomic's Feature Rom B; this I found out after I took delivery of the inevitable replacement. I do not wish to keep disconnecting the Rom, let alone lose its facilities, whenever I want to load or save material - any suggestions for hardware reconciliation? Well, these problems represent merely a bit of the chip but I mustn't strain anything on my first TRS-80 produced communication.

Now that you have gone all posh is anyone taking bets on the first appearance of the inevitable mug shot byeline?

Chris Oldman
38 Clifton Gardens
London W9 1AU
Tel:01-286 3755

WANTED: for a visually & physically handicapped member; an expansion box + RS 232 card (working or not) for a Model 1 to interface with a Micro Writer/printer or any way to achieve this i/f (cheaply!)

Contact: Pete Bamfield
Flat 5
24 Windlesham Gardens
Brighton
East Sussex BN1 3AJ

Tel. (0273) 737884

GATEWAY ON PRESTEL

One of the facilities provided on Prestel is the ability to access other computers via the Prestel Gateway. This is entered from Prestel in the same way as any other part of the database. Below is an edited record of some of the things that are available. On this occasion, although I used the correct code, I was unable to access the BARIC computer for some reason. I have been successful on a previous occasion, ending up in some sort of silly game.

The response time was so abominably slow that I gave up and left the system. Response time is generally very slow when using Gateway, since there are two computers involved, plus one's own system.

Anyway, for what is worth, here is a somewhat edited (to save space) version of what went on. I used my own communications software for this, written in the C programming language.

```
P R E S T E L              190565a       0p
          PRESTEL GATEWAY
 ****************************************
   INDEX OF GATEWAY IP'S

    1 BARIC
   1 AREGON INTERNATIONAL
    2 HATFIELD POLYTECHNIC
    3 PAN AM
    4 FRIENDS PROVIDENT LIFE OFFICE
    5 DATAFREIGHT
    6 DATASOLVE
    7 HOMELINK

****************************************
  Key 0 for Gateway Index

P R E S T E L              19056a        0p
          PRESTEL GATEWAY
 ****************************************

    1 AN IP'S GUIDE TO GATEWAY
    2 APPLICATIONS OF GATEWAY
    2 A USERS GUIDE TO GATEWAY

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

HERTS288                   288054a       0p
A U C B E       GATEWAY      Hatfield Poly

************   INDEX   ***************
```

HERTS288 together with the Hatfield

Polytechnic & the AUCBE were the first organisation to have a live Gateway on Prestel.
This index is added to as new options become available - see latest news.

Key 1 What is Gateway?
2 Aims of our project
3 New Prestel simulation of Gateway
4 Information pack 40p
5 Latest news (Jan 17)
6 Access information & registration
7 Herts Trade index on Gateway 10p
8 UK Microfilm Bureau directory 10p
9 Prestel Gateway index
****
05 AUCbE index 0 HERTS288 index

HERTS288 2880545a 0p
A U C B E GATEWAY Hatfield Poly
****
Gateway news - Jan 17

The latest service on the HERTS288 Gateway service is NRCD's complete directory of UK microfilm bureau. Over 150 different firms are covered, with company name, address, telephone number & contact name for each entry.
This is a step forward from the existing limited directory available on Prestel, or the printed directory which is inevitably out of date. For entry frame (Enterprise only) key 1 For more about NRCd key 2.
We hope to announce a major Gateway scheme soon - watch this page.

****
Key 3 Access info. 9 Gateway index

P R E S T E L 190568a 0p
USERS GUIDE TO GATEWAY
****
****

1 WHAT IS GATEWAY
1 REVIEW OF PRESTEL
2 HOW TO USE GATEWAY
2 APPLICATIONS OF GATEWAY
3 HOW MUCH DOES GATEWAY COST?

```
   3 USER BENEFITS
   4 OPERATING COMMANDS FOR GATEWAY
   4 IP BENEFITS
   5 INdEX OF GATEWAY IP'S
   5 IN↓HOUSE SYSTEM BENEFITS


P R E S T E L          190565a      0p
          PRESTEL GATEWAY
 ****************************************

BARIC       (c) 1983    3500a       0p
****************************************
          The Baric Gateway

****************************************
                          *            ***
    GATEWAY   is a new ******************
  and significant      ******************
  development in       ******************
  viewdata which       ******************
  opens up a whole     ******************
  range of new possibilities.         **

  BARIC are the first IP to offer a
  full commercial GATEWAY service. We
  can now provide interactive systems
  for Prestel as well as private users.
  to see some examples, open the gate..

  About our Gateway Services     key 1
  For more about Gateway         key 2
  For our Gateway page           key 3
  0 Index

BARIC       (c) 1983    350350352a   0p
****************************************
          The Baric Gateway
     0   Genius Personality Test
****************************************

    Baric was a pioneer in the early
  days of Prestel offering Umbrella
  Services to encourage companies to
  use Viewdata without high base costs.

    Baric again led the way with the
  introduction of the Private Viewdata
  Bureau offering interactive systems.

    Now Baric, in another first, offer
  the facility of joining the two
  services together using the Baric
  Gateway. And the cost is really low.
****************************************
```

```
Gateway to new opportunities    key 1
To see Gateway in operation     key 2
To receive more information     key 3


KEY _ TO CONNECT TO EXTERNAL COMPUTER

BARIC        (c) 1983     350350350a   0P
**********************************************
     Baric Viewdata          Gateway

**********************************************
                          *             ***
  This is a GATEWAY       ****************
  page into BARIC's       ****************
  Private Viewdata        ****************
  Service, on an          ****************
  ICL ME29 computer.      ****************
                                        **
  On our demonstration service you can
  work out your biorhythms, calculate
  mortgage repayments, pit your wits
  against the computer in our games + &
  find out about private viewdata.


  The first page on our service is 10P
  *350_ Baric Prestel Index

WAITING FOR EXTERNAL COMPUTER

NO RESPONSE FROM Ec,KEY *0_ FOR INDEX
```

Leon Heller

MODEL 4

Just a few comments after an initial appraisal.

The Handbook gives the impression of being a provisional issue, with, at times, less than clear information; some pages seem to have been printed and inserted at a later date. However, it does set out to be comprehensive, and in general succeeds.

Several commands are not detailed, for example HERTZ50/JCL, although by LISTing in DOS this can be handled, as a DO file.

The supposedly programmable keys F1, F2, F3 are apparently not implemented; the addendum to the manual does not make it clear that these extra keys have functions only in the Model III mode, and not in LDOS.

Some interesting combined graphics characters can be obtained by depressing CLEAR, SHIFT, followed by the DOWN, LEFT or RIGHT arrows, although I see no immediate use for them.

There are several interesting reserved words that are not explained: what for example do EQV, IMP, MOD and WIDTH have to offer?

SOUND is also listed as a reserved word but not documented. However this can be implemented by

SOUND t, d where t is in the range 0 - 7, for tone, where 0 is low and 7 is high,
and d is any integer up to 255 for the duration of the tone.

For an 'alarm' try

```
100 FOR Z = 1 TO 10: SOUND 7,1: SOUND 0,1: NEXT Z
```

Notice the mandatory spaces! This version of BASIC needs them!

On the hardware side I am disappointed that, on my machine at least, there is a need to significantly adjust the brilliance and contrast controls between the Model III and Model 4 modes. It also gives distracting shimmering on the display particularly in reverse video mode. There is a tendency for the display to jump during disk access.

However, overall a pleasing machine to use and certainly more versatile then the Model III. Presumably TRSDOS 6.1 will be released soon?

Alan Farr

42, Gregory Avenue,
Green Lane,
COVENTRY, CV3 6DL

DOWNLOADING FROM PRESTEL

Having come across a BASIC program while skimming through PRESTEL via LDOS's LCOMM communications program and an accoustic coupler, here was a challenge. How to get it running in my Model 1.

The system I am now using for the 300 Baud Comms experiments is an Auto starting disc which goes into a JCL program which in turn loads a prehistoric copy of ST80III (simply to check the functioning of the RS232 which LCOMM doesn't). The JCL program then loads and sets up MEMDISK (used because it affects incoming data less than physical disk drives), then loads and sets up the RS232 driver, defines the A key as 'LCOMM *CL' and defines the F key as 'TEMP/LCX:2'. Thus we are getting into business while I fetch the telephone and directory. Afterwards I copy the file and doctor it if necessary, using SCRIPSIT, then print or LIST (P) it.

So, below are the stages of attack in getting the (you guessed it) prime numbers program into a running state. The first section (A) shows the program embedded in Prestel text, as recorded by LCOMM in the file TEMP/LCX:2. Next the file was loaded into SCRIPSIT and all extraneous material removed, as shown in section (B) (printed using the P,I option). In actual fact there are some carriage returns still to be removed to leave only one per numbered line, as carried out in section (C).

This strange looking file is now saved by SCRIPSIT as PROG/BAS using the S,A option. Next we go into BASIC and load PROG/BAS. The listing looks like (D). Nevertheless it runs, witness the LPRINTED run (E). As you see from the notes in PRESTEL it was written for the UK101. Amazing!. As they used to say about a previous hobby - 'If God thought of anything better he kept it for Himself

MAC RANDLE 0926-39871

(A)

```
                _  MON 29 AUG 1983 00:17
GOOD MORNING
MR M J RANDLE

                  P
                P R E
              P R E S T
            P R E S T E L
              E S T E L
                T E L
                  L


    This is Dryden computer
    You last used it SUN 28 AUG 23:34
    Press _ for Main Index

*8008065

ClubSpot 800              8008065a     0p
         ** * **  **
         ** * *** **
         ** * *** **
      N E T W O R K I N G
1 Network News
2 Bulletin Boards
3 Microcomputers & Prestel
4 Software
5 More on Modems
6 TanTel Info
7 REWtel & Distel
8 Digital Communication

*80080654

ClubSpot 800              80080654a    0p
  3 FOR K=J(K) TO N: N=N+D(K): FOR I=X
    TO Y: IF M(I)>N THEN NEXT: RETURN
  4 FOR J=M(I) TO N STEP Q(I): NEXT:
    M(I)=J: IF J<N+Q(I) THEN NEXT:
    RETURN
  5 NEXT K
 15 FOR A=A TO 78498: IF M(I)>N THEN
    PRINT N;: GOSUB 3: NEXT: END
 17 Y=I: M(I)=P(I)*P(I+1): GOSUB 3:
    PRINT N;: GOSUB 3: NEXT
 55 FOR A=X TO 168: IF M(I)=N THEN Y=I:
    A=A-1: M(I)=P(I)*P(I+1): GOTO 60
 57 PRINT N;: P(A)=N: M(A)=N*N:
    Q(A)=N+N
 60 K=J(K): N=N+D(K): FOR I=X TO Y: IF
    M(I)>N THEN NEXT: NEXT: GOTO 15
 65 FOR J=M(I) TO N STEP Q(I): NEXT:
    M(I)=J: IF J<N+Q(I) THEN NEXT: NEXT
 70 GOTO 60
 90 DATA 10,2,4,2,4,6,2,6,4,2,4,6,6,2,
    6,4,2,6,4,6,8,4,2,4,2,4   _ for more
```

```
ClubSpot 800                80080654b     0p
 91 DATA 8,6,4,6,2,4,6,2,6,6,4,2,4,6,2,
    6,4,2,4,2,10,2
100 I=168: N=11: J=48: K=0: Y=5: X=Y:
    A=I: DIM M(I),Q(I),P(I),D(95),J(95)
105 FOR I=K TO 47: N=I+J: READ D(I):
    D(N)=D(I): J(I)=I+1: J(N)=J(I):NEXT
110 N=11: GOTO 55
200 REM  PRIME NUMBER CALCULATOR
300 REM  COPYRIGHT 1981 BY E.W.BALL
305 REM  NORTH LONDON HOBBY
310 REM  COMPUTER CLUB
400 REM  TO START THE PROGRAM: RUN 100
              _ for description...
```

```
ClubSpot 800                80080654c     0p
      PRIME NUMBER CALCULATOR
        by Ted Ball - NLHCC
Prime number programs can be found
everywhere, but usually run rather
slowly. My excuse for submitting this
to GIGO is that it is more than twice
as fast as any other in BASIC that I
have seen, and more than ten times as
as fast as some. The algorithm is ess-
entially the division method, but with-
out the division and with a few tricks
to gain extra speed.
The program was written for a UK 101,
but should run on any machine with a
Microsoft BASIC interpreter. It is un-
likely to work properly under any other
BASIC as it takes advantage of features
of Microsoft BASIC loop control. The
program will list the primes up to one
million (if you care to watch the
screen for 18 hours).  9 for PSS
```

(B)

```
>PL=66 LM=2 RM=80 TM=1 BM=55 PF=2_
>J=N_
   3 FOR K=J(K) TO N: N=N+D(K): FOR I=X _
     TO Y: IF M(I)>N THEN NEXT: RETURN_
   4 FOR J=M(I) TO N STEP Q(I): NEXT:_
     M(I)=J: IF J<N+Q(I) THEN NEXT:_
     RETURN_
   5 NEXT K_
  15 FOR A=A TO 78498: IF M(I)>N THEN_
     PRINT N;: GOSUB 3: NEXT: END_
  17 Y=I: M(I)=P(I)*P(I+1): GOSUB 3:_
     PRINT N;: GOSUB 3: NEXT_
  55 FOR A=X TO 168: IF M(I)=N THEN Y=I:_
     A=A-1: M(I)=P(I)*P(I+1): GOTO 60_
  57 PRINT N;: P(A)=N: M(A)=N*N:_
     Q(A)=N+N_
  60 K=J(K): N=N+D(K): FOR I=X TO Y: IF _
     M(I)>N THEN NEXT: NEXT: GOTO 15_
  65 FOR J=M(I) TO N STEP Q(I): NEXT:_
     M(I)=J: IF J<N+Q(I) THEN NEXT: NEXT_
  70 GOTO 60_
  90 DATA 10,2,4,2,4,6,2,6,4,2,4,6,6,2, _
     6,4,2,6,4,6,8,4,2,4,2,4_
```

```
 91 DATA 8,6,4,6,2,4,6,2,6,6,4,2,4,6,2,_
    6,4,2,4,2,10,2_
100 I=168: N=11: J=48: K=0: Y=5: X=Y:_
    A=I: DIM M(I),Q(I),P(I),D(95),J(95)_
105 FOR I=K TO 47: N=I+J: READ D(I):_
    D(N)=D(I): J(I)=I+1: J(N)=J(I):NEXT_
110 N=11: GOTO 55_
200 REM  PRIME NUMBER CALCULATOR_
300 REM  COPYRIGHT 1981 BY E.W.BALL_
305 REM  NORTH LONDON HOBBY_
310 REM  COMPUTER CLUB_
400 REM  TO START THE PROGRAM: RUN 100 _
```

(C)

```
  3 FOR K=J(K) TO N: N=N+D(K): FOR I=X      TO Y: IF
M(I)>N THEN NEXT: RETURN_
  4 FOR J=M(I) TO N STEP Q(I): NEXT:     M(I)=J: IF
J<N+Q(I) THEN NEXT:      RETURN_
  5 NEXT K_
 15 FOR A=A TO 78498: IF M(I)>N THEN     PRINT N;: GOSUB
3: NEXT: END_
 17 Y=I: M(I)=P(I)*P(I+1): GOSUB 3:     PRINT N;: GOSUB 3:
NEXT_
 55 FOR A=X TO 168: IF M(I)=N THEN Y=I:     A=A-1:
M(I)=P(I)*P(I+1): GOTO 60_
 57 PRINT N;: P(A)=N: M(A)=N*N:     Q(A)=N+N_
 60 K=J(K): N=N+D(K): FOR I=X TO Y: IF      M(I)>N THEN
NEXT: NEXT: GOTO 15_
 65 FOR J=M(I) TO N STEP Q(I): NEXT:     M(I)=J: IF
J<N+Q(I) THEN NEXT: NEXT_
 70 GOTO 60_
 90 DATA 10,2,4,2,4,6,2,6,4,2,4,6,6,2,
6,4,2,6,4,6,8,4,2,4,2,4_
 91 DATA 8,6,4,6,2,4,6,2,6,6,4,2,4,6,2,     6,4,2,4,2,10,2_
100 I=168: N=11: J=48: K=0: Y=5: X=Y:     A=I: DIM
M(I),Q(I),P(I),D(95),J(95)_
105 FOR I=K TO 47: N=I+J: READ D(I):     D(N)=D(I):
J(I)=I+1: J(N)=J(I):NEXT_
110 N=11: GOTO 55_
200 REM  PRIME NUMBER CALCULATOR_
300 REM  COPYRIGHT 1981 BY E.W.BALL_
305 REM  NORTH LONDON HOBBY_
310 REM  COMPUTER CLUB_
400 REM  TO START THE PROGRAM: RUN 100 _
```

(D)

```
3 FOR K=J(K) TO N: N=N+D(K): FOR I=X      TO Y: IF M(I)>N THEN N
EXT: RETURN
4 FOR J=M(I) TO N STEP Q(I): NEXT:     M(I)=J: IF J<N+Q(I) THEN
NEXT:      RETURN
5 NEXT K
15 FOR A=A TO 78498: IF M(I)>N THEN     PRINT N;: GOSUB 3: NEXT:
 END
17 Y=I: M(I)=P(I)*P(I+1): GOSUB 3:     PRINT N;: GOSUB 3: NEXT
55 FOR A=X TO 168: IF M(I)=N THEN Y=I:     A=A-1: M(I)=P(I)*P(I+
1): GOTO 60
57 PRINT N;: P(A)=N: M(A)=N*N:     Q(A)=N+N
60 K=J(K): N=N+D(K): FOR I=X TO Y: IF      M(I)>N THEN NEXT: NEX
T: GOTO 15
65 FOR J=M(I) TO N STEP Q(I): NEXT:     M(I)=J: IF J<N+Q(I) THEN
 NEXT: NEXT
70 GOTO 60
90 DATA 10,2,4,2,4,6,2,6,4,2,4,6,6,2,     6,4,2,6,4,6,8,4,2,4,
```

```
91 DATA 8,6,4,6,2,4,6,2,6,6,4,2,4,6,2,      6,4,2,4,2,10,2
100 I=168: N=11: J=48: K=0: Y=5: X=Y:      A=I: DIM M(I),Q(I),P(I
),D(95),J(95)
105 FOR I=K TO 47: N=I+J: READ D(I):      D(N)=D(I): J(I)=I+1: J(
N)=J(I):NEXT
110 N=11: GOTO 55
200 REM  PRIME NUMBER CALCULATOR
300 REM  COPYRIGHT 1981 BY E.W.BALL
305 REM  NORTH LONDON HOBBY
310 REM  COMPUTER CLUB
400 REM  TO START THE PROGRAM: RUN 100
```

(E)

```
 11  13  17  19  23  29  31  37  41  43  47  53  59  61  67  71
 73  79  83  89  97 101 103 107 109 113 127 131 137 139

149 151 157 163 167 173 179 181 191 193 197 199 211
 223  227  229  233  239  241  251  257  263  269  271  277  28
1
283  293  307  311
```

PRESS RELEASE

A LINE POWERED MODEM FOR SMALL COMPUTERS
AND PROCESS CONTROL

A novel type of modem for data transmission is announced. It differs from traditional modems and modern chip designs in that it requires no power supply and derives the necessary energy from the telephone line or pilot wires. This makes it ideal for use with home computers and portable hand-held data acquisition devices. It is particularly suitable for industrial use where flammable hazards are concerned, since the problem of providing a mains connection or power pack is obviated.

The energy required to operate the unit is so low that it is derived from the holding current of the telephone system or the 24v. supply of pilot wires for process control purposes. It thus avoids many of the problems of approval of equipment both for use on Post Office lines and for use in "flammable atmospheres".

Although line powering is not unknown it has not been previously used for a modem and the circuitry is the subject of patents and applications for formal approval by the British Telecom Authorities and BASEEFA.

The unit is available as an encapsulated printed circuit board, 150mm x 150mm x 20mm or as a boxed unit 130mm x 180mm x 40mm. There are two connections for the "TWISTED PAIR" and a DIN connector for data in and data out. The unit operates either at 300 baud (simplex or duplex) or 1200/75 baud (simplex only).

For OEM's wishing to incorporate the unit in their computer, telephone sets etc. a consultancy service complete with samples and full documentation is available on request.

PHOTOGRAPHS available.

CONTACT R.J.REDDING 0628 24929

READY-AIM-FIRE

```
10 'THIS APPEARS IN THE LEVEL TWO MANUAL PAGE H/9
20 DIMI.TP,MX,MY,K,MD
30 CLS:PRINT
40 'INSTRUCTIONS TO THE USER IN BIG LETTERS - CHR$(23)
50 PRINT CHR$(23);"HIT 'Z' KEY TO AIM LEFT "
60 PRINT "HIT '/' KEY TO AIM RIGHT"
70 PRINT"HIT SPACE BAR TO FIRE"
80 ' A SHORT DELAY LOOP WHILE THE USERS READS THE INSTRUCTIONS
90 FOR I = 1 TO 500 : NEXT
100 CLS
110 ' POSITION OF THE BASE STATION AT THE BOTTOM OF THE SCREEN
120 'CA = CURSOR ADDRESS
130 CA = 928 : CB = 991
140 I = 1
150 'DISPLAY THE BASE STATION
160 PRINT @CA,"*";
170 PRINT @CB,"***";
180 'SET THE FLAGS TO ZERO
190 F=0:MY=0
200 'TO DISPLAY ONE SINGLE TARGET AFTER ANOTHER
210 IF I >=15 PRINT @124,"          "
220 PRINT @64+I*4,"    ";
230 'THIS GIVES THE TARGET A RANDOM MOVEMENT ACROSS THE SCREEN
240 I=I+RND(10)/10
250 'TP = TARGET POSITION
260 'BY USING 64 THE TARGET IS DISPLAYED ALONG SECOND LINE
270 TP=64+I*4
280 IFTP>124THENI=1:GOTO190:'AVOID PRINTING ON THE NEXT LINE
290 ' --> IS THE TARGET
300 PRINT @TP,"-->";
310 IF F = 0 THEN  490 ELSE 320
320 RESET(MX,MY):'TURN THE GRAPHICS BLOCK OFF
330 MX = MX - MD:MY=MY-8:IFMY<0THEN190
340 'TEST FOR TARGET GOING OFF SCREEN
350 IFMX<0 OR MX>127 THEN 190:'RESET THE FLAGS TO ZERO
360 IF MY>2 SET(MX,MY)
370 GOSUB390:'TEST FOR HIT OR NOT
380 GOTO 210:'DISPLAY ANOTHER TARGET
390 'ABS IN MANUAL 7/1
400 IF ABS(I*8-MX)>4 THEN470
410 H=H+1
420 PRINT @10,"HITS=";H
430 FOR J = 1 TO 6
440 PRINT @64+4*I,"****";
450 FOR K = 1 TO 50
460 NEXTK,J
470 RETURN
480 ' AWAIT FOR INPUT FROM THE USER
490 Y$=INKEY$
500 'IF F = 1 THEN STOP
510 'TEST FOR Z FROM THE KEYBOARD
520 IF Y$ <> "Z" THEN 580
530 IF CA <922 THEN 210 ELSE 540
540 PRINT @CA,"    ";
550 CA = CA -1
560 GOTO 620
570 ' TEST FOR / FROM THE KEYBOARD
580 IF Y$<>"/" THEN 640
590 IF CA > 934 THEN 210 ELSE 600
600 PRINT @CA,"   ";
610 CA=CA+1
620 PRINT @CA,"*";
630 GOTO 210
```

```
640 IF Y$<>" " THEN 210
650 'DISPLAY NO. OF SHOTS TOP RIGHT OF SCREEN
660 IF Y$=" "THENSC=SC+1:PRINT @55,SC;
670 F = 1
680 MD = 928 -CA                                        SET.
690 MY = 40                                             ↓
700 MX = 64 -3*MD
710 SET(MX,MY):'DISPLAY BULLET LII MANUAL 8/1           ■
720 GOTO210
730 END
```

Brian Pain

RANKING DATA

I recently had to rank a large amount of numerical data. In the past, when I have needed to do this, I have always sorted the data first, using a second array to store pointers to the original data array. The pointer array, which in fact now consists of ranks, is then operated upon to deal with ties, which are assigned the mean rank of all data with the same value. I recently came across a different way of doing this in a commercial statistical package, which does everything in one go. It might be better, if there are a lot of data, to use my original technique, with a very fast sorting algorithm such as Quicksort, but I am not sure about this, and I do not have the time to investigate it. Perhaps someone else would like to follow this up.

The following program illustrates the technique.

```
10 INPUT "FILE NAME";N$
20 OPEN "I",1,N$
30 '
40 WHILE NOT EOF(1)
50 GOSUB 180
60 DT!(ROWS)=D!
70 B=0:S=ROWS-1
80 FOR R=1 TO S
90 IF D!>DT!(R) THEN RX(R)=RX(R)+2:B=B+1
   ELSE IF D!=DT!(R) THEN RX(R)=RX(R)+1:RX(ROWS)=RX(R)
100 NEXT R
110 IF RX(ROWS)=0 THEN RX(ROWS)=(ROWS-B)*2
120 WEND
125 '
130 FOR R=1 TO ROWS
140 PRINT DT!(R),RX(R)/2
150 NEXT R
160 END
170 '
180 IF EOF(1) THEN RETURN
190 INPUT £1,D!
200 ROWS=ROWS+1
210 RETURN
```

Leon Heller

A Word of Thanks and About Model 4. From Roy Barber.

Please record my thanks to Laurie Shields. After a day of lecturing on machine code in London on Sunday 14th of Aug. Laurie was kind enough to spend about an hour putting a couple of long Forth source code tapes on disk for me using ZEN.

I had been unable to get them in memory using Newdos 80 disk Edtasm but ZEN on disc handled them with memory to spare. Having seen ZEN operate I was impressed by many of its features. I shall probably end up a customer for it.

Readers may be interested in the fact that I have just plumped for a Model 4!. I got the machine from OS House as a 128k system with Memdisk installed by Os. I had twin double sided half height Shugart drives fitted from new and have just added a single sided Teac to carry the system discs.

I did have thoughts of getting the Beeb machine but finally came to my senses and went for the Tandy. In retrospect I am not sorry. If Apparat bring out a model 4 Newdos I will be even more sure I did the right thing.

The system is pretty good with 2 x 360K plus 64K in Memdisk on line with no system disc needing any of the storage.

In model 3 mode the 4Mhz. clock can be enabled allowing a significant speed up (Though not double) also two screens are available in 16 by 64 format using outs to the internal ports. Banks of memory can also be swapped if the memdisk 64k is not fully utilised.

I have not yet been able to swap memory in a running program but I have only had the machine for two weeks. I have spent about half this time reading up on the TRSDOS6/LDOS systems. I still prefer Newdos by a long chalk and having to forego MF and FF files is a real chore, however this is not an LDOS ver Newdos letter so perhaps I should leave this for discussion elsewhere.

Although not too useful yet the 80x24 screen can be enabled independantly and it may not be too much work to patch a Model 3 Word Processor to operate in this mode. I shall be working on this as it is a priority task for my application.

A data sheet on the 6845 Video chip is essential if you want to do any changes to the screen format.

I am in the process of adding a real time clock to boot in the date and time on power-up and adding an 8255 parallel chip to drive my Eprom Puncher. These are aleady in my Model 1.

PLEASE can we have some call addresses for TRSDOS6. Laurie says they are the same as LDOS but I am not yet convinced as most of the operating system seems to be in high memory. I havent had time to investigate this further yet. Any information from whoever would be really useful.

Finally, thanks again Laurie and also thanks to OS House and his staff for patiently answering my many queries during the first few days of use of the Model 4.

I include a short program which enables the second screen in the model 3 mode. This may be of use to new model 4 owners:

```
1  'prog to enable two screens on model 4
10 OUT 132,128    'SET PAGE BYTE IN MODEL 4 OPTIONS REG
20 OUT 136,12     'SELECT REG 12 OF VIDEO CONTROLLER CHIP
30 OUT 137,4      'WRITE MSB OF VID PAGE ADD TO VDC
40 OUT 136,13     'SELECT REG 13 OF VDC
50 OUT 137,0      'WRITE LSB OF VID PAGE TO VDC
60 OUT 136,14     'SELECT MSB OF VDC CURSOR POSITION
70 OUT 137,4      'SET VDC CURSOR TO START OF SCREEN 1 (MSB)
80 OUT 136,15     'SELECT LSB OF CURSOR REG
90 OUT 137,2      'SET CURSOR TO 2ND CHAR POSITION
100 PRINT"NOW ON SCREEN 2..."
110 INPUT"ENTER TO RETURN TO SCREEN 1.";X
200 OUT 132,0     'RESET PAGE BYTE IN OPTIONS REG
210 OUT 136,12    'SELECT VDC REG 12
220 OUT 137,0     'WRITE ORIGINAL MSB OF VID PAGE ADD
230 OUT 136,13    'SELECT VDC REG 13
240 OUT 137,0     'SET VID ADD TO ZERO
250 OUT 136,14    'VDC REG 14 CURSOR POSITION
260 OUT 137,0     'SET LSB TO 0
270 OUT 136,15    'SELECT VDC REG 15
280 OUT 137,1     'CURSOR POSITION 1 ON SCREEN
290 PRINT"BACK ON SCREEN 1.."
300 INPUT"ENTER TO RETURN TO SCREEN 2..";X
310 GOTO 10
```

Note that screen 2 will probably contain garbage on entry. A break in the program will enable it to be cleared and continue can be used to resume the program. This is of course a demo program only. Its up to the user to make something of it.

Another point; if an external I/O port is in use in a program it will be disabled if a CLS instruction is met. This may be common to the model 3 but I have not heard of it. If a CLS is performed during an external I/O routine it will be necessary to re-enable the external I/O by doing another OUT 136,16.

I trust the above is of interest to model 4 owners and please can we have any information from other users.

PS. RTC and Parallel external I/O ports now up and running. Anyone interested in the details?.

Roy Barber (01 304 3856)

ADD A FLASHING CURSOR

I have promised this to Brian for some time and at last, here it is. What does it do ? Well the program listed below will add a flashing cursor to your computer with disks or with out, i.e. A LEVEL 2 and expansion interface, it may also work with just a level 2 alone, but I've not tried the last configuration.
If you do try with just a level 2 you will have to locate the code a lot lower in memory i.e. instead of 7F00H try 7000H and instead of 9000H try 7100H.
If you do not have a disk system you will need to type in the extra instructions that are written in *ITALICS*.
Good luck. Note if you reboot the interupts return to normal

```
CODE                    COMMENTS
ORG 7F00H               ;SETS UP THE INTERUPT CONTINUE CMD
LOAD 7F00H              ;ONLY DO ONCE
EXEC 7F00H              ;ONCE THIS HAS BEEN DONE IT MAY BE OVERWRITTEN
;                        WITH NO HARMFULL EFFECTS
SET'UP'INT'ROUTINE:EQU $
DI                      ;MUST DO OTHERWISE A REEBOOT WILL RESULT
LD BC 3                 ;LOOP 3 TIMES
LD HL,4012H             ;THE ADDRESS OF THE INTERUPT POINTER
LD DE,REENTER'CMD       ;THE CMD BUFFER
LOOP'SET'UP:LD A,(HL);TRANSFER THE CMD AT 4012H TO THE BUFFER
LD (DE),A
INC HL
INC DE
DEC BC
LD A,B
OR C
JR NZ,LOOP'SET'UP
LD HL,9000H             ;WHERE THE NEW INTERUPT ROUTINE IS
LD (4013H),HL           ;NOW TELL THE COMPUTER
LD A,03CH
LD (4012H),A
EI                      ;LET THE INTERUPTS START AGAIN....THE MOMENT OF
;                        TRUTH
JP 402DH                ;EXIT TO DOS (Use only with a disk based system)
JP 06CCH                ;EXIT TO LEVEL 2 READY MESSAGE (Level 2 only)
ORG 9000H               ;ADDITON TO INTERRUPT...THIS MUST BE THE SAME
;                        PLACE AS YOU TOLD THE COMPUTER IN THE
LOAD 9000H              ;SET UP ROUTINE OR ELSE ?????
;                        BUT IT MAY BE PUT ANYWHERE THAT IT WILL NOT BE
;                        OVERWRITTEN AS THIS WILL CRASH THE SYSTEM
;                        PROG**********************************************
PUSH AF                 ;SAVE ALL THE REGISTERS
PUSH BC
PUSH DE
PUSH HL
PUSH IX
PUSH IY
CALL TEST'37E0          ;IF ITS A DISK CONTROLLER INT FORGET THE CURSOR,
;                        DUE TO TIME LIMITATIONS I THINK
CALL START              ;THE CURSOR SUB-ROUTINE
POP IY                  ;RESTORE THE REGISTERS AS BEFORE THE NEW BIT
POP IX
POP HL
POP DE
POP BC
```

```
POP AF
JP REENTER'CMD        ;THIS WILL EXIT TO THE EXSISTING INT ROUTINE
;                      SUBIES**************************************
TEST'37E0:EQU $       ;DO AS THE BOOK SAYS The book is Machine Language
;                      Disk I/O by MICHAEL WAGNER
LD A,(37ECH)          ;This is a pretty good book if you wish to play
;                      with your disks.
LD A,(37E0H)
BIT 6,A
JP NZ,REENTER'CMD
BIT 7,A
JP Z,REENTER'CMD
RET
REENTER'CMD:DS 3      ;WHEN DONE YOU JUST JUMP TO THIS LOCATION AND THE
;                      INTERUPT CONTINUES
;                      PUTS A FLASHING CURSOR ON THE SCREEN USING
;                      INTERUPTS
CURSOR:EQU 4020H      ;THE CURSOR POINTER IN THE COMMUNICATION REGION
START:EQU $
LD HL,BUFF            ;GET IN THE VALUE STORED IN THE BUFFER
DEC (HL)              ;DEC IT -- THIS WILL HAPPEN EVERY TIME AN
;                      INTERUPT OCCURS
LD A,(HL)             ;LOAD THE NEW VALUE INTO THE ACCUMULATOR
AND 0FH               ;IS IT THE 16th TIME WE HAVE BEEN HERE ?
JP Z,GO               ;IF SO GO AND TURN THE CURSOR ON OR OFF
RET                   ;NOTHING TO DO
GO:EQU $
LD DE,(CURSOR)        ;GET THE CURREN CUROSR POSTION
LD A,(DE)             ;LOAD WHAT EVER IS THERE INTO 'A'
LD HL,CHARA           ;CONTAINS THE CURSOR CHARA TO USE
CP (HL)               ;IF THE SCREEN CONTAINS THE SAME CHARATER AS THE
;                      BUFFER THEN REMOVE IT FROM THE SCREEN
JP Z,RESET
LD A,(HL)             ;GET CHARACTER IN TO 'A'
LD (DE),A             ;PUT IT ON THE SCREEN
RET
RESET:LD A,20H        ;LOAD 'A' WITH A SPACE
LD (DE),A             ;PUT THAT ON THE SCREEN
RET
BUFF:DB 0H
CHARA:DB 143
END
```

How it works.
The interupt starts life at location 38H and the rom instruction at this point tells the system to jump to location 4012H. So the set up routine in the program above moves the command at 4012H to the location (REENTER'CMD) and replaces the cmd at 4012H with the command to jump to our program at 9000H

The Cursor flash program at 9000H saves all the registers and then checks the floppy controller chip, to see if it was this that generated the interupt, if so we do nothing other than return to the original interupt, But if it was a normal interupt we continue to the 'START' part of the program, all this does is to turn the cursor ON and if already on, turn it OFF.It does this 'ON' or 'OFF' every 16 interupts, or 0.4 of a second.
It then restores all the registers back to their previous values and jumps to (REENTER'CMD) where it is back on its previously uninterupted course....

What use is it .
One use is that being YOUR cursor, you can by changing the value at (CHARA) you could have a flashing ? (3FH/63D) as a prompt to a question instead of the block (8FH/143) and you can change it at any time from within your program, the flashing on the other hand is independant of your program you dont have to look after it.
The best use ever of using the interupts is that it can do one job in the background, while your main program gets on with its stuff. i.e Two or more programs operating at once.
This is the reason I looked into it, and I have in fact got two programs working at the *same time* for my work.
Peter Drew.

```
1 '                  GENERATING HISTOGRAMS
2 '
3 '    This is an improved version of Leon Heller's August
          1983 program.
4 '    It has been adapted to Level II Basic.
5 '    The unnecessary array B(12,15) has been cut out,
          saving 400-odd bytes and 5 program lines.
6 '    It now runs faster.    And is easier to understand.
7 '    Which all shows that printing histograms is not diff-
          icult at all.
8 '
9 '                                                  John Gale
10 RANDOM
20 INPUT "MAXIMUM"; N
30 MAX=0
40 DIM A(12)
50 FOR I=1 TO 12
60 A(I)=RND(N)+1
70 IF MAX<A(I) THEN MAX=A(I)
80 NEXT I
100 FOR I=1 TO 12: A(I)=INT(A(I)*(15/MAX)):  NEXT I
190 FOR I=1 TO 14
200 PRINT USING"££££";(15-I)*N;: PRINT"    ";
210 FOR J= 1 TO 12
220 IF A(J)>15-I THEN PRINT"*** "; ELSE PRINT"     ";
230 NEXT J
240 PRINT
260 NEXT I
280 PRINT TAB(5);
290 FOR I= 1 TO 12: PRINT USING"££££";I;: NEXT I
300 K$=INKEY$: IF K$<>"R" GOTO 300
400 CLS:RUN
500 '
501 '    NOTE: hit key R to run again
```

FOR SALE

Model III, twin 40-track Drives,
some software, books and accessories.
With RS-232 board £750 ono or £700
without.
Robert Vieira 01-500 5594, evenings.

(Apologies to anyone who phoned in August when I was away)

Son of Machine Code Addition.

In Issue 10, Vol 4, I showed how to add integer values using machine code. Here is its son which adds single precision values. The way that basic stores single precision numbers is quite complicated and because 4 bytes are needed to store a value, a different approach is needed. Fortunately, all the important code is already in ROM.

```
00050          ORG   0F000H       ;anywhere suitable
00060 S1       DEFW  0            ;array address
00070
00080 START    CALL  0A7FH
00090          LD    (TOTAL),HL   ;Total of adds to do
00100          LD    BC,0
00110          CALL  09B4H        ;store zero in wra1
00120 ADDNXT   LD    HL,(S1)
00130          CALL  09C2H        ;move from HL to BC/DE
00140          LD    (S1),HL      ;save next array addr
00150          CALL  0716H        ;add WRA1 & BC/DE
00160          LD    HL,(TOTAL)   ;reduce count by 1
00170          DEC   HL
00180          LD    (TOTAL),HL
00190          LD    A,H          ;check if zero
00200          OR    L
00210          JP    NZ,ADDNXT    ;keep going if total>0
00220
00230          CALL  09BFH        ;transfer WRA1 to BC/DE
00240          PUSH  DE           ;save answer temporarily
00250          PUSH  BC
00260          LD    HL,VAR       ;find address for Z!
00270          CALL  260DH
00280          PUSH  DE           ;move it into HL
00290          POP   HL
00300          POP   BC           ;get sum back into BC/DE
00310          POP   DE
00320          LD    (HL),E       ;move sum into Z!
00330          INC   HL
00340          LD    (HL),D
00350          INC   HL
00360          LD    (HL),C
00370          INC   HL
00380          LD    (HL),B
00390          RET                ;back to basic
00400
00410 VAR      DEFM  'Z!'         ;variable to store answer
00420          DEFB  0
00430
00440 TOTAL    DEFW  0
00450
00460          END   START
```

To perform calculations, basic has working register areas (WRA1 and WRA2) to store data prior to adds, subtracts etc. A number of ROM routines also exist to move values around. This program uses some of these. Single precision maths stores 1 value in WRA1 and the other in registers BC/DE.

This program first stores a zero in WRA1, then loads the BC/DE registers with each array value to be added and adds it to the value in WRA1. The sum remains in WRA1 until all adds have been performed. It is then extracted and stored in a particular variable. Control is then passed back to the basic program.

To receive the value, I use Z!. This variable must be single precision or errors will occur. The variable is also stored in the M/C program so I use an ! to indicate the single precision. You may of course use any other variable name if you wish.

This program is used in the same manner as my integer add program.

```
100 CMD"LOAD SPADD/ML"
110 DEFINT A-Y
120 DIM Z(200):DEFUSR=&HF002
130 FOR X=1 TO 200:Z(X)=RND(2000)/10:ZZ=ZZ+Z(X):NEXTX
140 X=VARPTR(Z(1)):POKE &HF000,PEEK(VARPTR(X))
150 POKE &HF001,PEEK(VARPTR(X)+1)
160 Z!=USR(200)
170 PRINT ZZ,Z!
```

This program should act as a test for the program. ZZ provides a check for a correct answer. The machine code is about 19 times faster than conventional basic addition. Line 140 stores the address of Z(1) at S1 in the assembly listing. As in the integer add, you can specify a different start point or a different quantity to add. If you exceed the limit of the array, unexpected things will happen. Most likely an incorrect total, so be careful. This does approx 1700 additions per second instead of 90/sec in basic.

Gary Brittain. 45, Waddington Ave, Great Barr, B'ham, B43 5JF

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MODEL 4
(Two months later)

Almost two months have elapsed since I got the longed for 64K CP/M box and I have been pretty busy with it, but mainly running it in Model III mode. Molimerx exchanged my Model I Data Writer for Model III version for about £18 only as my manual was in good condition. This version came on TDOS, which one could call small DOSPLUS. There are very few library commands in it - in fact only two - DIR and CAT. Directory works only on program diskette and shows the DATA WRITER programs' names and CAT shows the names of files created by the user. In neither case are the file sizes nor free diskette space given. A little tip to the users of DATA WRITER under TDOS - transferring from Model 1 to III - the CONVERT:s :d (V13) just does not work and will not transfer from diskette to diskette but using CONVERT FILENAME:s :d (V13) or without (V13) will do the trick.

The DATA WRITER is now improved since the original version and it has a very useful HELP feature. An extra function called SPLIT has been added. This in fact existed in the old version, but was included in MANAGE. Other improvements are claimed and these are 40 maximum fields, 10,000 maximum records, 14 characters maximum field names. Control files can now be created with a word processor, abbreviation table can be displayed, numeric fields' contents can be automatically incremented. New pages provided as an addition to the Manual claim that the "String space corrupt" problem has been fixed. This however is not my experience. MANAGE can merge up to five files at once. MATH has now additional registers, three of which are non-resetting to use for incrementing totals or balances. SELECT now permits creation of two files - one containing selected records and the other rejected ones. In other words one could say this is an additional SPLIT by parameters. Alpha fields sort now to the full depth of the field and sort capacity of 10,000 records is claimed. There are some further improvements claimed in LETTERS, REPORT, LABELS and ACCESS. I never liked that last mentioned module and I found that a search through the data base using EDIT (without creating a new file) is easiest. One can say however that the DATA WRITER program is a very powerful tool and very reasonably priced.

So far I managed to convert my indices to Model III version and also my accounts' programs, which work just that little bit faster. I have also discovered that the SUPERUTILITY works on Model III version as it automatically recognises the disk drive density. But I cannot make it read single density NEWDOS80 diskettes. Another discovery was that whatever I do I cannot get the Clock display in Model III mode. Mr Os House kindly provided me with a patch to SUPERSCRIPSIT to utilise the Control key and CAPS. I could not get the CAPS key to work for weeks until today I discovered, quite accidentally, that pressing another key whilst holding down CAPS does make the magic C appear on the status line.

So at present I am using four operating systems on my Model 4 and three languages - if one can say that Microsoft Basic and Tandy Basic are different animals. I must confess to having made very little use of Model 4 Basic. One calculator program to print out input and totals when I was working on conversion of the office accounts at home and sadly lacked a calculator with print facility, and a couple or so little test programs to try out different features. The type ahead buffer is a very pleasant thing to have and the difference in machine speed is very noticeable.

I have also been playing with the System and Sysgen in TRSDOS 6.0. System has several setting up options. If you choose ALIVE you will get alive character moving in the top right hand corner of the screen so you know that the dashed thing has not hung up on you. In fact it never has so far! You can choose the cursor blinking on or off, you can choose the type of cursor (I have a little man flashing - special character 253). You can enable or disable BREAK, enable or disable DATE and TIME. SYSTEM (DRIVE=number, (paramenters)) permits defining number of cylinders for FORMAT (35 to 96), selecting the delay time before READ, enabling or disabling the drives or Write protecting the drives. SYSTEM also allows loading TRSDOS modules into memory either to speed up disk operation or backing up non system disks using two drives. Other options include automatic TRACE on or off, type ahead buffer on or off and master drive selection between :0 and :1. All these options plus any other function chosen, like clock display, or routing through phantom devices, can be sysgened into a configuration file, which is loaded on booting up.

Of course having a new toy I look out very eagerly for any mention of it in any computing papers. Not much so far. There was a short review in the August 11-17 number of the Personal Computer News and that is just about all. The promised CP/M Plus from Tandy has not materialised yet but it is supposed to appear soon. I do not know whether Tandy is going to convert their Model III programs to Model 4, but I doubt whether there would be much call for such programs from the old Model I or III users. After all, if the program works well in Model III mode, what is the sense in buying it again for the full price to run it in Model 4 mode? In fact for a while I was wondering whether I had bought a white elephant, even though Model 4 is a very nice machine. (I wish that my office PDP11/23 would have half of Model 4 speed or the DECTYPE could search the text as fast as Superscripsit. If you have not come across DECTYPE try not to do so - it is pathetically slow). I see however that now software for Model 4 starts being advertised - see the September issue of the Personal Computer World.

The immediate plans for the future are the extra 64K memory and RS232 interface. Blandford Computers will install both either at the end of September or beginning of October (I hope). Machine is really too heavy to carry about so Mr House promised to do the job in my place, if he is anywhere near on another job. The logical step from then on would be to obtain a modem and to try out on our net the wonderful communication program included with TRSDOS 6.0. After that CP/M Plus and CBASIC. I have a complete suite of programs written in CBASIC, which will require typing in.

Meanwhile I am asking myself whether I am the only member in the Group to own Model 4? I awaited impatiently the next issue of the Newsletter hoping to acquire some tips or knowledge from other members but nobody uttered. And whilst talking about other members' knowledge, in December 1982 Paul Taylor wrote about conversion from Model 1 to Model III. Thank you Paul - your article saved a me lot of work. This also shows the value of the Newsletter. Maybe some articles do not have any bearing on your current use but, if you read them and still better index them, you may be spared a lot of head scratching at some later date.

Somewhere I have seen CP/M 3 advertised but not for Tandy machine. Has anyone tried any version of CP/M on Model 4? Or for that matter any other operating system apart from TRSDOS 6.0? Does anyone know whether C or Forth diskettes could be booted on Model 4? If there is anyone who knows the answers please put pen to paper !

Anon.

(* Provided the disks on which they reside are compatible with one of the Model 4 operating systems, C and Forth programs will run quite happily on the Model 4. The LC compiler mentioned elsewhere in this issue should run under TRSDOS 6.0 (LDOS by another name). The standard TRS-80 Forth is MMS Forth. This has its own operating system which can be run on a Model III, and should run on the Four in Model III mode. Both these languages are available to run under CP/M, and should run on the Four under CP/M 3. LFH *)

MICRONET 800

At long last Micronet 800 has got working software for Tandy machines and they say that they are now offering two versions: Model I (cassette) and Model III (disc).

I have a Model III with discs so I have tried out the latter version. Following their instructions I transferred the three files -- /CMD, /BAS which contains both the Basic portion of the program as well as the instructions to load the machine code portion, and the /BLD build file that sets up the system, loads the Basic and then runs the program -- onto a TRSDOS disc. I found no reference to which DOS could be used.

On inserting the disc and pressing Reset the load and initialisation process commences. Possibly because of TRSDOS it appears to take an inordinate time. (I have not yet tried to use it with Newdos 80).

Some of the features are very nice. Going from the main menu, with its choice of log on/off, normal operation, saving/viewing/printing Micronet frames, downloading a program, and sending a message one first goes to the Logon menu. Here, on the subsidiary auto logon option, a short table is provided of the available computer numbers. Many will consider this a very minor point but, nevertheless, it was very helpful.

As the Tandy 16 line screen will not accommodate the 24 of Prestel it is necessary to toggle between the top and bottom halves. This is done with the Break key. The bottom half page repeats the headline and the lower 5 lines of the top half page. A nice feature is the arrow at the left hand side of the screen which "points" at Line 15 of the frame and so directs the eye to the transition point. On the other hand, what is not very convenient is the way that the left and right arrow keys can be used for "star" and "hash" This is not so easy to use (if one has a key pad) as the use of decimal point and Enter keys which Don Bannister has adopted for his Prestel package.

Priced at £59-95 and £64-95 respectively for the Model I and III versions, including VAT and p & p, this includes the 1200/75 baud acoustic coupler, instructions and the tape or disc, as appropriate. Additional costs are then usage related and the rental fees. Micronet is £8 per quarter whilst Prestel (of which it is closed user group) and thus also has to be paid is £5 or £15 per quarter for private or business users respectively.

Adrian Morant, Edgware
01-952 7991

68000 SYSTEM - LATEST NEWS

I still cannot get my 68000-based CPU card to work properly, so I have purchased a couple of 68008 chips, which I intend to build into a very simple system. If I can get this to work, I should be able to find out what is wrong with the larger system.

The 68008, which has just become available, is an 8-bit bus version of the 16/32 - bit 68000, in the same sense that the 8088 is a stripped-down 8-bit bus version of the 8086. The 68008 is completely software compatible with the 68000, apart from the execution time of some instructions, and comes in a 48 pin package. They cost just under £30, which is quite reasonable, considering the amount of processing power you get.

Software development will now be much simpler for me, as I have acquired a FREE (!) 68000 cross-assembler that runs on my Model II under CP/M. This cross-assembler has been placed in the CP/M Users Group Library. It seems to work very well on the simple programs I have tried it on. When I get the 68008 system to work, I will use the cross-assembler to develop a simple monitor along the same lines as my 8088 monitor.

Leon Heller

TANDY - TRS-80 MODEL I - EXTRA DISC CAPACITY
ZAPS V.2.0 - TO RUN 40 TRACK DISC DRIVES UNDER TRS-DOS 2.3

Recent experience with SuperSCRIPSIT running under TRS-DOS showed that a 35 track single disc drive does not offer sufficient space for serious word processing applications.

Many disc drives are capable of using 40 tracks and some of Tandy's own drives are among these. There seemed to be no reason why TRS-DOS shouldn't be modified to access, format and backup 40 track drives.

The following ZAPS convert a 35 track disc so that it produces 40 Track discs using FORMAT or BACKUP. **DO NOT USE** this disc for anything else other than making 40 Track discs, you will have changed the directory to make it appear to have 40 Tracks when it is only formatted for 35. Errors will occur if you try.

FILE NAME	FILE SECTOR (Relative)	BYTE Number	CHANGE From	CHANGE To
FORMAT/CMD	1	E6	23	28
	2	2B	23	28
	2	30	23	28
	3	02	23	28
	3	CD	23	28
	4	83	23	28
	4	8E	23	28
	8	30	34	39
SYS0/SYS	6	96	23	28
	6	BE	23	28
SYS3/SYS	0	55	23	28
SYS6/SYS	8	7D	23	28
BACKUP/CMD	2	34	23	28
	2	4A	23	28
	3	4D	23	28
	4	02	23	28
	4	12	23	28
	4	1D	23	28
	5	00	23	28
	5	A4	23	28
DIR/SYS	0	22 to 26	FF	FC
	0	82 to 86	FF	FC

The best way to change these bytes is to use a "Disc-Zap" program such as SUPERZAP which is contained on the NEWDOS discs. If you haven't got a copy you will need to get the help of someone who has.

WARNING - These zaps were only recently done. As a result they have not been extensively tested. If anyone finds a problem with them let me know and I will try to sort them out.

NOTE: TANDY do not endorse these zaps,
CONTACT:- Dennis V. Long Evenings on 0634 (Medway) 290 857.

ROMAN NUMERAL CONVERSION

15.0 INTRODUCTION TO THE PROBLEM

This article although part of the FORTRAN tutorials is just as useful for the idle BASIC programmer or contorted machine code artist(e). The reason for this is quite simple - the solution to a computer puzzle or problem should be independent of the language it is programmed in.

15.1 A Repetition of the Problem Statement

For a decimal integer between 1 and 9999 convert this into a Roman numeral in the appropriate range.

16.0 THE SOLUTION DESCRIPTION

16.1 The Problem

The first step is to get clear the required result of the problem. This can be helped by spliting the problem up into a program statement and an input/output description. In this case it is rather trivial.

Problem Statement:

Print numbers as Roman numerals.

Input/output description:

Input: Integer between 1 and 9999
Computation: Convert to a Roman numeral
Output: The Roman numeral for (INPUT) is (OUTPUT)

16.2 The Conversion Process

In order to get a feeling for the conversion process let's look at a few conversions:-

1	I
5	V
9	IX
48	XLVIII
109	CIX
1984	MCMLXXXIV

Now a walk through a conversion might help. For example the Roman numeral for 2753 in decimal. The first step is to convert the first digit, the 2 in the thousands place, to the Roman numerals MM. The next step is to convert the 7 in the hundreds place, this results in the Roman numerals DCC. Now we have MMDCC, with two digits to go. The 5 in the tens place gives L and the 3 in the units place gives III. Thus the end result is MMDCCLIII.

It is now time to try to convert a number like 601 (result is DCI). An interesting point comes up ..... leading zeroes do not count. However it will probably be easier to regard all inputs as if they had exactly four digits. Thus 99 becomes 0099 and 193 becomes 0193.

16.3 The First Attempt at an Algorithm

It is now high time an outline should be made for the conversion algorithm. I have used a Program Definition Language type outline but I suppose a flowchart would be just as good for something like this.

```
PROGRAM Roman numeral conversion

Start with an empty pattern
Perform conversion of thousands digit and add to pattern
Perform conversion of hundreds digit and add to the pattern
Perform conversion of tens digit and add to the pattern
Perform conversion of units digit and add to the pattern

END
```

16.4 The Conversion of a Digit.

In changing the decimal digit to the Roman system there are ten possibilities, one for each digit from 0 to 9. These produce a pattern of Roman digits that depend on whether the number is a hundred digit, a thousand digit etc. The variations that can occur are shown in the table below. N.B. The Roman numerals V bar and X bar for 5000 and 10000 are shown as W and Y repectively.

Thousands		Hundreds		Tens		Units	
0	nothing	0	nothing	0	nothing	0	nothing
1	M	1	C	1	X	1	I
2	M M	2	C C	2	X X	2	I I
3	M M M	3	C C C	3	X X X	3	I I I
4	M W	4	C D	4	X L	4	I V
5	W	5	D	5	L	5	V
6	W M	6	D C	6	L X	6	V I
7	W M M	7	D C C	7	L X X	7	V I I
8	W M M M	8	D C C C	8	L X X X	8	V I I I
9	M Y	9	C M	9	X C	9	I X

If you look at the table closely enough then it can be seen that for each digit position only three symbols are involved. For example the units place uses I, V, and X or the hundreds place C, D and M. If these symbols are called I, J, and K then a condensed table of digit conversions can be made up:

Thousands	Hundreds	Tens	Units
I = M	I = C	I = X	I = I
J = W	J = D	J = L	J = V
K = Y	K = M	K = C	K = X

ROMAN NUMERAL CONVERSION

Where:
0 = nothing

1 = I	2 = I J	3 = J I I
4 = I J	5 = J	6 = J I I I
7 = J I I	8 = J I	9 = I K

The conversion of a digit can be seen to be simply a matter of looking up an entry in the condensed table above once the digit and three necessary symbols are known.

16.5 The Position of the Digit

The previous section means that given the digit and its correct position a conversion can be made to a Roman numeral. However the position of the digit in question has not been resolved.

One of the hints I gave was the use of the function MOD. This simply gets the remainder in a division e.g. MOD(36,10) will give 6 since 36 divided by 10 gives 3 remainder 6. From the example it is clear that what has happened in this case is the units place has become separated from the tens place. This is precisely the method that can be used to extract the position of a digit in question. For example if I is the integer in question:

MOD (I/1000,10) will extract the thousands digit
MOD (I/10,10) will extract the tens digit

17.0 THE PROGRAM

17.1 Adding to the Pattern

The symbols of the Roman numeral are stored in an Byte array and are kept track of by the integer variable NUMBER which is updated each time a numeral is converted. This tells us where to put the symbols to be added each time we convert a digit of the input integer.

17.2 Main Program

The program first gets the decimal integer and then checks it to be valid. The digit conversion then takes place on the thousands digit, the hundreds digit, the tens digit and , finally, the units digit. The Roman number is then written out with an implied DO-LOOP. This is simply a DO-LOOP operating on one line instead of a block. It is usually used for writing out arrays in a WRITE statement.

17.3 Subroutine Digit

The inputs to the subroutine are the digit to be converted, the three relevent Roman characters, and the current length of the conversion array. It is simply an implementation of the condensed table given in section 16.4. This was implemented by the use of a computed GOTO statement. This was described in the first tutorial.

FORTRAN Tutorial PART 4

18.0 THE LISTING

```
C
C  ******************************************************
C  *                                                    *
C  *    ROMAN NUMERAL PROGRAM FOR NATGUG   SEPT. 83     *
C  *                                                    *
C  ******************************************************
C
C         INPUT : INTEGER IN DECIMAL
C        OUTPUT : ROMAN NUMERAL
C     VARIABLES :
C                  INPUT = INPUT DECIMAL INTEGER
C                 ROMNUM = ARRAY TO STORE ROMAN NUMERAL
C                 NUMBER = CURRENT NUMBER OF ROMAN
C                          NUMERALS STORED IN ROMNUM
C                    DEC = DECIMAL NUMBER BETWEEN 0 AND 9
C
C
      INTEGER INPUT,NUMBER,COUNT,DEC
      BYTE ROMNUM(16)
C
C   PROMPT, READ IN ROMAN NUMERAL AND CHECK IT
C
10    WRITE(5,100)
100   FORMAT(' PLEASE TYPE IN THE NUMBER FOR CONVERSION ')
C
      READ(5,110)INPUT
110   FORMAT(I6)
C
      IF (INPUT .LT. 0   .OR. INPUT .GT. 9999) GOTO 10
C
C   START WITH AN EMPTY ROMAN NUMERAL
C
      NUMBER= 0
C
C   CONVERT THOUSANDS, HUNDREDS, TENS AND UNITS
C
      DEC=MOD(INPUT/1000,10)
      CALL DIGIT (DEC, 'M','W','Y', ROMNUM,NUMBER)
C
      DEC=MOD(INPUT/100,10)
      CALL DIGIT (DEC, 'C','D','M', ROMNUM,NUMBER)
C
      DEC=MOD(INPUT/10,10)
       CALL DIGIT (DEC, 'X','L','C', ROMNUM,NUMBER)
C
      DEC=MOD(INPUT,10)
      CALL DIGIT (DEC, 'I','V','X', ROMNUM,NUMBER)
C
C   WRITE THE ROMAN NUMERAL OUT
C
      WRITE(5,120)INPUT,(ROMNUM(COUNT),COUNT=1,NUMBER)
120   FORMAT('$THE ROMAN NUMERAL FOR',I5,' IS',16A2)
C
      END
C
C
C
      SUBROUTINE DIGIT (DEC, I,J,K, ROMNUM, NUMBER)
C
```

ROMAN NUMERAL CONVERSION

```
C
C  THIS SUBROUTINE PERFORMS THE DIGIT CONVERSION ACCORDING
C  TO THE CONDENSED TABLE OF VALUES.
C
C   INPUT :
C            DEC = DECIMAL NUMBER BETWEEN 0 AND 9
C        I, J, K = ROMAN NUMERALS USED BY CONVERSION
C         ROMNUM = ARRAY TO STORE ROMAN NUMERAL
C         NUMBER = CURRENT NUMBER OF SYMBOLS IN ROMNUM
C
C   OUTPUT:
C          ROMNUM = UPDATED BY CONVERTING DEC TO ROMAN NUMERAL
C          NUMBER = UPDATED NUMBER OF SYMBOLS IN ROMNUM
C
      BYTE ROMNUM(16),I,J,K
      INTEGER DEC,NUMBER
C
C   MAKE THE CHOICE
      DEC=DEC+1
      GO TO (10,20,30,40,50,60,70,80,90,100), DEC
C
C   INPUT DEC = 0 ..... OUTPUT PATTERN = NOTHING
C
10    RETURN
C
C   INPUT DEC=1 ..... OUTPUT PATTERN = I
C
20    ROMNUM(NUMBER+1) = I
      NUMBER = NUMBER+1
      RETURN
C
C   INPUT DEC=2 ..... OUTPUT PATTERN = I I
C
30    ROMNUM(NUMBER+1) = I
      ROMNUM(NUMBER+2) = I
      NUMBER = NUMBER+2
      RETURN
C
C   INPUT DEC=3 ..... OUTPUT PATTERN = I I I
C
40    ROMNUM(NUMBER+1) = I
      ROMNUM(NUMBER+2) = I
      ROMNUM(NUMBER+3) = I
      NUMBER = NUMBER+3
      RETURN
C
C   INPUT DEC=4 ..... OUTPUT PATTERN = I J
C
50    ROMNUM(NUMBER+1) = I
      ROMNUM(NUMBER+2) = J
      NUMBER = NUMBER+2
      RETURN
C
C   INPUT DEC=5 ..... OUTPUT PATTERN = J
C
60    ROMNUM(NUMBER+1) = J
      NUMBER = NUMBER+1
      RETURN
C
C   INPUT DEC=6 ..... OUTPUT PATTERN = J I
```

```
C
70      ROMNUM(NUMBER+1) = J
        ROMNUM(NUMBER+2) = I
        NUMBER = NUMBER+2
        RETURN
C
C   INPUT DEC=7 ..... OUTPUT PATTERN = J I I
C
80      ROMNUM(NUMBER+1) = J
        ROMNUM(NUMBER+2) = I
        ROMNUM(NUMBER+3) = I
        NUMBER = NUMBER+3
        RETURN
C
C   INPUT DEC=8 ..... OUTPUT PATTERN = J I I I
C
90      ROMNUM(NUMBER+1) = J
        ROMNUM(NUMBER+2) = I
        ROMNUM(NUMBER+3) = I
        ROMNUM(NUMBER+4) = I
        NUMBER = NUMBER+4
        RETURN
C
C   INPUT DEC=9 ..... OUTPUT PATTERN = I K
C
100     ROMNUM(NUMBER+1) = I
        ROMNUM(NUMBER+2) = K
        NUMBER = NUMBER+2
        RETURN
      END
```

19.0 THE CONCLUSIONS

The winds of change in the computer world blow fierce and are ever blowing fiercer. However FORTRAN goes on and on, and is likely to for considerable years to come. It is particularly unfortunate that the newer and considerably nicer versions have not come onto the TRS-80 market. The micro world instead had gone the way of pre-procesors, for example RATFOR, which go between the editor and the compiler.

This is the last of the FORTRAN tutorials I am currently planning but if there is sufficient interest I might try and go further. If you need any help with your FORTRAN programming then don't hesitate to phone the number below (after 8 pm.).

Jeffrey Goldberg
01 - 458 - 3025

P.S. This tutorial including the program was written using Newscript.

LC - A "C" Language Compiler for Tandy Models 1,3 & 4

This review is in two parts. The first part is a digression on the reasons for using another language and personal feelings about programming environments; the second part is a review and critique of the "LC" Compiler.

Some people write programs for pleasure, others write programs to solve personal jobs and problems. My need is to write programs for other people to use. My programs are intended to be used for a given purpose, and the users don't really care how I have achieved that purpose. This has led me to the philosophy that programming languages are only tools to achieve an object. The theory that any one language is ideal or better than another is meaningless without the context of its use. BASIC for all its many faults is superlative for quick construction of simple programs.

My particular needs are to produce fast running software which can be easily transferred from one make of Micro-Computer to another. This almost inevitably means choosing a very high level language such as FORTRAN or COBOL or using the "P" system of interpreting an intermediate code. The two most available low level portable languages are "C" and FORTH. Both of these I use, though for different types of jobs.

The "C" Language is a medium to low level language available on many machine types. It is derived from an earlier language "BCPL" and is fully described in "The C Programming Language" by Kernighan and Ritchie (K. & R.). The "C" language is a weakly typed language for those who understand such terms and is fully structured. "C" programs are constructed of functions, and indeed the main "C" program is itself a function.

The LC Compiler.

Like nearly all "C" systems the LC system is a compiler rather than an interpreter of the "C" Language. As is usual the compiler generates not machine code, but Assembly Language source code to be assembled into machine code.

LC is written by Mysosis in the U.S.A. and is designed to run with the LDOS family of operating systems. While I am not a regular user or admirer of LDOS, I am bound to say that the combination is particularly happy for reasons I shall explain later.

LC is supplied complete with the EDAS 4.1 Assembler for which it generates source code. The EDAS Assembler is a fairly advanced assembler featuring Assembler Switches, Macro and Nested Macro Use (some limitations on Nesting), virtual assembly from disk to disk etc. The EDAS assembler system is a straight-forward assembler without the use of linking loaders. Accordingly the code is not relocatable as are some assemblers, I dwell on the Assembler because it is an essential and integral part of the LC System. The Assembler is able to include sections of source code from external libraries, and this is the key to a large part of the LC system.

The compiler itself is surprisingly complete. The Language as compiled is as

defined by K. & R. The Authors of LC state that they have used "The C Puzzle Book" from the same publishers as K. & R. as a validating and test series for the LC Compiler. The book has helped me greatly in learning "C" and I can confirm that the examples I have tested with LC have produced the expected results. This is not a trivial comment but is the central feature of LC. The "C" language that it supports is standard and is readily portable to other machines.

LC supports floating point mathematics via function calls. This appears normal, although it should be realised that the functions work through ROM calls. I see nothing wrong with this. On porting to a different machine a different compiler would be used and the function calls would (hopefully) remain the same even though their internal method of working might change. A wide variety of functions are provided with the Standard Library. These include TRS-80 based functions for drawing on the screen etc.

The main operators and statements omitted from the LC Compiler that I have noticed are :-

STRUCT, UNION and TYPEDEF
SIZEOF
ENUMERATED DATA TYPES & FUNCTIONS that accept STRUCTURES as arguments.

This last item is rarely implemented except on full UNIX 7 system running on much bigger machines.

The system compares very favourably with the CP/M "C" Compilers. Because of the use of LDOS, output can be redirected to files or devices as desired. Proper command line parsing is automatically achieved. Unlike CP/M but like UNIX file input/output may be at a byte level and the operating system can keep trakc of the position in a file to the byte rather than to the nearest 128 byte record as in some CP/M enviroments. LDOS makes available a Partitioned Data Set Utility which "LC" uses and which is worthwhile for the LC Programmer.

There is also availble (though I do not possess it) a UNIX like shell for LDOS which, with LC, should give a powerful programming enviroment.

The LC compiler accepts in-line source code, and can therefore have extra functions added to it. Using this technique it is easy to add features such as Random Access input/output. I would however normally write such assembly language code in an external library file and allow the LC compiler to call the code as a "Library Function".

The LC source code that I have written and debugged on my Model 1 TRS-80 has proved easily portable to 8088 16 bit systems made by an Immensely Big Manufacturer. The compilation time on My Model 1 is substantial; taking usually two to six minutes to link and get all the library routines. To help debugging the Compiler is able to output EDAS Z80 Source Code with the "C" source statements embedded as comments.

Two Disk Drives and 48K are essential. Double Density on a Model 1 system is also in practice essential.

If you are prepared to sacrifice the file redirection facilities then the compiled programs seem to run under other operating systems than LDOS.

The manual states that there is a license fee to be paid for software sold commercially compiled with the LC Compiler. I find this totally unacceptable. No mention of it is made in any sales literature that I have seen. There also seems to be no practical point in selling a compiler which cannot be used commercially. The LC Compiler Costs £110 plus VAT in the U.K. Combine this with the price of LDOS, the Partitioned Data Set and Other Minor Utilities and the LC Compiler will cost about £200 to use in a serious way. To expect users to pay an unspecified license fee over and above this is unrealistic. It is possible that this condition has now been dropped by the Vendors (who are in other respects quite reasonable). The status should be checked by any users with commercial aspirations before purchase.

All in all I am well pleased with LC. I have been able to learn to use "C" with it, and have since produced some major items with it. The portability, on of "C"'s chief virtues has been kept, and the system is one of the best implementations on an 8 bit Micro. The Manuals are large , copious and clear. They do NOT teach you how to program in "C". The programs produced are fairly fast running. The Compiler has taken sensible decisions over the implentation of Machine Specific features such as Register Variables, and I cannot differ with the authors on the trade-offs they have used. Strengthening one area would probably weaken another spot, and as the whole package works effectively it would be presumptious of me to suggest different design criteria.

If you want "C" on a TRS-80 based system and haven't got a Model 16 or CP/M then this is your only route, and I don't think of it a second best, but as a good tool within the limitation of the machine. Given the Z-Shell, the combination with LC will be very desirable.

John Newgas

BRITISH COMPUTER SOCIETY MICROCOMPUTER SPECIALIST GROUP

1983 - 1984 SESSION

The Group has decided to follow the themes of the ALVEY report in the 1983/84 Session.

Our first meeting is on Tuesday, October 4th at Baden Powell House, Kensington, when the topic is MAN-MACHINE Interaction programme.

1.30 p.m. - John Alvey to introduce the session

1.45 p.m. - Roy Yates on "Human Factors related to Man Machine Interface".

2.30 p.m. - Dr John Holmes on "Use of Speech in Man Machine Interface".

3.15 p.m. - Tea break

3.30 p.m. - Dr Michael Underwood on "Man Machine Interaction, challenges and opportunities".

4.15 p.m. - Question time and discussion.

The only charge is £1.50.

Further details are available from Robin Phillips, Secretary, BCS Microcomputer Specialist Group, 21 Rye Close, Saltdean, Brighton, Sussex BN2 8PP or Allan Cheetham, Chairman, BCS Microcomputer Specialist Group, North East London Polytechnic, Longbridge Road, Dagenham Essex.

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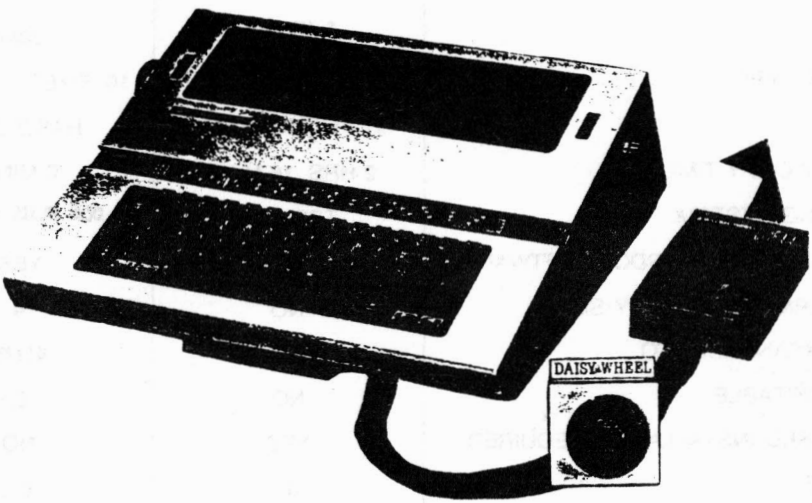
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1 High resolution graphics for the Model 1 - comprising hardware box, keyboard fitting, manual, program disc, and fitting details. Fitting free if required. As sold by Tandy for £170. Only £59.95. Demonstrations arranged.

For another £10 an XY plotter in an Eprom and a printer driver is included.

---

2 32K expansion interface with Data Separator.

3 48K Model 1 keyboard with a L1/L2 switch.

---

4 Speed up kits for Model 3 4MZ £60 6MZ £95
Full instructions. Free fitting if required.

---

5 Also speed up kits for Model 1 4MZ

---

6 Model 1 16K keyboard, 32K Interface, Line Printer 7, Double Disc Drive. £600 ono for the lot. May split.

---

7 A computer engineer/friend of mine is going to develop a colour graphics option for the Model 1 and Model 3, if enough people are interested. Do we want a cheap, low resolution type or a more expensive high resolution one? (Where the chip is £40) Please let me know if you are interested.

---

8 Single Disc Drive complete with power supply. Ideal for first time disc user. £150 ono.

9 Model 3 48K Cassette, DMP 100 Printer, plus software including Management programs.

WANTED

"Computing Today" August 1982. Please phone if you have a copy.

****FREE****

Reduced price tickets for PCW show (29 Sept - 2 Oct) from me, if you send a SAE to 19 Boughton Lane, Moulton, Northamptonshire, NN3 1RN.

****HELP****

Can anyone help in translating programs for BBC Model B disc or RML 380Z disc onto TRS-80 disc? A publisher wants some help and he will pay!

For details of the above contact Mike Gibbons, phone 0604 494038, evenings.

NATGUG NEWS

VOLUME 5 No. 4 October 1983

OFFICIAL JOURNAL OF THE

National TRS-80

& Genie Users

Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. 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 from time to time. Sub-groups also exist for medical and educational users.

The Group runs 80-NET, a computerised bulletin board service that is available to all users of microcomputers.

The Group maintains three software libraries (Models I, II and III) which are free to members. Library lists are obtainable from the Secretary. The medical and educational sub-groups maintain their own libraries.

A membership list is obtainable on disk from the Secretary.

Back numbers of the Newsletter are available.

Please send all contributions for the Newsletter to the Editor.

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Model II: Jim Hutton, 25 High Street, Stroud, Glos. Tel: (045 36) 4423.
Model III: Nick Clay, 6 Rectory Lane, Byfleet, Surrey. KT 14 7LL. Tel: (09323) 42348.

Model 100 Richard Creak Phone 024541-3725.

Model 4 Ken Arntsen Phone 0279-730354

****Eric Hartley 0020 - 22880 RS232 board & L/Case.

MKMUG our local club, every TUESDAY, around 80 - 110 enthusiasts, 5 Erica Road, Stacey Bushes. Very Close to the concrete cows and Central Milton Keynes Railway and Bus stations

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FUTURE WORKSHOPS & MEETINGS
==========

NOV 18/19/20 SWINDON
FRI Case Studies by Leon Heller, Dave Washford, Brian Pain, Laurie Shields. (Stock 3 DePots & reading cards via RS232)
SAT Patching Scripsit Geoff Smith, Machine Code-Graphics & Reading/Writing to Disk Laurie Shields, Model4 & Hard Disk Leo Knaggs, Model 100 & Prestel (Prov) Charles Davies. Speech Synthesis Carl Rabe, Hooking the 68000 or 8088 to the Model One Leon Heller, sorting Demonstrations Laurie Shields & Brian Pain.
SUNDAY EPSOM and ROMS How to get more out of this tremendous combination Don Bannister (0232-668899)
EPSOM and SOFTWARE Jim Bartholomew (0383-822667) will give some of his ideas on how to get more out of the Printer.
********* This day could be just a little unique
********* so try & support this weekend

Saturday Evening John Newgas on Disk Protection and Compilers
***** the above by special request.

Book direct with the hotel.

EDITORIAL

The PCW show was something of a disappointment, in that very few new members were recruited. We were also giving out information on the CP/M Users Group, and there was more interest in that than in NATGUG! The hospitality room organised by Brian on the Saturday was also very poorly attended. Nevertheless, I feel that the Group should be represented at the shows.

Some of you might have seen those Armatron toy robot arms in a Tandy store. We have purchased one of them to form the basis of a simple, low cost, robotics project. I've disassembled the thing (it took me an hour to put it together again!) and it should prove relatively easy to control all six movements by using six stepper motors controlled by a Model I, in the first instance. If anyone is interested in participating in this project, could they give me a ring. I would be especially interested in someone who is good at designing and making mechanical bits and pieces, but we will also require people with hardware and software skills.

I have just read that Visicorp (the Visicalc people) have written most of their new Visi On system in C. It really does seem to be catching on in a big way. Apart from John Newgas and myself, are any other members using it? I would like to publish a regular feature on C, containing hints and tips about programming techniques, useful functions, etc. Although many of you seem interested in learning to program in assembly language, you really should learn C instead, as it seems destined to replace assembly language for most applications, and is much easier to use. I would say that a typical application can be developed using C about ten times quicker than by the use of assembler. Moreover, programs written in C are completely processor independent.

Leon Heller

GUIDELINES FOR CONTRIBUTORS

1. If possible, send material in printed form.
2. Scripsit or Pencil disks/cassettes are acceptable.
3. Ensure your ribbon is in reasonable condition.
4. Printer output should be on A4 paper if possible.
5. If you send in hand-written material, write legibly.
6. Do not fold the sheets when posting them. Use a large envelope and keep them flat.

Leon Heller

MEMBERS' LETTERS

Would it be possible for the benefit of wooden headed members like myself to insert a large note in a prominent place of the appropriate newsletters to the effect that :-

SUBSCRIPTIONS ARE NOW DUE

The current reminder tends to look more like an advertisement for back numbers etc. On the other hand, perhaps its just me, perhaps I'm just thick! However, I can't help wondering how many members we lose that would otherwise renew.

Whilst writing I wonder if you would be kind enough to insert a small note in the next newsletter for me. I would be interested to hear from any member in my area who has an identical set-up to myself for a mutual exchange of notes and information. My equipment consists of a 48K Model I with single disk drive and Tandy line printer VIII. I do not know anyone else who uses TPS 80 and I wonder if I am getting the best out of my hardware.

I must try and come along to one of your workshops some time but there always seems to be something more important that needs doing.

Cheerio for now and many thanks for your help.

James Pitt,
30 Hillcroft Road,
Chesham,
Bucks. HP5 3DJ.

****

Printer for sale

Centronics 779 ... Tandy Printer I

Tractor feed. Adjusts to take paper from 3 inches to 11.5 inches. Two spare ribbons. 5x7 dot matrix Upper case. User variable character size from 10 to 16.5 characters per inch. Maximum density is 132 characters per line. Top speed 21 lines per minute. Can be controlled by BASIC.

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****

London Hounslow contact Bob Moore every Wed.
The Royal George Pub., 113 High Street, Hounslow.

Colchester - Chelmsford John Kilpatrick is now the contact. 0787 - 79504.

PROBLEM SECTION

I HAVE A COPY OF TANDYSCRIBE AND WOULD LIKE TO TRANSFER THE PROGRAMS TO LDOS HOWEVER ONE OF THE PROGRAMS IS PROTECTED 'TANSCRIBE'. DOES ANYONE KNOW THE PASSWORD AND IF IT IS POSSIBLE TO GET THIS AND TANDYMAIL RUNNING ON LDOS MODEL 1?

I HAVE AN UNWANTED ORIGINAL COPY OF VERSA-FILE FOR THE MODEL III. IF ANYONE WANTS TO SWAP IT FOR ANYTHING PLEASE RING ME.

NICK HALLIWELL.
32 HIGH STREET,
TADLOW,
ROYSTON, HERTS

Wrestlingworth
354

Bill Cowhig installed a Tandy Doubler in his Model I, and found that it did not work with LDOS. Has anyone else experienced this problem, and, more to the point, overcome it?

Leon Heller

I am writing in response to last month's "Micro Novice Notes" article by P. Digan.

He talks about the tape speed-up program "B-17" and asks what would happen when he adds more memory. Here is the answer:-

There are two versions of B-17 for 16K, 32K and 48K systems. Although this is really of no importance, as after the program has loaded it should not need B-17 from then on!

A new version of B-17 is now available from ABS which will take the load speed from 1700 bits/sec to 3000, although they do not guarantee this to work on all systems.

Peter Knaggs,
12 Seymour Road,
Chippenham,
Wilts. SN15 3NH.



TRS-80 LP VII
********** FOR SALE **********
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RING 076-723-354 ANY TIME
****

I am using W4W+ on a 48k, Model 1, twin disk-drive system with a DWP 410 printer. My problem is how to obtain 1½ line spacing. I have discussed the problem with Premier (the publishers of W4W+); who gave me instructions on setting two decimal codes as an alternative carriage return value. The DWP 410 requires a code of 27 28 for a half line feed; 27x256+28 sets this value. However this does not include a carriage return; for this I would need to send 27 30 (reverse half line feed) then 13 (carriage return then line feed). It has not proven possible to set three codes as the carriage return value.

I would also like to contact any user in North London. User-group meetings only appear to be happening in West London and North-East London.

Patrick Bell,
55 Lofting Rd.,
ISLINGTON,
London,
01-607-9778

USING INTERRUPTS

It came to my attention at a recent workshop that people do not understand how to use Z80 interupts from within a Machine Code Program (including Laurie). Hear is the explanation I promised for them.

Before I begin I must say that when dealing with Cassette I/O the interupts must be turned off by the use of the DI command. This is the same with disc but the operating system takes care of that for you (if you use the offical routines that is)

When the processor is in interupt mode 1 an interupt occurs when a signal is set to the interupt pin of the Z80 (Pin 16)
NOTE: Modes 0 and 2 can not be used on a TRS-80

A internal clock is responsible for sending an interupt signal every 40th of a second. However the disc controller may also send the signal, as can other devices

When it receives a interupt signal from any device the Z80 will finish off the command it is executing and then will disable the interupts by use of the DI command. It will then save the location in of the next command in you Program (the PC register) and goto memory address 38H

If you disassemble the code at 38H you will see something like this:

JP 4012H

On the Model I/III but under TRSDOS on the model IV it will be a Jump to the internal interupt handler

By placing the corect vector code at 4012H or 38H you can direct the interupt into your handler

Oh bother, it's the 'phone. You will excuse me for a minute

Ha there you are. Sorry for being so long.
Now where were we before we were interupted. Oh yes I remember now, thank you.

"So how do I set it to use my handler", I hear you ask?

I think the best answer for this is to describe a real time clock program by Leo Knaggs and myself.

The program firstly disables interupts, it then puts places the vector at 4012H. Interupt mode 1 is set. Now all that remains is to turn the Interupts on. (Lines 6 - 17)

With the interupt set up the main program may be started.

The interupt handler itself must be invisible to the main program (E.g., save / retrieve all registers used). It should check to see which device has caused the\interupt by reading location 37E0H. I now rotate the value left, the C flag is set if the device was the internal clock. If it is not then I return from the handler. (Lines 28 - 33)

At the end of the routine It does not not use the command RETI (This should not be used at all) but it clears the disk interupt condition by reading location 37ECH, this is done becouse as I was playing in the handler the disc controler may have asked for an interupt. If it did then no soner do I return to the main program than I come back into the handler, thereby messing up my timing. The interupts must be turned back on with a EI command, remember the processor does a DI of its own. The final part of the routine is a RET to return from the interupt handler to the main program (See lines 98 - 101)

P. Knaggs

```
 1                      ; TIME / SOF - Real time clock for Tape Mod I with E.I.
 2                      ; By L & P. Knaggs 1983
 3
 4                              ORG   0A000H        ; Put it out of the way
 5
 6 A000 F3              SETUP:  DI                  ; Stop any funny business
 7 A001 111FA0                  LD    DE,INTER      ; Point to Interupt routine
 8 A004 211240                  LD    HL,4012H      ; Point to RST 38H vector
 9 A007 3EC3                    LD    A,0C3H
10 A009 77                      LD    (HL),A
11 A00A 23                      INC   HL
12 A00B 73                      LD    (HL),E        ; Place a JP INTER at vector
13 A00C 23                      INC   HL
14 A00D 72                      LD    (HL),D
15 A00E ED56                    IM    1             ; Set Interupt Mode 1
16 A010 FB                      EI                  ; Turn the Interupts on
17 A011 C389A0                  JP    START         ; Goto the main program
18
19                      ; This is the Interupt routine to simulate the DOS
20                      ;           "CLOCK" command
21
22 A014 28             COUNT:  DB    40            ; This is a counter for a second
23 A015 39353935       TABLE:  DB    '9595'        ; Table of Digit upper limits
24 A019 3030           TIME:   DB    '00'          ; Digits for Seconds
25 A01B 3030                   DB    '00'          ; Digits for Minutes
26 A01D 3030                   DB    '00'          ; Digits for Hours
27
28 A01F F5             INTER:  PUSH  AF            ; Save it for Return
29 A020 3AE037                 LD    A,(37E0H)     ; Look at interupt resistor
30 A023 CB17                   RL    A             ; Is it the clock calling ?
31 A025 3804                   JR    C,INT1        ; YES - Goto interupt code
32 A027 F1                     POP   AF            ; NO - Get value back
33 A028 C383A0                 JP    EXIT1         ; Return from the interupt
34
```

```
35 A02B 3A14A0    INT1:   LD    A,(COUNT)     ; Look at the count value
36 A02E 3D                DEC   A             ; Is it 0 ?
37 A02F 2050              JR    NZ,EXIT       ; NO - Return from interupt
38 A031 D5                PUSH  DE            ; YES - Save all registers used
39 A032 E5                PUSH  HL
40 A033 C5                PUSH  BC
41 A034 2119A0            LD    HL,TIME       ; Point to Seconds
42 A037 1115A0            LD    DE,TABLE      ; Point to limit table
43 A03A 0604              LD    B,4           ; Set byte count
44
45 A03C 34        LOOP:   INC   (HL)          ; Add one to current value
46 A03D 1A                LD    A,(DE)        ; Get limit value for charecter
47 A03E BE                CP    (HL)          ; Is character over limit ?
48 A03F 3023              JR    NC,DISPLAY    ; NO - Display the time
49 A041 3630              LD    (HL),'0'      ; YES - Reset value
50 A043 23                INC   HL            ; Move pointers to next characte
51 A044 13                INC   DE
52 A045 10F5              DJNZ  LOOP          ; Repete it for Sec. and Minutes
53
54 A047 34                INC   (HL)          ; Add one to hours
55 A048 7E                LD    A,(HL)        ; Look at the new value
56 A049 FE34              CP    '4'           ; Is it 4 (04, 14 or 24) ?
57 A04B 200E              JR    NZ,HOUR       ; NO - Is it over limit ?
58 A04D 23                INC   HL            ; YES - Move pointer on
59 A04E 7E                LD    A,(HL)        ; Get the charter
60 A04F FE32              CP    '2'           ; Is hour 24 ?
61 A051 2007              JR    NZ,NOT24      ; NO - Is it over limit ?
62 A053 3E30              LD    A,'0'         ; YES - Zap the hours
63 A055 77                LD    (HL),A
64 A056 2B                DEC   HL
65 A057 77                LD    (HL),A
66 A058 180A              JR    DISPLAY       ; Goto the display time routine
67 A05A 2B        NOT24:  DEC   HL            ; Move pointer back
68 A05B 7E        HOUR:   LD    A,(HL)        ; Get character
69 A05C FE39              CP    '9'           ; Is character over limit ?
70 A05E 3804              JR    C,DISPLAY     ; NO - Display the time
71 A060 3630              LD    (HL),'0'      ; YES - Zero out the hour
72 A062 23                INC   HL            ; Move pointer on
73 A063 34                INC   (HL)          ; Add carry to tens of hours
74
75 A064 111EA0    DISPLAY:LD    DE,TIME+5     ; Point to hours
76 A067 21323C            LD    HL,3C00H+50   ; Point to print at location
77 A06A 0603              LD    B,3           ; Set count
78
79 A06C 1A        DLOOP:  LD    A,(DE)        ; Get character
80 A06D 77                LD    (HL),A        ; Put it on screen
81 A06E 1B                DEC   DE            ; Point to next character
82 A06F 23                INC   HL            ; Point to next screen location
83 A070 1A                LD    A,(DE)        ; Get character
84 A071 77                LD    (HL),A        ; Put it on screen
85 A072 1B                DEC   DE            ; Point to next character
86 A073 23                INC   HL            ; Point to next screen location
87 A074 363A              LD    (HL),':'      ; Print a : on the screen
88 A076 23                INC   HL            ; Move screen pointer on
89 A077 10F3              DJNZ  DLOOP         ; Repeat for HH:MM:SS:
90 A079 2B                DEC   HL            ; Move screen pointer back
91 A07A 3620              LD    (HL),' '      ; Print a space over the last :
92
93 A07C C1                POP   BC            ; Retrieve Registers
94 A07D E1                POP   HL
95 A07E D1                POP   DE
96 A07F 3E28              LD    A,40          ; Set new count value
97 A080 3214A0    EXIT:  LD    (COUNT),A     ; Set count value
```

```
 98 A083 3AEC37   EXIT1:  LD   A,(37ECH)     ; Reset Disk interupt condition
 99 A086 F1               POP  AF            ; Retrieve AF
100 A087 FB               EI                 ; Turn the Interupts back on
101 A088 C9               RET                ; Return from Interupt handler
102
103              ; This is where the program really starts
104              ; This is only a quickie to test the interupt routine
105
106 A089 CD4900   START:  CALL 49H           ; Wait for a key to be pressed
107 A08B CD3300           CALL 33H           ; Print it
108 A08E FE0D             CP   13            ; Is it ENTER
109 A090 20F4             JR   NZ,START      ; NO - Loop back for next key
110 A092 76               HALT               ; YES - Return to Operating System
111
112                       EXEC SETUP         ; Execution point at interupt set up
113                       END
```

I'VE A TRS-80 Mod.1 - Lev. II 48 Kb AND A PRINTER SINCE A COUPLE OF YEARS. NOW I'M WAITING FOR THE DRIVE ORDERED DURING LAST JULY. IN MY TOWN I'M ALONE (THERE IS A LOT OF SPECTRUM - ZX 81 - COMMODORE - APPLE) AND NO OTHER TRS-80.

I'VE AN EXCHANGE OF LETTERS IN ITALY WITH 3 - 4 PERSONS AND SO I'LL LIKE TO JOIN YOUR CLUB (BY THE WAY, CAN YOU GIVE ME - IF POSSIBLE - A LIST OF ITALIAN MEMBERS ??).

DO YOU THINK POSSIBLE HAVE A SUB GROUP HERE IN ITALY ? I CAN PROMISE A CERTAIN AVAILABILITY ABOUT CONNECTION AND TIME TO SPEND.

I'M VERY INTERESTED IN EXCHANGING PROGRAMMES AND IDEAS WITH OTHER HOBBYISTS AND IN ORDER TO THAT, I'M WRITING TO mr. LEIGHTON FOR INFORMATION ABOUT THE KIND OF PROGRAMMES TO PRESENT TO THE NATBUG LIBRARY.

I'M LOOKING TO BUY THE BOOKS PUBLISHED IN THE UNITED STATES BY THE I.J.G. LIKE "THE CUSTOM TRS-80 AND OTHER MISTERIES" AND "BASIC FASTER AND BETTER AND OTHER MISTERIES" PLEASE CAN YOU SAY ME WHERE ARE THEM SOLD IN UK ? I TRIED TWO BOOKSHOPS, BUT THE FIRST DIDN'T ANSWER AND THE OTHER SAID THAT THESE BOOKS HAVE BEEN DISCONTINUED DUE TO A LACK OF DEMAND.

MAY BE THE TRS-80 IS DYING ??

ARE SPECTRUM AND OTHER LOW-COST COMPUTERS KILLING OUR LOVED "TRASH", OR IT DEPENDS BY A FOOLISH COMMERCIAL POLICY OF TANDY CORPORATION ? WE KNOW THAT OUR COMPUTER IS MUCH BETTER THAN MANY OTHERS, BUT IN EUROPE AND EXPECIALLY IN ITALY, IT'S NOT DIFFUSED. MAY BE THE TRS-80 COME TOO EARLY IN THE MARKET ? WHAT DO YOU THINK ABOUT ?

I THANK YOU VERY MUCH FOR YOUR KINDLY ATTENTION, EXCUSE MY ENGLISH IF NOT VERY CORRECT. PLEASE SEND ME WHAT BELONGS TO A NEW MEMBERSHIP AND PASS MY NAME TO THE MANAGER OF THE MOD.1 LIBRARY.

DOTT.
MASSIMO POLITI
VIALE GABRIELE D'ANNUNZIO, 31
I 65100 PESCARA PE
I T A L Y

ACCOUNTS PROGRAMS
(Not available commercially)

David J. Swann - Richmond - Surrey - TW9 4HD - England.

During 1978 I bought (much to my regret) my first T***Y Computer and within weeks realised that here, at last, was the means of solving my problems regarding fast financial control of my small businesses.

The hardware seemed to be capable BUT the programs then available were not suitable.

So, I simply wrote these, sometimes well into the early hours with the result that I soon became a Coffee-ollic. My serious, and essential daily affairs, golf, fly-fishing, shooting and sex all took a back seat and my back seat became larger and larger as a direct result. My figure once trim, soon became fat and flabby, my complexion sallow, eyes puffed and sore through too much - no - the cause was watching the figures on the VDU multiply and divide out of all proportion to the figure entered.

Night after night, day after day I struggled but it was always the same. She had the usual headache so I consoled myself, with the computer in the small back room.

In 1980 a replacement, much larger, more suitable and adaptable arrived. No stupid it was a new computer, the Model 2, and the programs previously developed for the Model 1 were transmitted and converted. (Oh! halcyon days of sleepless, s*xl**s nights, the early morns with the dawn chorus - all gone forever - but not forgotten)

The programs finalised in late 1980 form a complete ACCOUNTANCY SYSTEM - requiring a Model 2 or 12 with Hard-disk and fast, buffered Matrix printer but are NOT COMMERCIALLY AVAILABLE.

The system is FULLY INTERACTIVE and AUTOMATIC operating from a 'split' ACCOUNTS DATABASE which is Direct Access using fielded statements and is Created to ensure continuous tracks on the disc for fast access/read/write - one part forming the Account Number, Names and Addresses the other part holding the Monthly Balances.
The Account Number is in the form of AANNNNA where the first two Alphas are the account name identifyer, the next four digits are the account number (which is also the record number) and the last alpha is the account type identifyer/control. For example RW1234S the RW could indicate R Williams: 1234 the Record/Account Number and S indicates a Sales (Accounts Receivable) Account. Suffix 'P' indicates a Purchase Account; 'G' = General Expense and 'C' Cash Ledger Control.

The SALES INVOICE PROGRAM generates the invoices, drawing control from the Accounts Database regarding credit limit, current indebtedness etc., and provides full financial control over the Sales, taking information from the DIRECT ACCESS STOCK DATABASE - and automatically generates the SALES INVOICE, DOWN DATES the STOCK, POSTS the new balance to the Account and writes the SALES LEDGER.

The PURCHASE LEDGER data is keyed-in from suppliers invoices and the balance is automatically posted to the Suppliers Account in the Database.

The GENERAL EXPENSE data is keyed-in from suppliers invoices and the balance is automatically posted to the Suppliers Account in the Database.

The PETTY CASH LEDGER provides full analysis and authority entry with all necessary variations to cater for all types of Petty Cash receipts. Where the receipt shows only the total amount, including VAT, there is an option which works out the Vat content, nett and re-totals confirming the original figure. Again the balance is posted to the Petty Cash Account in the Database and full search facilities to check on the who buys what, where or when.

The CASH LEDGER is keyed-in from the cheque-stubs and known cash/cheque receipts paid-in, together with sundry debits/credits taken from the monthly Bank Statement. The previous months balance is automatically brought forward and the new balance written to the Account Data-base.

ACCOUNT LEDGER CARDS can be generated for any period and search, in turn the Cash Ledger, Monthly Ledger and prints out the full record of the debits/credits over the period required. At close of trading for the year a complete 'Account History' can be printed for each account.

STATEMENT cum REMMITANCE ADVICE follows the same format as above but provides both of these in one printout, thus serving both SALES and PURCHASE or GENERAL EXPENSE LEDGER ACCOUNTS.

QUARTERLY VALUE ADDED TAX is automatically produced searching in turn, and listing, printing, the PURCHASE - GENERAL EXPENSE and PETTY CASH also the SALES LEDGERS for the quarter, with all necessary cross totals balances, summary with clear indication of whether you owe or owed the balance and the final printout follows the same format for completing the required VAT Form.

LABEL PRINTING is either one, two or three accross and will only produce printouts of account names and addresses where a current balance exists. It will not print labels where a nil balance occurs unless otherwise instructed.

UPDATE of MONTHLY LEDGER can be achieved by simply running the UPDATE PROGRAM and modifying as required.

ACCOUNT SEARCH is provided so that clients order value can be compared with items bought or sold from stock and the profit or loss indicated.

At close of the TRADING YEAR a program will search all the MONTHLY LEDGERS, CASH CREDITS - PRE-PAYMENTS, VAT ANALYSIS, ASSETS etc., and produces DRAFT ACCOUNTS with facilities for adjustment for Work In Progress, Work in Hand, Stock Deficiencies etc., The printouts produced are similar to those provided by the Accountants for Directors consideration. This usually takes above 30 minutes - depending of course upon the number of transactions to search and print.

There are numerous interlocks written into the programs and there are separate interlock CONTROL PROGRAMS which operate automatically to stop any MONTHLY LEDGER being re-written or updated if any MONTHLY LEDGER has been written for the following month. This is because each accepted entry is written to their respective Databases and the balances are carried forward for all of the following months in the current trading year.

As each Monthly Ledger is written with a trading month identyfier suffix M01 = Trading Month 1 : M02 = Trading Month 2 and so on. Therefore, all the monthly ledgers can be copied to the BACKUP DISK using the MOVE :0 TO :1 */M01 (using the correct monthly suffix) and all MONTHLY LEDGERS are transferred to the BACKUP DISC.

The above SYSTEM, which is menu driven, with full interlocks has been in constant use and improved, updated etc., since early 1981. It has been effective in providing more detailed financial information and control than was ever possible with the 'conventional' single entry book-keeping system which had been in use since the late 50's. Further it saved me valuable time, eased my worries and gave me more time for leisure pursuits; the fly-fishing is good though the fish never seem to like my flies, the golf slice cum hook gets worse but, unfortunately, the headaches are still ever present, and if anything are getting worse. Oh! well what new piece of technology is awaiting my attention.

This has been produced under the gentle coercion of Commissar Pain in the hopes that other members may contribute to a Business Applications Section of NATGUG - Incidently, I like the new booklet format, with text following onto the next page - similar to CP/M Journals and congratulations to all concerned.

Produced 30th September 1983 - 3am - RICHMOND, Surrey, ENGLAND.

MODEL 4 TIPS

Although I have been a member of the Group for 2 years or so, this is the first time that I have taken the time to write. In that time I have found the newsletter articles useful, particularly as a useful reference, often many months later. The new format of the newsletter is a great improvement on the previous presentation.

Having recently purchased a Model 4, I thought that prospective purchasers might find the following observations and experiences informative.

1. The TRSDOS 6.00 manual states that applications programmes cannot be CONV'd (transferred) from Model I or Model III machines. This can be overcome if your own BASIC programs are first saved as ASCII, loaded into Scripsit and PRINT@'s and other changes made as necessary. The modified Scripsit text should again be saved as ASCII (S,A filename/xxx) then CONV'd using the CONV Utility in TRSDOS 6.00

2. My existing two Tandy TEAC drives have been added as external drives. It was only necessary to plug the MODEL I cable into the MODEL 4 edge connector, however it was necessary to alter the track stepping rate from 12ms to 30ms. The Manual does not explain the method of altering the stepping rate, however thanks to a friend, Edward Blackburne, the following procedure may help others to alter the rate:

   Enter DEBUG.

   Search for the BYTE Combination CE 79 0E 45 starting at 0470H. (Drive Code Table).

   There are 4 sets;
   Set 1 for Drive 0;
   Set 2 for Drive 1;
   Set 3 for Drive 2 and
   Set 4 for drive 3

The BYTE 45 in the 3rd and 4th sets should be changed to 47 (for 30ms step rate).

If desired the 1st and 2nd sets for the internal drives can be changed to 6ms by changing the 45's to 44.

Type '0' to exit DEBUG

Type SYSGEN to alter the CONFIGURATION FILE.

Type DEVICE and observe the new stepping rates.

Having used my MODEL I on NEWDOS/80 Double Density I find that I can set the PDRIVE for the 4th drive (or any other drive other than 0) on MODEL III mode and read and write directly to the disks without modification.

Now the pleading for help!

Can anyone tell me if simply plugging in 8 off 64k RAM chips to the vacant sockets is all that is necessary to upgrade from 64k to 128k, or are there any other modifications such as track cutting, jumpering etc., necessary. My main reason is not because I want to write large programs, but to make use of the excellent MEMDISK and SPOOLER facilities in TRSDOS 6.00

Has any member used TANDY'S Business Graphics Package in conjunction with an EPSON MX80/FT (Graftrax-80). I have experimented with the software in the local Tandy Store but have had no success except when using TANDY Printers. The EPSON appears to output additional linefeeds and additional graphics characters.

Regarding the much heralded monthly magazine from U.S.A. - '80-MICRO'. I was fortunate to buy a copy directly from W.H. Smith at Victoria Station in July but have had no success in running subsequent copies to ground anywhere else other than by direct subscription from the States. Anyone know where I can get a continuing supply?

To date the MODEL 4 Technical Reference Manual is not available (due out in late November according to the new Tandy catalogue) and the MODEL 4 Manual makes no specific reference to the memory addresses of the screen (e.g.15360 - 16383 in MODEL I/III). I often find the need to Poke characters to the screen and am currently at a loss to find out the equivalent MODEL 4 addresses. Does anyone possess this knowledge?.

I am generally available on the telephone at home most nights if anyone cares to contact me.

Incidently, I have just purchased a program from APPARAT Inc.,(the suppliers of NEWDOS/80) called FLEXTEXT PLUS. This is a modification patch and print formatting program for SCRIPSIT versions 1.0, 3.1 & 3.2 for use with EPSON Printers with Graftrax-80 or Graftrax +. This is an update on the older FLEXTEXT-80.

Briefly it allows many 'in-line' changes of typeface making use of all the facilities of the EPSON. In particular it solves the problem of indented paragraphs as can be seen from points 1 - 3 above. The margin can be offset to the left by a variable amount for one line only if desired. Amongst its very many other features is the capability to add graphics within a document.

This program is highly recommended and cost only $33.95 plus $10.00 shipping directly from the States. I got mine within 3 weeks of ordering.

David Roberts

Telephone: Bangor (0247) 62564

Easy Machine Code

I was recently working on a program, and I needed an indication that the program was doing something. A simple thing like flashing an asterisk on and off would be fine. I knew that such code existed in ROM, for the tape I/O display. Code for that in basic would be:-

```
10 IF PEEK(15423)=42 THEN POKE 15423,32 ELSE POKE 15423,32
```

The top right corner is memory address 15423. If it contains an asterisk (ASCII 42), then write a space (ASCII 32) else write an asterisk. This however was a bit cumbersome compared to the ROM code which simply XOR's the contents of 15423 with 10 to alternate the contents as below.

```
32 XOR 10 = 42      and         42 XOR 10 = 32
```

If there was an XOR instruction in basic, all would be fine, but it's not that easy. I'm sure there is a combination of or's not' & and's to produce an XOR effect but after a couple of hours I gave up. (Does anyone know of a suitable combination?)

Step 2: Writing a bit of machine code to do what I wanted would be easy. Simply copy the ROM,

```
LD   A,(3C3FH)
XOR  10
LD   (3C3FH),A
RET
```

9 Bytes in all. But now I thought why not get the code smaller. How about:-

```
CALL 022CH
RET
```

Down to 4 bytes. But then again why not try,

```
JP    022CH
```

Which uses only 3 bytes. Return to basic supplied by the ROM return. Then again, I don't even need the JUMP because basic will do that for me.

```
DEFUSR0=&H022C     'POKE 16526,44:POKE 16527,2 For non disc users.
X=USR(0)
```

This code will do the equivalent of a GOSUB to 022CH in ROM, and the 'RET' in ROM will supply the return necessary. So eventually I gained a small machine code routine for no extra coding. If fact if the machine code requires no values to be sent, and needs no external setting up, this method could easily be used.

G. Brittain. 45, Waddington Ave, Great Barr, Bham B43 5JF

SOME MORE 'C' FUNCTIONS

Here are some more useful C functions for all you C afficionadoes (all one of you?).

The most interesting one is the getstr function, which allows alphanumeric input to any position on the screen, with the field length defined by dashes. For some reason I found this very difficult to write, whereas I have written versions in MBASIC and CBASIC without any problems. Perhaps someone will come up with a neater way of doing it. At any rate, I managed to do it without using the dreaded goto!

```
/* getkey - wait for key press and return key code. Not
echoed to screen */

getkey(){
   char c;
   do c=kbrd();
    while (c==0)
   return (c);
}

/* dsply - display character at current cursor position.
Uses BDOS call */

dsply(c) char c;{
   bdos(2,c);
}

/* kbrd - return key if any key pressed. Like BASIC INKEY$.
Uses BDOS call */

kbrd(){
   return (bdos(6,255));
}

/* string - returns string of characters c of length l */

string(l,c)
int l;
char c;
{
   int i;
   char s[255];
```

```
    for (i = 0; i < l; i++) s[i] = c;
    s[i] = '\0';
    return(s);
}

/* getstr - position cursor, display field length and get
string */

getstr(x,y,l,s)
int x,y,l;
char *s;{
    char c;
    int n;
    prstring(x,y,string(l,'-'));
    gotoxy(x,y);
    while ((c = getkey()) != '\r'){
        if (c == '\b'){
            if (n > 0){
                disply(c);
                disply('-');
                disply(c);
                *s--;
                n--;
            }
        }
        else if (n != l){
            if (c >= ' ' && c <= 'z'){
                c = toupper(c);
                disply(c);
                *s++ = c;
                n++;
            }
        }
    }
    *s = '\0';
}

/* left - get leftmost n characters of string s (like BASIC
LEFT$) */

left(s,n)
char s[];
int n;{
    int i;
    char t[255];
    for ( i = 0; i < n; i++) t[i] = s[i];
    t[i] = '\0';
    return(t);
}

/* prstring - print string at position x,y */

prstring(x,y,s)
int x,y;
char *s;
{
    gotoxy(x,y);
    puts(s);
}
```

Leon Heller

BEEB VERSUS TANDY

Eric Lewis stated that he had been advised to get rid of his VG and get a BBC for word processing. The BBC has got some advantages for word processing in that it has an 80 col display. In my experience this is an advantage but not a necessity but there are also disadvantages to consider.

The number of cols (characters per line) used on a system is limited by several factors. Tandy chose 64 mainly because the VDU would not reproduce more with readable quality. I believe the green screen monitors supplied over here are actually better quality than the American ones. If you couple the Model 1 to a TV via a modulator you soon notice the poor readability at a even 64 cols. This is the reason many colour computers are limited to 40 cols.

This brings you to a problem with the BBC. If you want high res or 80 col display you need a good monitor. If you want colour as well, you need a good RGB monitor (Red Green Blue) and this will cost more than the Beeb. You can use a black and white monitor for Word processing but you will find that many games make use of colours which are reproduced as similar shades of grey. Therefore you have to use a Colour TV for games and switch backwards and forwards between VDU's.

There are other considerations. The BBC has a word processor in ROM which can be accessed in seconds which beats even the fastest disc. However to store the text you still need tape or disc. The BBC tape system is much better than the TRS-80 but for serious word processing both are a pain. You can get an Exatron Stringy floppy for £66 plus shipping but this will not work on the BBC. This leads me to the firm conclusion that for anything more than occasional work you need at least one disc.

Discs are available for the BBC but again there are problems. Firstly, by some oversight the BBC uses an old disc controller that will not accept double density. The chip is also obsolete and to upgrade will require another board. Acorn are in a mess in that to satisfy the present users they must negotiate to buy a batch of chips which will tie them to the present single density system for some time or redesign the contoller PCB and start again. Single density worked OK on the Model 1 but Word processing in particular eats up disc space.

The other problem with the BBC is that the software is a long way behind the TRS-80 level. The disc operating systems are nowhere near the level of Newdos 80 or LDOS and other programs are also limited. On the pro side they seem to be cheaper. Of cours the volume sales of the BBC will improve the position, it is just a matter of time. However the TRS 80 market will not stand still waiting for them to catch up.

There are two decisons to be made. One for a first time buyer and the other for a person that has already made a significant purchase in say a Model 1 or VG.

As word processing was the main question I would think it worth considering several points. A computer needs a good keyboard for word processing. Both machine qualify. You need a lot of memory especially with an in-memory WP like SCRIPSIT. The Model 1 TRS 80 can have 48K which is adequate the Beeb has a smaller memory 32K but it is usable. No good reason for change.

The Beeb has an 80 col display while the Model 1 has to window the extra cols. Tandy say that 64 cols is the print length on A4 with wide margins. This is correct but I have to pay for paper and therefore use 72 cols. The Beeb has special function keys and this is

a positve plus. To insert a line you should be able to press a key marked <insert line> not two or three keys which double for something else. Therefore the edge must go to the Beeb but for my money that is not worth paying out £399 less what ever I could get for the Model 1.

On Word Processing software the Model 1 is streets ahead. Scriptsit patched on LDOS is excellent and Superscripsit is very advanced. W4W is very cost effective and there are many others I have not tried.

I suppose the next question would be is it worth spending money on an old design like the Model 1. Unlike old cars they do not seem to need a lot of spares and there are a lot about. The official expansion interface is a problem to get and the price is still expensive. I have an LNW interface and Aerocomp doubler. If I was expanding for Word processing I would look very carefully at CPU memory expansion. I have two CPU's and one has the 64K memory in the keyboard. Owing to cost I would probably settle for a simple 48K expansion from Northern Computers.

As the disc drives are expensive it is good to note that the Beeb and the TRS-80 will work off the same drives. Not I must add, at the same time. This means that my son can borrow one of my drives but I have to reconnect it. At this point I should add a commercial for the disc drive cable extenders. These connect to the socket inside my Culmina drives and provide a connector to the drive cable. To disconnect the drive I can pull out the connector without undoing the case.

The Beeb and the Model 1 will both drive the Epson MX 80 and in this respect I can say that if I should choose to change computers I would not have wasted my money on peripherals. My drives are of course the standard version and require a disc controller. If I had no expansion at all I would consider the slightly more expensive drives with controllers built in. At £230 they must be a good buy and convenient to use.

For me the answer of changing computers is simple. The minor advantages of the BBC are not worth the cost and the disadvantageses suggest that it would be better to wait until the potential of the BBC is actually available. When you are considering the advantage/cost of changing you should also consider the Model 4. At the moment it is like the BBC, it has facilities that you cannot really exploit until better software becomes available.

While going on about word processing I think many poeple under estimate its value. The modern data base programs are aimed at business use and are too expensive and slow for many uses. If you need to look up a telephone number, you are invited to load in the main program, and then the data file before you get it to look for a name which must be spelt exactly as listed. Its a pity it cannot find Doctor Smith because you have him/her listed as Dr Smith. Its far better to use a word processor and get a printed list. Of course you cannot classify or sort but how often do you actually do it. A few minutes with the insert move and block commands can achieve a satisfactory order.

I find that the search command works quicker than many database programs. After all if it finds the first Smith the others will not be far away and can be seen on the screen

Although Visical can print out sheets I find it difficult to get a good print out with the special print commands on the MX-80 and I do not like slashed zeros. It is far easier to print to a disc file and load that into Scripsit. All the print commands can be added and the

global command used to remove 0 and replace them with O. While I am about it, I tidy up the labels because a name can move into a area that Visical would consider part of the value. i.e. I can have £12.34 in Scripsit.

As a final comment, I would think a word processor should be one of the tools of the trade for a school teacher. As a training instructor I use one extensively and look back on those barely legible notes given to me by teachers in the past. I can reprint my disc files with updates in less time than rewriting and the ability to print graphs and calculations via Visical very useful. Time tables, work plans an layouts can be modified with ease and without reorting to school secretaries. On the negative side, I do find that I spend ages on a work of art instead of a quick memo.

Derek Trayler.
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Hornchurch, Essex. RM11 1PW.

PROBLEMS WITH DATAWRITER

There have been some comments on Data Writer. I had one of the first issue under the Data Writer name. It was quite good and although there was some doubt about its ability to handle double density I had no problems. The program really needs double density because it rewrites the file on sorting. There are no facilities to delete old files without going back to DOS and therefore your disk can fill rapidly. It was very good for entering data with repeat fields which were great for family entries and sorts were very quick. Updating was less convenient as the field labels were not shown.

The program was reasonable priced and the only bug was that occasionally error codes appeared when nothing was wrong. A later program allowed the field labels to be shown when updating and improved the search. I found this would not work in double density but a later version was promised to correct that. When the later program arrived at a not inconsiderable price I found it did not behave as well as expected on LDOS but it would run after a style on Newdos 80.

The conclusion is that the program is OK but I do not share Molymerx's high opinion of it I also feel that the previous and much cheaper version was better value for money. The new version of Maxi Manager seems to have been a far greater success.

The only reservation that I have about these programs is that they are now getting far too complicated as they try to out do the specs of the competition.

I also wonder whether there are minor incompatablities between machines. From time to time my Model 1 does not behave like the one at Molymerx. For instance I have copy of Super Directory which will not boot in. I have sent it back but they confirm it is OK. Several other programs on earlier versions of TDOS work OK and Super Utility will read the disc. I never have any problems on Newdos 80 but some LDOS features do not woark as per the manual.

I notice that Molimerx is not exhibiting this year. This makes it difficult to try out expensive programs and leaves you with the Pig in Poke situation that applies to mail order. Perhaps there have been too many people with problems and it is safer to keep them on the end of a telephone line. It is then easier to claim that the caller is the only one experiencing this problem.

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NATGUG NEWS

T.R.S. - 80 and GENIE USERS

Weekend Workshop 18th - 20th November '83
at the Wiltshire Hotel, Swindon

In association with the Wiltshire Hotel the National and Southern TRS-80 Users Group are to Host a weekend workshop for you the enthusiast.

Using the facilities of a modern 3-Star hotel your workshop includes:-

A systems room: available from friday 2p.m. to Sunday 4p.m.

Talks and discussions:-

Friday :	Case Studies by Leon Heller, Dave Washford, Brian Pain.	
	Laurie Shields on Stock-3 Depots and reading cards via RS232.	
Satruday :	Patching Scripsit	Geof Smith
	Machine Code-Graphics)-	
	Reading/Writing to Disk)-	Laurie Shields
	Mode 14 & Hard Disk	Leo Knaggs
	Model 100 & Prestel	Charles Davies (prov)
	Speech Synthesis	Carl Rabe
	Hooking the 68000 or)- 8088 to the Model One)-	Leon Heller
	Sorting Demonstrations	Laurie Shields & Brian Pain.
Sunday :	A SPECIAL DAY FOR THE ENTHUSIAST	
	'Epsom and Rows' How to get more out of this tremendous Combination. By Don Bannister	
	Epsom and Software	Jim Bartholemew

Your weekend is held at the Wiltshire Hotel in the centre of Swindon, next to the excellent Shopping centre so wives and partners can share your weekend too.

NATGUG NEWS

The Hotel are offering tremendous discounts for us and as we found last March, much goes on into the early hours. So book your rooms early.

Prices for the weekend are as follows:[2]

Accommodation & Catering:
Dinner, Bed & English Breakfast in 3-Star comfort.
(All rooms with bath/shower and colour T.V.)

Friday 18th Nov.	@ £18.50 per person	( )
Saturday 19th Nov.	@ £18.50 per person	( )
Dinner only - Friday	@ £ 7.50 Table d Hote	( )
Saturday	@ £ 7.50 Table d Hote	( )

Lunches available in the Old Vic Pub, on a cash basis from as little as £1.95. (Live music on Saturday night)

Entry Fees:

Friday 18 Nov	Systems Room	£1.50	( )
	Systems Room & Lectures	£5.00	( )
Saturday 19 Nov	System Room	£2.00	( )
	System Room & Lectures	£5.00	( )
Sunday 20 Nov	System Room	£2.00	( )
	System Room & Lectures	£5.00	( )

Coffee available throughout the day in your Systems Room.

SPECIAL OFFER: For the complete weekend 2 nights, dinner, bed and English breakfast. Attendance to lectures over all 3 days : £48.50 per person.

How To Book: Send your cheque, indicated what you require on this sheet to: David Sissons, TRS 80 & Genie Weekend, Wiltshire Hotel, Fleming Way, Swindon SN1 1TW
Cheques to be made payable to the Wiltshire Hotel

For further information contact Brian Pain 0908-564271,
24 Oxford Street, Stony Stratford

MODEL 4
(Few more notes)

I had a brief note from the Commissar (see Newsletter August - page 37) to provide notes on Model 4 for the next six months - if you please. My first reaction was - he has got some hope - after all I am barely more than a novice to computing and as far as my computing goes it is limited to the role of a user and some programming in a couple of high level languages. I must admit to an attempt to produce an assembly language program to control my printer from TRSDOS. To be quite honest, normally I would not even know how to start but, in the June 83 issue, Mike Tomlinson had a Printer Type Setter M/c program. I thought that I would try to re-hash it. After long hours of gazing at it I thought that I understood how it works and so I "been and gone and done it". Needless to say it did not work and still does not work. I think though that I know where my last (latest) error is. Somehow I have not returned to it again yet. Well - please do not tell me how to do it - I would like to find the answer myself. I only mention it to show that I am hardly qualified to produce the notes on a new machine.

Speaking of the printer brings me to rather remarkable behaviour of my Model 4 whilst running under TRSDOS 6.0. I enclose a 12 lines program which I use when I want to turn my computer into an adding machine. As far as the program is concerned many a computer-literate child of twelve could no doubt write it better - but my computer's reaction to it is unexpected. If the printer is switched off the program runs asking me for the next number completely disregarding the line containing LPRINT instructions. (As we all have experienced, Model 1 would just happily sit there and do nothing until the printer is switched on line.) If however the printer is on but off-line the program runs until it hits the ONERROR routine, hesitates for 8 to 10 seconds and then jumps to ONERROR instructions. Also, when the printer is switched on-line after display "PRINTER NOT READY" and starts to print, the TAB instruction in the first print line is affected. My little program provides for print of the input at the beginning of the line and the total on the same line at TAB(40). The first total prints at TAB(39) and thereafter everything is normal.

From time to time I have a child of about eleven or twelve coming to "play with the computer". As I do not encourage games (in fact I strongly disapprove of them) I give her GETTING STARTED WITH TRS-80 BASIC and let her type the programs and run them. She does get some very interesting results as she always forgets to NEW the memory after finishing with one program and starting on another. Still, there is nothing like learning the hard way but one does wish that TRSDOS 6.0 had provided a better Editor - at least something like the TRS Cobol Editor, which permits the display of a full screen of program, cursor manipulation with the UP and DOWN arrows and the "DELETE." or "EDIT." which selects the line at which the cursor is placed.

This week, to be precise on the 13th, I had the additional 64K memory installed by Mr Os House from Blandford Computers. This does not take long - in fact it is quite simple if one knows, what one is doing. All it involves is inserting 8(?) memory chips in an empty board and replacing one very small chip with a bigger one. I was told what this chip was but - as usual - I forgot. Obviously it must be a memory management chip.

So, chips in place, off I went. Command SYSTEM (DRIVE=n,DRIVER="MEMDISK") brings forth the menu which gives the following options:

Bank 0 (primary)	A
Bank 1	B
Bank 2	C
Banks 1 & 2	D
Disable Memdisk	E

In the command DRIVE one can state any drive number. For the owners with two drives the obvious choice is DRIVE=2 but DRIVE=4 works just as well. As at present there is no other use for the additional 64K other than the Memdisk I tried the option D, which uses the whole bank as an extra disk (Banks 1 and 2 use 32K each). After choosing the option one is

asked whether this should be Single or Double density. The next question is whether the Ramdisk should be formatted. In fact it has to be formatted every time it is installed. I have tried to SYSGEN with the MEMDISK hoping to save myself a bit of work on powering up but the SYSGEN will not operate with the MEMDISK running. Mind you, you get a polite message telling you that the MEMDISK is installed.

Of course the next step was DIR :2, which produced the answer that there were 14 cylinders giving a total of 63K (what happened to 1K of the 64K which I purchased ?) and that I had 57K free to use as a fast access disk. And really it is very fast! Loading the programs from the MEMDISK takes a fraction of a second. I tried a backup but this would not take - no doubt due to the fact that I have not studied the Manual properly. My attempt was at mirror backup and, of course, this is not possible due to the disparity in sizes and because MEMDISK uses the first granule on cylinder 0 for Boot (size 1.5K) and places the Directory on cylinder 1 (size 4.5K). What I ought to have tried is the BACKUP with the QUERY option. This causes the program to ask about each file before it is backed up.

My hopes that with the advent of CPM Plus on a 128K Model 4 I might have a lot of space for the programs and data have been dashed. The October issue of Practical Computing has an article on CPM Plus which, apart from describing the improvements on CPM 2.2, also illustrates the management of the banked memory. The bank 0 is used for CCP, which resides there permanently, banked BDOS and BIOS and disk buffering. There is 4K on top of the bank 0 which is not used at all. Bank 1 is split in three parts. The lowest 256 bytes between 00H and 100H are used for CPM jumps (what are they?) and buffers, top 4K have more buffers and part of BDOS and BIOS. In between there is the area for programs and data. What this amounts to is that the owner of 128K system will have about 7K more user memory and a faster operation than the owner of 64K system. Interesting also in this article is the remark that the CPM Plus is difficult to install. Digital Research is not selling it to the end users but only to dealers, who will then adapt it for their systems. Tandy, oh Tandy, why are we waiting ? To start with it was supposed to be August, a couple of weeks ago it was September. I have not enquired since. Still it is not often that Tandy releases a product with a lot of bugs in it - so maybe the wait will be worth while.

I was hoping to be on line to our net but this is not be for a while yet. Mr House forgot to bring RS232 with him. Having had a quick look inside the machine, as the extra memory was being installed, I can see that the RS232 will not be simple. The memory fits right on the back on an exposed board but RS232 goes in between two metal plates. This is going to be some fun and the computer will be in bits and pieces all over the place but, at least, I shall be able to have a good look at it. It will have to be an accoustic coupler too. Apparently British Telecom is most unkind to the users of non-approved equipment and the approved modems tend to be rather expensive.

If I have to produce a few more notes about Model 4 I will have to stretch a very little knowledge a long way. I had a chat with another owner of Model 4 in Alloa and he, most kindly, gave me tips on transferring programs from Model III. As I suggested to him that he should write something on this subject, I won't try to steal his thunder. However I intend to run benchtests (published in Practical Computing) on Model 4 so I may have something to say about it next time. They will not be that accurate as PRINT TIME$ will have to substitute for a stopwatch, but I will run them both in Model III and Model 4 version. The question is - does the 4MH CPU operate twice as fast as 2MH one?

Anon.

```
100 DEFDBL A, X: A = 0: X = 0
150 ON ERROR GOTO 1500
200 CLS: INPUT "DO YOU WANT TO USE PRINTER "; PRIN$: CLS
400 PRIN$ = LEFT$(PRIN$, 1): IF PRIN$ = "y" THEN PRIN$ = "Y"
500 INPUT "ENTER AMOUNT - 0 TO END"; A
600 IF A = 0 THEN END
700 X = X + A
800 PRINT USING "##########.###"; X
900 IF PRIN$ = "Y" THEN LPRINT USING "##########.###"; A;:
    LPRINT TAB(40) USING "##########.###"; X
1000 GOTO 500
1500 PRINT "PRINTER NOT READY"
1510 RESUME 900
```

MODEL 4
(More of the same)

Things can sometimes be rather irritating. In preparation for the bench tests (I wonder how they will turn out ?) I had to prepare two diskettes. They both were from the old Model 1. The diskette for Model III version was no problem but Model 4 was a different story. Whilst formatting it, before the backup, I must have misspelled the password, which was meant to be PASSWORD. The BACKUP would not take, nor could I re-format the diskette without knowing it's password. In the end I re-formatted the diskette using Model III version, then re-formatted it in Model 4 version - this time remembering the password.

If anyone, who may be reading this, should be considering taking up RM Cobol - that's the one Tandy sells - I can recommend Robert T. Grauer's book TRS-80 Cobol, which was published by Prentice-Hall. The Tandy version of Cobol is quite good though there are some limitations. SORT-MERGE and REPORT WRITER are not supported. TRS Cobol does not support exponents, there are no sines, logs and the rest of that family and it does contain a few bugs. I have not succeeded yet in compiling declaratives and PERFORM THRU does tend to be erratic. Once the CPM is released at least three different versions of "decent" Cobol will be available. Tandy's Cobol however has the advantage of being cheap. SORT-MERGE I miss - could anyone provide the algorism for two-level disk sort ?

Some time ago I said that, no doubt, all the technical information lacking in the Owner's Manual could be found in the Technical Reference Manual. I had a chance to have a look at it and, although there is a lot of "gen" there, this manual is meant basically for the DIY fan. The manual provides the following:

Interconnection diagram,
Jumper options on memory expansion or graphics board installation,
Disassembly/Assembly instructions,
CPU circuit board description and diagrams.

This last part gives port addresses and memory maps for Model III version and three versions of memory map for Model 4. On the whole not worth buying, unless one intends to carry out expansion or modification using one's own soldering iron.

Talking of frustrations - having copied the bench tests from Personal Computer World (November 1982) I decided, in addition, to run what was described in the October 1982 issue of this same publication as THE ULTIMATE TEST? Ultimate it was too - in fact never-ending as the program enters in an infinite loop between lines 130 and 170. This program is supposed to find prime numbers increasing the counter from from 0 to 4095. After the program was at it for about an hour I did the obvious thing, which I should have done in the first place - that is checking the program logic. There it was - the perpetuum mobile. As the article mentioned September 1982 BYTE and I happen to have it, I managed to get the right program going. The BYTE version specifies a single dimension, integer array of 7,000.

To make this exercise more interesting and also to provide more comparison, the tests were run in Model III TRSDOS 1.3, Model III NEWDOS80v.2 compiled by ACCEL3, Model 4 TRSDOS 6.0 and RMCOBOL (that's the Tandy version). Of course the bench tests, which are in Basic, had to be translated into Cobol which was no problem for the first seven. The 8th test however includes exponents, log and sine - none of which are available in Cobol. I could have cheated with exponents as only the power of 2 is involved but I don't know the algorism for log and sine (never was any good with those) so, as far as Cobol tests are concerned, only the first seven bench tests and the "prime numbers" tests were run. The results are below. All timings are in seconds.

BENCH TESTS RESULTS

	ACCEL	TRSDOS 1.3	TRSDOS 6.0	COBOL
Test 1.	1	2	1	11
Test 2.	2	10	3	12
Test 3.	11	24	10	50
Test 4.	13	25	10	47
Test 5.	13	28	10	47
Test 6.	19	47	19	111
Test 7.	26	72	30	137
Test 8.	80	104	33	-
Average	21.875	39	14.5	-

The November 1982 issue of Personal Computer World gives the bench test timings for 62 computers including IBM Personal Computer, Sirius I, Apple III etc. Model 4, on my timings, is the third fastest machine after Olivetti M20 and DAI. Of course my tests are not that accurate - no stop watch - so PRINT TIME$ was used instead. The bench tests are meant to test the speed of the different Basic interpreters. I included the Cobol for the fun (read "Hell") of it.

A few words about the tests for those who may be interested and cannot reference the PCW. In all tests variable K is used as the loop counter. The loop is from 1 to 1,000. The tests two to eight use GOTO for looping. The first test is a simple FOR loop. Test two more of the same but with GOTO. Test three introduces A=K/K*K+K-K within the loop. Tests four to seven include the expression A=K/2*3+4-5 within the loop. Tests five to seven have GOSUB (doing nothing) within the loop. Test six creates a one-dimensional array of six elements (0-5) and, within the main loop, a delay loop of 1 to 5. In test seven a subscribed variable appears in what was the delay loop and the value of A is moved into the subscribed variable. The eighth test is a simple loop in which the squared value of the counter is moved into one variable, the log of the counter into the second variable and the sine of the counter into the third.

In addition to the eight tests from PCW I have also run the "prime numbers" test. The results are below:

Prime numbers.	99	406	171	682

In this test Model 4 has also performed very well.

Well, as every one keeps saying "Hardware does not make a computer - it is the software that counts". Model 4 is a nice and fast running bit of furniture but the software does not seem to be appearing. As far as the programmers (and computer publications) are concerned there are only two computers these days - IBM and BBC. I have not seen the IBM yet and, anyway, what is the good of looking at it if I cannot afford it, and, having seen the BBC at one of the small shows some time ago, I came to the conclusion that I do not like the BBC machine. Two things especially I found very off-putting about it - the character set and the shape of the keyboard which, I do not know why, makes me think of a coffin.

Anon.

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L. Berks

PAGEFILE

This is a unique program that I find more fun than some of the games I have tried. It is not meant to be entertaining but then I like doodling.

It is basically a note book and could have been more accurately named Electronic Note Book if that name had not been used for a less correctly described program

Pagefile is a book with 99 pages, each page being slightly less than one screen. You can write on a page and move them about. Each page is numbered for access but you can insert pages and keep the logical sequence. Therefore if you insert a new page after page 5 or rather 05 then it becomes 06 and the rest are renumbered. You can move pages to another book and have as many books as you have space on disc.

That far it is all good but there are surprising limitations. It will not wrap round at the end of a line so editing gets a little difficult but as each page is limited and you can have a new page you can always get by.

Perhaps the most fun thing is the ability to draw on the pages. This is a doodlers dream. You can draw a thick line up, down or diagonally. The latter looks a like a series of blooks but the controlls are very neat. The numeric key pad acts as sort of joystick. 4 will move left and 6 moves right. 8 moves up and 2 moves down and the rest are obvious if you have key pad. If you have to use the shifted top rows it is less easy to use. You can cause the cursor to draw, eraze or move.

By using the draw command you can make up borders or rules. These can be copied from page to page and the whole thing works like a card index or loose leaf book.

The pages are a little small and the lack of word wrap make it less useful than might otherwise appear. Most people look down on the idea but are found much later drawing secial rules and layouts. It is a great demo program and the instructions come as a ready printed electronic book. One application that came to mind was for an appointment book. Allocate on page per day and look up any day by calling the page number. There is a string search which will find names on any page but it is a little slow as it has to load pages from disc.

Some people have asked why disc program are not always on Tape. It is not a conspiracy by drive manufactures. These sort of programs need a random access filing to work. If it was sequential you could not add pages in the middle. On the other hand it is easy to make an electronic book by using Scripsit. This is available on tape and will work. You will get word wrap around and can insert new pages. You will not be able to search by page but you can search globally. Of course cannot draw in Scripsit at least not with the block characters.

Derek Trayler.
88. Grosvenor Drive,
Hornchurch,
Essex RM11 1PW.

A WORD-COUNTER FOR TAPE SCRIPSIT

Being a student of the OPen University, I use my Model I mainly for word-Processing. I find that it sPeeds uP the writing of 2000-word assignments to a great extent because everything is tyPed only once: there is no need to Produce several drafts of the assignment before a final coPy is Produced, and all the other benefits of using a comPuter to write aPPly to this Particular task.

Essays for the course I am taking must be about 2000 words long - marks are deducted for over-long scriPts - but ScriPsit is incaPable of counting the number of words in the text area. To be truthful, it is Possible to arrive at a good estimate by dividing the number of characters in the text by the avarage number of letters in a word, but, being a teacher, and therefore a stickler for accuracy, I felt I had to write a Program to give me an exact figure.

Obviously it would have to be in machine code: BASIC would take minutes to count thousands of words. So I used my exPerience in writing small, simPle assembly code Programs to create WCOUNT.

The method was simPle: examine the text a character at a time until a sPace was found (stored in memory as 20 hex) and count a word. But there could be a whole line of sPaces, so there had to be a routine to idle until the next non-sPace character came uP. Carriage returns (stored as 0DH by ScriPsit) can also divide one word from the next, and so these had to be treated as if they were sPaces. So that the Program wouldn't continue to count 'words' right to the toP of memory the Program would have to recognise the end of the text and then rePort the number of words found.

So I wrote a Program based uPon these PrinciPles, but found that format statements were counted along with the words. A format statement begins with a > and ends with a carriage return, so it was easy to recognise and ignore them. But if the actual text contains a > sign all the words between it and the next carriage return don't get counted. Unfortunately, I wanted to keeP the Program short enough to fit into the unused reserved memory at 403E hex, so there just wouldn't have to be any > signs in the text.

I also had to examine ScriPsit itself to see where and how the text was stored. I found that the text started at 6ED1 hex and always ended with a zero byte (in the Aculab Patched version of ScriPsit, the text begins at 710F hex). To disPlay the results of the count on the screen I used the ROM routine at 0FAF hex, which converts the contents of the HL register Pair to ASCII decimal and disPlays it on the screen.

To use the Program with taPe ScriPsit, follow this Procedure:

1. Load ScriPsit in the normal way. Press BREAK and tyPe 'END'. This will return you to MEM SIZE. Press ENTER.

2. Type SYSTEM and load WCOUNT but press BREAK instead of executing it.

3. Re-enter Scripsit by typing SYSTEM and /17152 (use 18176 for the Aculab version).

4. After typing or loading your text, press BREAK, type 'END' and press ENTER. This will send you back to MEM SIZE? Make sure you have saved your text before doing this.

4. Press ENTER, type 'SYSTEM' and answer the *? with '/16446 and press ENTER. This will execute WCOUNT and the magic number should appear within a fraction of a second. You will then be at the mercy of a READY prompt.

5. Re-enter Scripsit as above. The bad news is that your text will be notable by its absence. If anyone can tell me a returning point that doesn't destroy the text, I would be very grateful.

I hope that the remarks in the listing below are clear enough to explain the working of the program and that someone more experienced than I can improve it or let me have any comments on it. WCOUNT may be a suitable project for beginners in assembly code programming, but they should be warned that it is not an example of good, elegant programming.

```
100 ;Word-counter for Tape Scripsit
110 ;by E.D.Bebbington.
120 ;
130 ;
140             ORG     403EH       ;16446 In reserved RAM
150 ;
160 STTEXT      EQU     6ED1H       ;use 710F for Aculab
170 ;
180 START       LD      BC,0        ;clear BC for count
190             LD      HL,STTEXT   ;HL Points to text
200 LOOP1       LD      A,(HL)      ;Get character into A
210             CP      20H         ;is it a space?
220             JR      Z,COUNT     ;count a word if so.
230             CP      0DH         ;is it a carr. ret.?
240             JR      Z,COUNT     ;count a word if so.
250 RETURN      CP      3EH         ;start of format line?
260             JR      Z,FORMAT    ;find next CR if so.
270             CP      0           ;is it end of text?
280             JR      Z,REPORT    ;if so, how many words?
290             INC     HL          ;next character
300             JR      LOOP1       ;continue search
310 COUNT       INC     BC          ;count a word
320 ;
330 ;Check for more spaces or carriage returns and ignore
340 ; them until next Proper character found.
350 ;
360 LOOP2       INC     HL          ;next character
370             LD      A,(HL)      ;into A
380             CP      20H         ;another space?
390             JR      Z,LOOP2     ;if so, ignore it
400             CP      0DH         ;another CR?
```

```
410             JR      Z,LOOP2     ;if so, ignore it
420             JR      RETURN      ;continue to count words.
430 ; Format statement found, so idle until CR found.
440 FORMAT      INC     HL          ;next character
450             LD      A,(HL)      ;into A
460             CP      0DH         ;CR symbol?
480             JR      NZ,FORMAT   ;no, so look at next chr.
490             JR      LOOP2       ;end of format, so find
500                                 ; next word.
510 ;Display number of words found on screen.
520 ; - uses ROM call at 0FAFH to convert to ASCII and
530 ; display.
540 REPORT      LD      H,B         ;word-count into HL
550             LD      L,C
560             CALL    0FAFH
570             JP      1A19H       ;back to BASIC -
580             END     START
```

E.D.Bebbington,
82 Hornsey Lane,
London N6 5LU

Ian Rogers, 80A Burdett Avenue
Westcliff on Sea, Essex.
User of PASCAL-80 would like
to contact others on High Res screen
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Model III & BAR CODE Reading

The above is in operation
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C/80 VERSION 3.0 AND MATHPAK

I recently received Version 3.0 of the Software Toolworks C/80 compiler, and the new Mathpak.

Whilst the old Version 2.0 C/80 was, in my opinion, incredible value for money, the new Version 3.0 offers even more features, and is still only £50 in the UK, less if you get it direct from the States. The upgrade cost me $10. The new features include:-

- Expanded run-time library
- ROMable code capability
- Menu configurable compiler
- \ at end of line for continuation
- -D switch for £define
- £ifneed for selective compile
- True alloc/free
- Command line wild card expansion
- CP/M files written in 128 byte records
- File 0 is always the terminal

The system comes on one 8" disk, and includes the following files:-

C.COM	The C/80 compiler
AS.COM	Absolute 8080 assembler
CLIBRARY.ASM	The basic C/80 library
PRINTF.C	C/80 formatted output routines
HELLO.C	Sample C program (prints "HI SAILOR! NEW IN TOWN?")!!
TAB.C	Sample C/80 program which replaces tabs by spaces
CMP.C	Sample C/80 program which compares two files
TREE.C	Sample program illustrating use of structures for a binary tree sort
TPRINTF.C	Version of PRINTF.C without left justification or precision
PRINTF.H	Header file for defining printf
SCANF.C	Formatted input routine
SCANF.H	Header file for defining scanf
STDLIB.C	Library of C and assembly language routines for string and character manipulation, system calls etc.
SEEK.C	Random access file routines
EXEC.C	Routine to allow chaining between programs
COMMAND.C	Routine to expand file wildcards in command line
CLIBRARY.REL	Relocatable version of CLIBRARY for use with Macro-80 and L80
STDLIB.REL	Relocatable library version of STDLIB
CCONFIG.COM	program for changing defaults in C.COM
CLIBIO.C	Commented source code for I/O and system dependent portions of CLIBRARY

```
CPROF.C      RUN-time execution profile library
CTRACE.C     Traces each routine call and return for
             run-time debugging
```

You get a lot for your £50!

String manipulation functions are now provided, some of which are coded in assembler for speed, and a bdos function, plus many other goodies too numerous to mention.

As with Version 2.0, I am using C/80 3.0 with Macro-80, which makes the process of compilation, assembly and linking very easy. Using the CP/M SUBMIT facilty, I merely type SUBMIT C FRED, to compile, assemble and link the program FRED.C. The SUBMIT file looks like this:-

```
C $1 >ERRORS
TYPE ERRORS
M80 $1=$1
L80 $1,CLIB/S,$1/N/E
```

CLIB.REL is a relocatable library file consisting of the C/80 libraries and my own function library, prepared using the Macro-80 LIB80 Library Manager utility. Anyone who is still using primitive assemblers which lack the ability to produce relocatable object modules, and prepare libraries that the linker can search to resolve unsatisfied references does not know what they are missing!

In addition to the above, for a mere $29 you can purchase the Mathpak. This comes on an 8" disk containing the following files:-

```
CCONFIG.COM   Configuration program to patch the C/80
              compiler
FLIBRARY.ASM  Floating point library
LONGLIB.ASM   Long arithmetic library
LGFLTLIB.ASM  Common 32 bit arithmetic routines
FLIBRARY.REL  Relocatable version of FLIBRARY for use with
              Macro-80
FPRINTF.C     Formatted O/P, with floats and longs
FPRINTF.H     Header file for above
MATHLIB.C     Transcendental function library
MATHLIB.REL   Relocatable version of above
```

Mathpak allows you to use floating point, long integers and transcendental functions with the C/80 compiler. Transcendental functions provided are:-

```
sin(f)          cos(f)
atan(f)         sqrt(f)
exp(f)          pow(g,f)
pow10(f)        ln(f)
log(f)          fabs(f)
```

Only seven digit precision is available with the floating point, but it is better than nothing. Long integers allow 32 bit precision. Usage of floating point is as per Kernighan and Ritchie, not via functions such as fpdiv(quot,x,y) as in BDS C.

C/80 3.0 is available from:-

System Science,
54 Enfield Cloisters,
Fanshaw Street,
London N1.
Tel. 01-739 0540

Leon Heller

FOUR-TRS-80

As a Model III user I often felt like shouting "Is there anyone out there NOT using a Model I?" and now it seems that there is a new fraternity of Model 4 users expressing similar feelings. Since I have recently moved up to a Model 4 myself perhaps I may be excused for adding some of my own comments to those recently expressed in the *NATGUG NEWS*.

In case there are any members still confused let it be said that the operating system is LDOS, now updated to version 6.1. Consequently the files are fully compatible with Model III LDOS 5.1.X files. Most reviewers seem to have spent all their time extolling the features of TRSDOS 6.X with which LDOS users are already familiar. The second correction is that even in the III mode it is possible to use the 4 MHz speed-up. (In fact, with the latest 5.1.4 version of LDOS this is the default mode.) It is merely academic to argue whether the speed-up is *exactly* twice that of the standard model III processor, the results are nothing short of phenomenal!

Two letters have commented on the screen "jerking" during disk i/o. I have not experienced this but I transferred the disk drives from my model III. I can confirm that there is a difference in intensity of the screen display between the two modes but this is not really significant for the usual alphanumeric characters with which a programmer will normally be working but may be important if your screens are filled with plenty of chunky graphics. Once again the complaint is largely academic since there must be few users who will be jumping back and forth between modes III and 4 with any regularity.

The special function keys have been allocated the functions of 'Pause' (96), 'Escape' (27) and 'Backspace' (08) under Level II or TRSDOS 1.3 Disk Basic in the III mode and can also be assigned any ASCII code by POKEing ROM addresses with the desired codes and are thus truly programmable. (Incidentally, F1 and F2 do not have the above functions, nor can they be assigned any other functions under LDOS 5.1.X since poking these adresses will cause a reboot.) In the model 4 mode the keys have been assigned the ASCII values of 81, 82, and 83 unshifted and 91, 92 and 93 shifted so they do not have any inbuilt functions but can be assigned any function by means of an INKEY$ routine. In this sense they are "programmable" but Tandy has failed to point out the significant differences between their use in the two modes, and has once again left themselves open to adverse criticism.

Alan Farr (Sept News) lists some undocumented reserved words and provides some useful help on how to use the SOUND facility. Tandy has made much of this added facility in their advertising but two of their outlets (who I have approached) have hotly denied that the command is not included in the documentation, including the index, which is extremely difficult to understand since it is tangibly NOT mentioned at all! With regard to 'EQV', 'IMP' and 'MOD' these functions are once again not listed in the index nor mentioned in the text but are well known, if little used, logical operators and derived functions which have been available in Microsoft and other Basics for many years. However, this is no reason for Tandy to presume that present or new users must be aware of this fact (I had certainly never heard of them and it took some research to find that they existed - I still have to find out what they mean!.) 'WIDTH' does also definitely not feature in the manual but this approach to setting the printer width through Basic is widely used eg. MBASIC, but this does not excuse Tandy for not including an explanation in the manual.

I was intrigued by the program by Roy Barber (Sept News) to provide two screens in the III mode and immediately typed in his offering only to discover that it really works! (No slight intended - just an expression of my naivety.) What I cannot understand is how he derived this information from the usual Tandy documentation. (I am too ignorant to derive this information from his program.) It is not immediately obvious how this can be usefully developed but holding a "HELP" screen in reserve is one suggestion and I am sure there must be applications in the 'CAL' field. A really exciting prospect is the realisation of his comment that the "80 x 24 screen can be enabled independently" and the suggestion that model III word processing programs can be patched to use this screen. Since I use "NewScript" and since there is no Model 4 option in the pipeline I am willing to offer myself, (or my computer) as a guinea-pig to test this theory.

A few plugs for LDOS. (It must be a change from the incessant deluge from NEWDOS addicts!.) *Anon* in the Sept News finds the type ahead buffer a "pleasant thing" - LDOS users have come to accept this as commonplace. He/she also complains about an inability to establish the clock display in III mode - there are no problems when using LDOS.

LDOS features again in my final contribution which consists of some tips for transferring programs to Model 4 mode. There are three main area of difference. The first concerns those Model III commands which do not operate in Model 4 but as these are largely concerned with tape i/o which do not feature largely in III programs should not constitute an insuperable problem. The differences in screen displays is one of those "things sent to try us" since there is no short cut to rewriting these sections of the program.

The requirement for spaces after all Basic commands is not too difficult. There are a number of utilities around which offer compression and decompression (ie spacing) of programs. I use "IMPAKT" by Nigel Dibben and this will suffice. Simple Basic programs have been printed in "80 US" January 1982 and in "Computronics" January 1983 and I am sure there are others around. The problems associated with PEEKS and POKES to ROM are much more complicated and can only be dealt with by having a solid understanding of the original program. There are no shortcuts here.

What could have been the most complex part of converting programs turns out to be the easiest - that is if you are a LDOS user! I am referring to the fact that Tandy has chosen to change ALL the internal codes for the reserved Basic keywords so that loading a III program in the 4 mode produces absolute garbage. If you are a model I user or if you use any DOS other than LDOS then the first step is to convert your program to be DD LDOS compatible. ("Super Utility Plus" is highly recommended for this purpose.) In the III mode LOAD the program and make any cosmetic changes such as screen locations etc, then SAVE the file in ASCII format. This is most important. Switch to model 4 mode and LOAD the program. The keywords will be loaded without corruption. Now SAVE the program again and the keywords will be automatically converted to the new internal model 4 codes. The purchase of the (expensive) programs advertised to convert from III to 4 is probably not justified.

Anon asked "Am I the only member in the Group to own a Model 4?". The answer is obviously "No". By applying simple logic, if Tandy could sell thousands of Model I's it must be able to sell the Model 4 which is at least reaching towards 1983. Model 4 users are obviously going to constitute a small but distinct group since there is not even that largely spurious, but much vaunted, compatibility between I and III systems to rely on for support. Because I was so acutely aware of my outcast existence as a Model III owner over the past 18 months I am moved to offer my services as a rallying point for Model 4 users - provided they do not expect me to provide technical support!

If any Model 4 users have any useful ideas/programs or wish to contact other users to obtain information or exchange ideas I am prepared to act as a go-between until the NATGUG can bring itself to set up a separate section for the fringe society! If you care to write to me at the address below clearly stating your problem/solution I will endeavour to put you in contact with any other interested Model 4 users. I will also endeavour to combine these contacts into a coherent whole which can be published in the NATGUG NEWS under the "Four-TRS-80" column which I hope can become a regular feature. If it appears that such a step is desirable, I will even consider setting up a separate mailing list just for Model 4 users but I am sure we would prefer this communication to take place through the auspices of the *NATGUG.*

Ken Arntsen,
3 Home Pastures,
Hatfield Heath,
Bishops Stortford,
Herts CM22 7ES.

STOP PRESS

Could you or any other bright spark tell me why this subroutine will work on my old Model 1 but will not using a new keyboard with the new C.P.U.? The statement which does not function is in line 60010 in which a line on the VDU is loaded into A$ by poking the video memory address of the start and the end of the string on the screen into the LSB and the MSB of A$.

Interestingly, the 'Video Display String Pointer' subroutine from Basic Faster and Better which is essentially the same does not work either.Both are very useful on the old keyboard but no end of frustration on the new.

Hoping someone out there has the answer,
David Hirschowitz.
Phone Hemel Hempstead (0442) 47078

```
60000 CLS
60001 LC=512:IP=10:GOSUB60004:'LC=PRINT POSITION - 1 , IP-MAXIMUM LENGTH OF
NG OR VALUE FOR INPUT , IP$ WILL HOLD THE STRING ON RETURN
60002 END
60003 'INKEY$ ROUTINE
60004 PRINT@LC+1,STRING$(IP,"-");:PRINT@LC,;
60005 Z1=PEEK(16417)*256+PEEK(16416):POKE Z1,176
60006 A$=INKEY$:IFA$=""THEN60006ELSEA=ASC(A$):IFA=13THEN60010
60007 IFA<>8ANDA<32ORA>90THEN60006ELSEPOKEZ1,32
60008 Z1=Z1-15360:IFZ1>LCANDA=8THENPOKEZ1+15360,45
60009 IFZ1=LCANDA=8THEN60005ELSEIFZ1=LC+IPANDA<>8THEN60005ELSEPRINTA$;:GOTO
60010 POKEZ1,32:LC=LC+15360:A=VARPTR(A$):POKEA,Z1-LC:POKE A+1,LC-INT(LC/256
:POKEA+2,INT(LC/256):IP$=A$
60011 RETURN
40070 AN$=" ":POKEVARPTR(AN$),A1%:POKEVARPTR(AN$)+2,INT(POX/256)+60:POKEVARP
N$)+1,POX-INT(POX/256)*256:RETURN
```

I would like to introduce myself, I am Larry Bona, a U.S. servicemember stationed at RAF Upper Heyford in Oxfordshire. I am also an owner of a TRS-80 Model III 48k cassette based microcomputer.

I saw a listing of your computer club / user's group in the September 22-28 issue of PERSONAL COMPUTER NEWS. I don't usualy subscribe to any British microcomputing magazine but I do subscribe to two of America's biggest publications for the TRS-80 user, 80-MICRO and BASIC COMPUTING THE TRS-80 USER'S JOURNAL.

I would like to share information from either of the publications that I subscribe to and any information that I have come across since I purchased my micro with any member of your club / user's group who may be interested.

I think that I have explained my system fairly well except for my plans for expansion. I have an Epson MX-80F/T Type III, an Alpha Joystick and plan to put two disk drive units in my computer in the next few months.

I would be very happy to hear from any member who is interested in exchanging ideas on almost any area of TRS-80 use.

L. M. BONA
38 ROCHESTER WAY
TWYFORD
NR. BANBURY
OXON
OX17 3JX

Comments and Notes - PCW Show and Maplin Modem Day.

PCW Show.

As Leon has commented on earlier the show was very disapointing from a recruiting point of view, but at the same time useful contacts were made or renewed. The show is a waste of time for a TANDY owner, but is useful if reviewing the current scene. The printers on show were mouth-watering and a 400 pound plotter from Kempston Electronics was very tempting, especially seeing it controlled by the SPECTRUM. A Model III was being used in the Chess competition using the Hi-Res mod, with the owners own chess program and own designed graphics.

The hospitality room was run just down from the exhibition, and more members came along than last year, but not enough to justify the expense. Looking at it from the viewpoint - not many members go to the show anyway how can we expect them to make the hospitality room.

MAPLIN MODEM DAY

First an apology for the date mixup - how it happened I just do not know. Nearly 20 members turned up for this rather special experiment, and it ran quite smoothly. Two non working modems arrived and two working modems were sent away - to Gloucester and SPAIN. Robert Vieira very kindly brought a lot of test gear and patience, and Paul Ostwind arrived to rejuvenate a rather flagging assembly, struggling to sort out the Spanish connection. Andre Quain now knows a lot more about putting together one of these units.

I believe the day was worth putting on, and anticipate another coupled with hooking stepper motors to the TRS-80 or Z80 machines. A member from Islington (Ray) very kindly donated six stepper motors to the group for experiments etc. The first is to hook one(or more) to the TANDY ARMATRON, with members advised on the circuitry and code needed to interface to their keyboards. In my possession is a simple circuit by Leon, with costings, and stepper motor connections are awaited from Ray and further information from ASTRALUX by Leon. Nick Robinson has a very nice sheet(s) on the MODEM, with some current mods that are around. John Christie brought his modem along working modded with Robert, and went home with it working !

Brian Pain.

At college we now have one of the 4 colour printers/plotters which has potential for handouts as it will produce a graphics type presentation first, followed by text from Scripsit. The size of paper is no problem as we can use two columns and paste up from there. What is needed now is a utilty program allowing the user to input size of circle required, number of segments and text to appear in those segments. Before I start writing the latter, has anybody done it?

While on the subject of utility programs, has anybody got several dem. programs for TASORT. now that I am about to play with this routine over the winter months

Brian Pain



Dear user,

By now you know there's a new totable on the block -- the TRS-80 Model 100 Micro Executive Work Station (MEWS). What you probably don't know is there's a new magazine to go with it -- PORTABLE 100.

Magazine? you ask. Why does MEWS need a magazine? Isn't it a self-contained unit?

Think again. (You probably have.)

We agree, the 100 is a nifty little package. But its real strength lies in its potential. It's that potential PORTABLE 100 will address.

Every month we'll provide you with programs aimed at helping you get the maximum utility out of your 100 whether you're using it in your business, at home, or both. To do that, we're tapping into some well-known names in the industry like Jake Commander and Dennis Kitsz.

But we need your help, too. About 80 percent of PORTABLE 100 will be authored by freelancers. That means users like yourself who are continually searching for new ways to exploit the enormous power packed into the 100.

Sure, we'd like you to buy our magazine (we'll even offer your group a special subscription rate that's 15 percent off our introductory subscription price of $24.97). But that's not why we're writing to you. This letter is an invitation to you and your members to submit articles to PORTABLE 100 magazine -- even if you've never written an article before. If you're idea has anything to do with MEWS, we'd like to see it.

We believe business-oriented programs will have the most value to 100 owners, so those kinds of articles will receive priority attention. But we're still very interested in the gamut of applications micros are used for today, like home management, education, graphics, utilities, sound, and games.

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When submitting an article, think of it as the same as showing friends at your group meetings a new program you've developed. Articles are nothing more than documentation. Tell readers, as simply as possible, how to operate your program. Set aside a special table with a routine-by-routine breakdown with short notes explaining the particulars of how your program works.

If you don't consider yourself a good enough writer, don't worry. We realize and appreciate the fact that many Model 100 owners may not be professional writers. Not being a professional, though, doesn't mean you won't be fairly paid. You'll receive top dollar for your work -- from $50 to $250 an article. We pay well and promptly -- on acceptance. And we'll let you know within four weeks whether or not we'll buy your work.

There are several ways to submit an article to us. You can upload it to us on CompuServe and let us know of your submission via e-mail (our user i.d. is 76703,372), or mail us a tape of your manuscript and program. We'll even accept old-fashioned hard-copy. If you make a submission by conventional mail, make sure you enclose a stamped, self-addressed envelope.

Thanks for reading this letter. We hope you're as excited about this opportunity as you were about the Model 100. And we hope you'll share some of that excitment with us.

Until that time,

John P. Mello Jr.

John P. Mello Jr.
Managing Editor
PORTABLE 100

Paul. A. Golder
6 North Avenue, Swanton Morley,
DEREHAM Norfolk
NR20 4LG

Swanton Morley 491.
29 Sept 1983.

Dear Users,

Video Genie and TRS-80 have produced yet another offspring in the form of NOGATUG, the birth of this child was on 21st Sept. at the CROME Center in Norwich.

NOrfolk Genie And TRS-80 User Group.
NO G A T U G

If anyone wants to find out how the new child is faring then just call 0362-83-491 any evening and I will give you the latest details.
We intend to bring the new child up in the "Faith" of NATGUG wherever possible and actively encourage others to take up the NATGUG "Faith" in line with our own.
Seriously though if anybody out there is interested in joining us then just call me on the above number.

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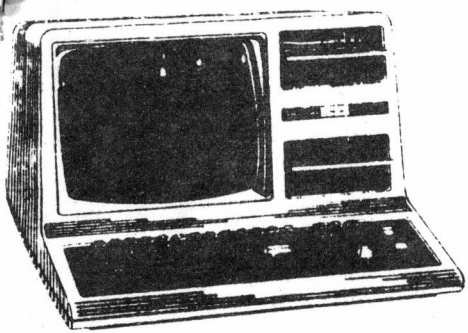
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NATGUG NEWS

VOLUME 5 No. 5 November 1983

OFFICIAL JOURNAL OF THE

National TRS-80

& Genie Users

Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. 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 from time to time. Sub-groups also exist for medical and educational users.

The Group runs 80-NET, a computerised bulletin board service that is available to all users of microcomputers.

The Group maintains three software libraries (Models I, II and III) which are free to members. Library lists are obtainable from the Secretary. The medical and educational sub-groups maintain their own libraries.

A membership list is obtainable on disk from the Secretary.

Back numbers of the Newsletter are available.

Please send all contributions for the Newsletter to the Editor.

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Model II: Jim Hutton, 25 High Street, Stroud, Glos. Tel: (045 36) 4423.
Model III: Nick Clay, 6 Rectory Lane, Byfleet, Surrey. KT 14 7LL. Tel: (09323) 42348.

Model 100 Richard Creak Phone 024541-3725.

Model 4 Ken Arntsen Phone 0279-730354

****Eric Hartley 0020 - 22880 RS232 board & L/Case.

MKMUG our local club, every TUESDAY, around 80 - 110 enthusiasts, 5 Erica Road, Stacey Bushes. Very Close to the concrete cows and Central Milton Keynes Railway and Bus stations.

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WORKSHOPS 1984

FEBRUARY 24/25/26 MILTON KEYNES - Woughton Campus.

The rooms have been booked for the whole weekend, and the following is definite :-

FRIDAY Stock, Sales, Purchases and General Ledger on Model 4

How to go about buying a computer for business Colin Ashford

Micros saving energy in big users premises - Colin Ashford.

SATURDAY 8 hours on machine code with Laurie Shields. This will be highly structured day, and is aimed at the beginners again. Building the MAPLIN MODEM from opening the box; building Eric Hartley's RS232 board from scratch, building a 64k print buffer - ring for the spec; and putting steppers onto the TANDY ARMATRON. The hardware will be there, the soldering irons will be there - will you ?

SUNDAY SUPERSCRIPSIT with a volunteer; PENCIL2 with John Kilpatrick; Model3 HIRES with John Carne; how the RS232 actually works Leon Heller; the TANDY VOXBOX hooked to a tank, and firing blanks and the AGM.

EDITORIAL

We would like to set the next issue out before Christmas, so please let me have any contributions as soon as possible.

The Swindon weekend workshop was quite successful, and it has been decided to hold a similar workshop every six months or so. The next one will be in March.

At the recent Annual General Meeting of the Amateur Computer Club I resigned the editorship of ACCumulator, only to be nominated as Chairman. No-one else wanted the job so I accepted the nomination.

Leon Heller

GUIDELINES FOR CONTRIBUTORS

1. If possible, send material in printed form.
2. Scripsit or Pencil disks/cassettes are acceptable.
3. Ensure your ribbon is in reasonable condition.
4. Printer output should be on A4 paper if possible.
5. If you send in hand-written material, write legibly.
6. Do not fold the sheets when posting them. Use a large envelope and keep them flat.

Leon Heller

Provisionally Jim Norris with some more case studies; hooking the factory floor to the TRS80; multiple businesses on hard disk by the member who writes very well; VISICALC hard at work by Nigel Hyde; Factory production control - paperwork -Nigel Hyde; standard accounting programs in the public domain Colin Ashford ; Learning the COBOLS and FORTRANS on TRS Geoffrey Goldberg/Leon Heller; Cross - Assemblers using the TRS as a development system - Leon Heller; the 68000 do more than just flashing. Applying disk protection - John Newgas; operating a bulletin board John Newgas.

More on steppers and the TRS80..

MARCH 1984 SWINDON

Coming next month, a four week stock exchange game for the modem freaks. Buy & sell store shares only, and see how you fare in the league table. It will not be perfect, but the exercise is required for college and provided for your pleasure and delectation.

Brian Pain 0582 - 34111 College
0582 - 411842 a/c no 12,110
Password 566660 type"MAILBOX", use help and leave a message **110 baud.

Has anybody got some notes on how to use the CGP115 with PENCIL, even SCRIPSIT would do ! BRIAN PAIN

MEMBERS' LETTERS

Comments on David Swann of Richmond's article "Accounts Programs" specifically paragraphs 3 and 4 of his article "The fault dear David, is not in our wives but in ourselves"

With apologies to Shakespeare

A female member of your User Group.

I should be obliged if you could kindly up-date the information on the group with regard to my membership and include that I am now owner of a Model 4 I28K machine and also a Model IOO with Acoustic Coupler.

As I am interested in developing these two new machines for use in my business, I would be interested in contacting similar members, and perhaps you could kindly forward me a copy of the current membership list with details.

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21th Nov 1983

Dear Leon
Some points arising from the Oct newsletter:

- **G.Brittain (Easy Machine Code)**
  To do an **XOR** in Basic, use the relation
  A XOR B = (A OR B) - (A AND B)

- **David Hirschowitz (Stop Press)**
  I don't think David's problem with string pointing to the VDU Ram area is anything to do with the new CPU (presumably he means the new Rom). He is probably using a keyboard which has been modified for lower case, and he is not using a lower case VDU driver (e.g. Tandy's ULC driver). The better DOSs (such as Newdos 80 or Ldos) have built-in drivers and should present no problems with this routine.
  Readers who haven't yet experienced this problem should try the following experiment. Go into standard Level II Basic (where the VDU driver vector address at 401E is 0458). Write and run the following program:

```
10 CLS
20 GOSUB30:PRINT@0,I$;:
   PRINT@256,CHR$(31);ASC(I$);PEEK(15360);:
   GOTO20
30 I$=INKEY$:IFI$=""THEN30 ELSERETURN
```

Of course 15360 (=3C00h) is the first address of the screen. The program waits for an input at line 30, and displays it at the first character position on the screen, and then lower down, the ascii value of the input (as returned by the Rom keyboard driver), and finally the actual value written to Ram by the VDU driver.
If, for example, you type an "A" which is ascii 65, the value stored at 15360 is 1 not 65! And similarly for ascii 66-95.
Consequently, if you try to apply David's string pointer technique, your strings are full of control codes (ascii 0-31).
The answer, as I suggested above, is to use ULC or some substitute driver. Perhaps you, Leon, would like to comment on the reason for this problem. Is it a peculiarity of the Character Generator chip used in the LC mod?

▪ E.D.Bebbington (A Word-counter for Tape Scripsit) raises another hoary old chestnut. Up to now I've regarded this one as a piece of light-hearted amusement in Assembly for its own sake. But E.D. supplies a convincing argument for the need of such a utility.
There's nothing to be ashamed of in his programming technique, but his method of application sounds rather brutal. So here goes with my contribution.

The assembly source listing below is intended as a patch for Cassette Scripsit (vers. 1.0). The Query Command routine of Scripsit is extended to respond to "?Z" and provide a word count on the Command line in the same way as other query commands (e.g. ?L, ?M etc.) provide document info. I've also made an adjustment to E.D.'s routine to distinguish between the use of the ">" character as a format-line indicator and as an ordinary character or mathematical symbol. A format-line ">" is always preceded by a control code (8D for newline, 8C for new page etc.). On encountering an ">", my patch looks at the previous character; if bit 7 is set (i.e. its ascii value is greater than 127 (=7Fh)) then the ">" is taken as a format code and subsequent words up to the next end-of-line are not counted.
At this stage, the patch does not cater for header,footer or page blocks but it would be a simple matter to code this later if required.

For simplicity, I've assembled the patch at the "hole" immediately after the main Scripsit program (the area from 69C6 - 6B97 is free for patching). If this area is already used for some other patch, then you'll have to look for another niche for it - there are several possibilites but each one will require a few adjustments to Scripsit pointers .

How to instal the patch.
I suspect most users of Cassette Scripsit will have a minimum of resources at their command. There are two major problems with installing a patch in Scripsit :

- Cass. Scripsit overwrites Level II BASIC
- Level II does not have a tape PUNCH (or save) utility for SYSTEM format files.

I've therefore written two programs to get around these problems. All that's required is a Model I with Level II BASIC, 16k Ram, a tape recorder and a copy of Cassette Scripsit vers. 1.0.

The first program <PROG 1> simply moves BASIC from its normal location at 42E9h to 6B00h - just high enough to leave room for Scripsit + patch (4300 - 6A1C) and allow sufficient breathing space at the top (6B00 - 7FFF) for my second program.

The second program <BASIC PROG 2> provides a number of options, one

of which will automatically read your copy of Scripsit, patch it for wordcounting, and rewrite a new copy of the patched file for subsequent use via the Level II SYSTEM load.

Instructions for installing the patch.

1. Turn your computer on and answer the MEMORY SIZE prompt with 32511 (= 7EFFh).
2. Type in <PROG 1> **directly** - no line number. There are 7 poke statements and a clear, and all 8 instructions must be entered together. The linefeeds don't matter, this is for clarity, but if you want to include them just use the <↓> key.
   When you're satisfied it's correct, hit <ENTER>.

   <PROG 1>

   POKE 27391,0:POKE 27392,0:POKE 27393,0:
   POKE 16548,0:POKE 16549,107:POKE 16633,2:POKE 16634,107:
   CLEAR 50

   Nothing spectacular will happen. You should get a normal READY prompt, but BASIC is now relocated to 6B00h.

   To check everything is OK, do a PRINTMEM. I get 5051. If you get something very different, then something is wrong and you'll have to repeat this step.

   NB. Throughout the subsequent steps, it is essential that BASIC is properly located in "high" memory. If something goes wrong causing a keyboard lock-out and/or a reset, then you'll need to repeat step 2 to get BASIC relocated.

3. Carefully type in <BASIC PROG 2> exactly as listed. Check it out carefully when you've finished. If you've got a printer, LLIST the program and compare with the listing here. It will save you a lot of heartache later if you get the typing correct first time.
   Please note : the data statements in lines 70-78 contain hex digits 0-F only; there are no "O"s there.
   Don't be tempted to renumber the program. Some routines, particularly the data-finder subroutine at line 96, use actual program line numbers.

4. CSAVE the program.
   This is vital. If something goes wrong subsequently, it's quite probable you'll loose the program and you don't want to have to re-type it!

5. RUN the program and select option 1 - "Check ML data". This does a checksum on data lines 71-78. If an error is reported, then correct it and remember to do a CSAVE of the corrected program.
If the data checks out, go back to the MENU and select option 2 - "Poke ML cassette I/O routine".
When the MENU reappears, select option 3 to Patch your own Scripsit file. Just follow the directions given.

NB. When you're directed to wind your tape to the **START** of a file then do just that! Your tape should be at a blank portion of tape immediately *before* the file you want to load. If the tape is in the middle of a file, this loader will report a "Bad load" and give you the option of rewinding and <R>etrying, or <Q>uitting the load. In fact this is better than Level II's SYSTEM load which stubbornly searches ad infinitum for a start-of-file and invariably gets itself in a twist in the process.

The patching process is automatic. When complete, you'll be asked to supply a filename for the new file to be punched. Give any name you like - up to 6 chars. If you supply less than 6 characters, then the name will be padded out with blanks - *this is significant later when re-loading with Level II's SYSTEM loader when you'll need to supply the **exact** filename.*

If all goes well, you'll get the "Task complete" prompt and you're in business.

The other options in this program are for free. The VERIFY option might be particularly useful. It reads a SYSTEM format file, but doesn't actually load the data into memory. When finished it will give you the Start and End addresses of the file, its entry or Transfer address and its name. (Be careful, though! You can't assume that the whole of a SYSTEM file loads to memory between its Start and End addresses. Each data block in a SYSTEM file has its own length and load address. If you're not familiar with the file in question, and you LOAD it with this BASIC program (using option 5) you run the risk of overwriting the program itself (6B00 - 7FFF).
In testing, I've found these cassette I/O routines to be absolutely reliable, using a 5-year-old CTR 41, an equally ancient but trusty model I, and a Tandy C60 concertape which has been re-wiped several times over!

<BASIC PROG 2> should be fairly easy to follow. A few of the routines used may need further explanation :-

- 1.10 - the poke is for older model I keyboards with the locked data pointer problem.
- 1.87 - reads and displays file addresses and name from USR r'tine buffer.

- 1.88 - invokes USR r'tine. F% is verify (-1) or load (Ø) flag.
- 1.89 - converts 4-digit hex value in H$ to decimal in D.
- 1.96 - resets data pointer to line no. in DL%
- 1.98 - converts decimal value in D to 4-digit hex in H$

Using your patched Scripsit file.

Load the file in the normal way. If at any point you want a wordcount of the document so far, hit <BREAK> to do a BREAK COMMAND, and then type <?Z> and hit <ENTER>. You'll be rewarded with a (hopefully accurate!) wordcount on the command line.

If there are any problems with the patch or its installation on other systems, or queries about the programs supplied, I'll be glad to help with further explanation.

I'll conclude with a table of equivalent addresses for users of the disk version of Scripsit. Most disk users should have an assembler, so they'll have no problems re-assembling or relocating.

Cassette	Disk	description
5958	69B4	holds the address of Scripsit's text buffer
6BB4	7C45	buffer for hex to ascii conversion
5914	697Ø	r'tine to display text on command line
6D42	7DD3	input buffer - last char. from keyboard
5EE5	6F76	Invalid Command handler
69C6	7AA5	start of unused space for patching

Incidentally, E.D. asks how to re-enter Scripsit without destroying the text buffer pointers. One neat re-entry is 24317 (= 5EFDh) for Cassette Scripsit (6F8E for disk scripsit). If you have a reset in the middle of a Scripsit session, and you return to Level II, then you shouldn't have to re-load Scripsit provided you don't do any processing in BASIC. Just type <SYSTEM> and in response to the "* " prompt type </24317>. Your text should come up intact. If this fails (which means memory from 43BD upwards has been corrupted) then you'll have to reload Scripsit and try the same entry.

P.S. You'll be pleased to know this letter has 1852 words. I'm sure most of your readers will take more comfort from the knowledge that it has finally come to an end - I certainly do.!

```
3 REM <BASIC PROG 2>
10 POKE16553,255:DEFINTI,J,K,M,N
50 CLS:PRINT"
   <1> Check ML data
   <2> POKE ML cassette I/O routine
   <3> Patch Cass. Scripsit for WORDCOUNT
   <4> VERIFY a SYSTEM file on tape
   <5> LOAD a SYSTEM file from tape
   <6> SAVE a SYSTEM file to tape

       ...enter 1-6?"
52 I$=INKEY$:IFI$=""THEN52 ELSEI=VAL(I$):
   IFI=0 OR I>6 THEN52
   ELSE ONI GOTO100,150,200,250,300,350
69 REM ----------DATA----------
70 REM ML code for cassette SYSTEM READ/WRITE/VERIFY
         251 bytes        checksum = 24655
71 DATA CD,7F,0A,7D,32,90,7F,AF,CD,12,02,CD,96,02,CD,35,
        02,FE,55,20,66,06,06,21,8A,7F,CD,35,02,77,23,10,
        F9,CD,35,02,FE,3C,20,53,CD,35,02,47,CD,14,03,22,
        84,7F,18,15,CD,2C,02,CD,35,02,FE,78,28,28,FE,3C
72 DATA 20,39,CD,35,02,47,CD,14,03,85,4F,CD,35,02,57,3A,
        90,7F,3C,7A,20,01,77,23,81,4F,10,EF,CD,35,02,B9,
        28,D2,3E,43,32,FE,3C,18,12,2B,22,86,7F,CD,14,03,
        22,88,7F,CD,F8,01,21,FF,FF,18,06,CD,F8,01,21,00
73 DATA 00,C3,9A,0A,00,00,00,00,00,00,00,00,00,00,00,00,
        00,AF,CD,12,02,CD,87,02,3E,55,CD,64,02,21,8A,7F,
        06,06,7E,CD,64,02,23,10,F9,2A,84,7F,E5,EB,2A,86,
        7F,B7,ED,52,38,29,11,80,00,B7,ED,52,30,03,ED,5A
74 DATA EB,43,3E,3C,CD,64,02,78,CD,64,02,E1,CD,F3,7F,85,
        4F,7E,CD,64,02,81,4F,23,10,F7,CD,64,02,18,CD,E1,
        3E,78,CD,64,02,2A,88,7F,CD,F3,7F,CD,F8,01,21,FF,
        FF,18,8E,7D,CD,64,02,7C,C3,64,02
75 REM ML code for Cassette Scripsit Wordcount patch
       87 bytes   checksum = 9191
76 DATA 3A,42,6D,FE,5A,C2,E5,5E,C5,01,00,00,2A,58,59,7E,
        FE,20,28,17,FE,8D,28,13,FE,3E,20,08,2B,7E,23,CB,
        7F,20,15,7E,FE,00,28,18,23,18,E4,03,23,7E,FE,20
77 DATA 28,FA,FE,8D,28,F6,18,E0,23,7E,FE,8D,20,FA,18,EC,
        ED,43,84,6B,C1,21,11,6A,C3,14,59,0B,57,6F,72,64,
        20,63,6F,75,6E,74,3A
78 REM --------------------------------
80 REM -----S'routines------
86 PRINT"<key> when ready":GOSUB90:RETURN
87 FORJ=0TO2:D=PEEK(M+2*J)+256*PEEK(M+2*J+1):GOSUB98:
   A$(J)=H$:NEXT:M=M+6:F$="":FORJ=0TO5:F$=F$+CHR$(PEEK(M+J)):
   NEXT:PRINTUSING"S %   %   E %   %   T %   %   %     %";
   A$(0);A$(1);A$(2);F$:RETURN
88 POKE16526,M1:POKE16527,M2:X%=USR(F%):RETURN
89 D=0:FORI=1TO4:D%=ASC(MID$(H$,I,1))-48:
   D=D*16+D%+7*(D%>9):NEXT:RETURN
90 I$=INKEY$:IFI$="" THEN90 ELSERETURN
91 D=0:FORI1=1TOI2:D1=ASC(MID$(H$,I1,1))-48:
   D=D*16+D1+7*(D1>9):NEXT:RETURN
92 H$=RIGHT$(I$,2):GOSUB91:POKEM,D:M=M+1:H$=LEFT$(I$,2):
   GOSUB91:POKEM,D:M=M+1:RETURN
93 L=LEN(F$):IFL<6 THENF$=F$+STRING$(6-L,32)
94 FORI=1TO6:POKEM,ASC(MID$(F$,I,1)):M=M+1:NEXT:RETURN
95 PRINT" ....<key> for menu?":GOSUB90:RETURN
```

```
96 AD%=PEEK(16548)+256*PEEK(16549):FORZ%=0TO1STEP0:
  LN%=PEEK(AD%+2)+256*PEEK(AD%+3):IFLN%=DL% THENAD%=AD%-1:
  POKE16640,INT(AD%/256):POKE16639,AD%-256*INT(AD%/256):RETURN
  ELSEAD%=PEEK(AD%)+256*PEEK(AD%+1):IFAD%=0 RETURNELSENEXT
97 I2=2:FORI=1TON:READH$:GOSUB91:POKEM,D:M=M+1:NEXT:
   RETURN
98 H$="":FORI=1TO4:D1=INT(D/16):D%=D-16*D1:D=D1:
  D%=D%+48-7*(D%>9):H$=CHR$(D%)+H$:NEXT:RETURN
99 REM -----menu options----
100 REM Check ML data lines
102 CLS:PRINT"Checking ML data ..":
  POKE16553,255:CH=24655:C=0:I2=2:
  FORI=1TO251:READH$:GOSUB91:C=C+D:NEXT:
  IFC<>CH PRINT"Check data lines 71-74":STOP
104 PRINT"Data lines 71-74 OK":
  CH=9191:C=0:FORI=1TO87:READH$:GOSUB91:C=C+D:NEXT:
  IFC<>CH PRINT"Check data lines 76-77":STOP
106 PRINT"Data lines 76-77 OK":PRINT:PRINT
108 GOSUB95:GOTO50
150 REM Poke ML data to 7F00
152 CLS:PRINT"POKING CASS. I/O ROUTINE ..":
  RESTORE:M=32512:N=251:GOSUB97:GOTO50
200 REM Patch Scripsit
202 CLS:PRINT"Patch Cassette Scripsit for WORDCOUNT ..
  wind tape to start of file and press <PLAY>
   ";:GOSUB86:M1=0:M2=127:F%=-1:GOSUB88:
  IFNOTX% PRINT"Bad load .. rewind and try again...<key>?":
  GOSUB90:CLS:GOTO202
204 M=32644:GOSUB87:PRINT:
  PRINT"Patching Scripsit ..":
  DL%=76:GOSUB96:M=27078:N=87:GOSUB97:
  M=22782:POKEM,198:POKEM+1,105
206 PRINT"Scripsit is now patched, ready for SAVE.
  Enter name for new file - up to 6 chars .";:INPUTF$:
  M=32644:I2=2:I$="4300":GOSUB92:I$="6A1C":GOSUB92:
  I$="4300":GOSUB92:GOSUB93
208 PRINT"PREPARE BLANK TAPE AND PRESS <RECORD/PLAY>
  ";:GOSUB86:M1=145:M2=127:GOSUB88:
  PRINT"TASK COMPLETE ..";:GOSUB95:GOTO50

250 REM VERIFY
252 CLS:PRINT"VERIFY a system file on tape ..
  wind tape to start of file and press <PLAY> ..
     ";:GOSUB86:M1=0:M2=127:F%=0:GOSUB88:
  IFX% THENM=32644:GOSUB87:GOSUB95:GOTO50
254 PRINT"Bad load ...<R>etry    <Q>uit and menu ..?"
256 GOSUB90:IFI$="R" THEN252 ELSEIFI$="Q" THEN50 ELSE256

300 REM LOAD
302 CLS:PRINT"LOAD a SYSTEM file from tape ..
   wind tape to start of file and press <PLAY>
    ";:GOSUB86
304 M1=0:M2=127:F%=-1:GOSUB88:IFX% THENM=32644:GOSUB87:
  GOSUB95:GOTO50
306 PRINT"Bad load ...<R>etry or <Q>uit and menu ?"
308 GOSUB90:IFI$="R" THEN300 ELSEIFI$="Q" THEN50 ELSE308
```

```
350 REM SAVE
352 CLS:M=32644:I2=2:PRINT"SAVE a SYSTEM file to tape ...
  enter a 4-digit hex no. for each address required.":PRINT:
  INPUT"Start addr ..";I$:GOSUB92:
  INPUT"End   addr ..";I$:GOSUB92:
  INPUT"Entry addr ..";I$:GOSUB92:
  INPUT"Filename   ..";F$:GOSUB93
354 PRINT:PRINT"Prepare blank tape, press <RECORD/PLAY>
    ";:GOSUB86:M1=145:M2=127:GOSUB88:
   PRINT"Write complete ..";:GOSUB95:GOTO50
```

```
                ;<WORDCSCR> wordcount patch for Cassette Scripsit
                ; ref. TNL Oct/83 p.27 E.D.Bebbington
                ;
5958            STEXT   EQU     5958H           ;Scrip SOT addr
6BB4            NUMSTO  EQU     6BB4H           ;Scrip hex value store
5914            DISINF  EQU     5914H           ;Scrip display info
6D42            INCHAR  EQU     6D42H           ;last char input
5EE5            INVCOM  EQU     5EE5H           ;invalid comm. r'tine
                ;
69C6                    ORG     69C6H
69C6 3A426D     BEGIN   LD      A,(INCHAR)      ;restore ? char
69C9 FE5A               CP      'Z'             ;?Z for word count?
69CB C2E55E             JP      NZ,INVCOM       ;Invalid query
69CE C5         START   PUSH    BC              ;save BC
69CF 010000             LD      BC,0            ;zero ctr
69D2 2A5859             LD      HL,(STEXT)
69D5 7E         LOOP1   LD      A,(HL)          ;get char from text
69D6 FE20               CP      20H             ;a space?
69D8 2817               JR      Z,COUNT         ; yes - count a word
69DA FE8D               CP      8DH             ;EOL?
69DC 2813               JR      Z,COUNT         ;count a word if so
69DE FE3E       RETURN  CP      3EH             ;">" format?
69E0 2008               JR      NZ,REP1         ; no -->
69E2 2B                 DEC     HL              ;check prev char
69E3 7E                 LD      A,(HL)
69E4 23                 INC     HL
69E5 CB7F               BIT     7,A             ;control code?
69E7 2015               JR      NZ,FORMAT       ; yes -->
69E9 7E                 LD      A,(HL)          ;restore current char
69EA FE00       REP1    CP      0               ;end of text?
69EC 2818               JR      Z,REPORT        ;  go disp count
69EE 23                 INC     HL              ;next char
69EF 18E4               JR      LOOP1
                ;
69F1 03         COUNT   INC     BC
69F2 23         LOOP2   INC     HL              ;skip spaces/CRs to beg.
69F3 7E                 LD      A,(HL)          ; of next word
69F4 FE20               CP      20H
69F6 28FA               JR      Z,LOOP2
69F8 FE8D               CP      8DH
69FA 28F6               JR      Z,LOOP2
69FC 18E0               JR      RETURN          ;start counting again
                ;
                ;format char ">" - skip to a CR
                ;
69FE 23         FORMAT  INC     HL
69FF 7E                 LD      A,(HL)
6A00 FE8D               CP      8DH             ;CR?
```

```
6A02 20FA      00580          JR       NZ,FORMAT        ; no - keep skipping
6A04 18EC      00590          JR       LOOP2            ;find next word
               00600 ;
               00610 ;disp no. of words counted
               00620 ;display message and word count, then ret. to Scrip
               00630 ;
6A06 ED43B46B 00640 REPORT   LD       (NUMSTO),BC
6A0A C1        00650          POP      BC               ;restore BC
6A0B 21116A    00660          LD       HL,MESS          ;HL=> text prompt
6A0E C31459    00670          JP       DISINF           ;back to Scrip with info
6A11 0B        00680 MESS     DM       11,'Word count:'
     57 6F 72 64 20 63 6F 75
     6E 74 3A
0000           00690          END
```


*** For sale to fit Video Genie ***

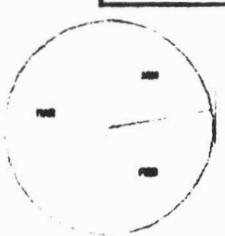
Gnomic DP 1000 Disc/Printer Interface	35 Pounds
New ROM with L/C driver + much more	5 Pounds
Feature ROM "A"	10 Pounds
Microdeal joystick	10 Pounds
Gnomic Lower case kit	8 Pounds
Level II Books and software	

Please telephone Melvyn Goodman 01 349 9538

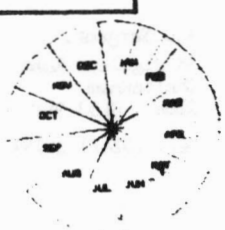
I have a twin double-sided double-density 5¼" floppy disc drive made by Percom. This unit is specifically designed for use on the TRS-80. It is brand new and even unwrapped from new. I wish to sell this unit and am looking for an offer.

My reason for selling is that I originally purchased it from the U.S.A. believing it to be for use on the Commodore. If any of your members are interested I would be pleased to hear from them.

Raymond Bastin
Green Tye,
CHURT,
Surrey,
GU10 2NQ.



By Nick Hudson - Luton College
on the Colour printer



PROBLEM SECTION

I am writing to you in the hope that you will be able to put me in touch with someone who can help me solve an interfacing problem.

A short while ago, I purchased a Silver Reed EX44 typewriter which I intended should also serve as a printer when connected to my TRS80 Model 3. To this end I also bought the parallel interface box supplied by Silver Reed which they claim is compatible with the TRS80. However, I found that this did not work and have been attempting to discover the reason ever since.

I consulted my local computer shop and they swopped the connections between pins 10 and 11 in the interface box but that did not work either. I next wrote to Silver Reed asking for help. They replied saying "We have found that the Tandy TRS80 can vary in its configuration. This can be cured by linking pins 7 and 12 inside the interface box, but using the standard Tandy lead." This did not work either.

I would be most grateful if someone could tell me how, employing the normal Tandy lead which I use with my Epson MX80, the connections in the interface box should be altered to make it work with the Model 3. I enclose a copy of the pin connections required by the interface box as set out in the manual which came with it.

A stamped addressed envelope is also enclosed for a reply and I would be pleased to accept a telephone call, reversing the charges, from anyone who knows the answer.

Pin Specifications on the interface box side.

Pin	Signal	In/Out	Pin	Signal	In/out
1	Data Strobe	In	19	Twisted pair Gnd.	DataStrobe
2	Data 1	In	20	ditto	Data 1
3	Data 2	In	21	ditto	Data 2
4	Data 3	In	22	ditto	Data 3
5	Data 4	In	23	ditto	Data 4
6	Data 5	In	24	ditto	Data 5
7	Data 6	In	25	ditto	Data 6
8	Data 7	In	26	ditto	Data 7
9	Data 8	In	27	ditto	Data 8
10	$\overline{\text{Ack}}$	Out	28	ditto	$\overline{\text{Ack}}$
11	Busy	Out	29	ditto	Busy
12	Logic Gnd.	-	30	ditto	$\overline{\text{Prime}}$
13	Select	Out	31	Prime	In
14	---	-	32	+5v pull-up	-
15	---	-	33	---	-
16	Logic Gnd.	-	34	---	-
17	Chassis Gnd.	-	35	+5v pull-up	-
18	+5v	-	36	---	-

A.G.Sargent.
36 Highland Road
Cheltenham
Glos. GL53 9LT
Tel: (0242) 34759

This to record my thanks for putting me on the road to at least partial success in running SuperSCRIPSIT on an Epson FX 80 printer. You will recall that my problem centered around the absence of a printer driver programme that was compatible with the Epson.

Now thanks to :- Don Bannister in Belfast, Geoff Smith in Bushey and the person who finally cracked it, he of the Fortran Tutorial, Jeffery Goldberg; your eyes are evidence that the programme will at least send out a half decent letter.

The secret, it seems, lies in the user defineable printer codes. Merely enter 27 64 as a code and thereafter Clear @ at the beginning of each document and the world can once again enjoy your mail.

So, for the moment, I am back in business. However, I should like at some time to regain those features such as proportional spacing and justified right hand margins, for which SuperSCRIPSIT is the envy of the civilised world! IS there anyone out there who has a suitable driver programme to link SuperSCRIPSIT with an EPSON FX 80 ?

JAIME GRAHAM. Tel: 01 348 0366 (Beware of Ansaphone!)

PROGRAMMING THE 68000 - A SERIES OF ARTICLES

Those members who have a Model 16, or who are contemplating the purchase of one, might be interested in the inner workings of the 68000 processor. I therefore intend to write a series of articles on 68000 assembly language.

The 68000 is part of a family of 16/32-bit processors that includes the 8-bit bus 68008, the 68000, the 68010 virtual memory processor, and the 68020, which is a full 32-bit processor with the power of an IBM mainframe. The 68020 will not be available until next year, by the way.

Features of the 68000 include:-

- 17 32-bit Data and Address Registers
- 56 Basic Instruction Types
- Extensive Exception Processing
- Memory Mapped I/O
- 14 Addressing Modes
- 16 Mbyte Linear Address Space

More on the 68000 in the next issue.

Leon Heller

SIG GROUP CHANGES

WEST LONDON

John Carne has moved. His new address and telephone number are:-

15 Courtfield Road,
Greenhill,
Harrow,
Middx.
Tel: 01-427 1098

COLCHESTER

The contact is now:-

John Kilpatrick,
3a Gainsborough Street,
Sudbury,
Suffolk.
Tel: (0787) 79504

BEDFORD

Alan Stenning
3 Chapman Close,
Kempston, Bedford
0234 - 857457

68008 PROGRESS

I now have the simple 68008 system that I mentioned in an earlier issue working after a fashion. It comprises a 68008 CPU with an 8 MHz clock, 2K EPROM (2716), 2K RAM (6116), 6850 ACIA, 6821 PIA, MC14411 baud rate generator, and sundry LS TTL logic chips.

Whilst I can output from the ACIA quite satisfactorily to the Model I or Model II, I am experiencing some problems reading the ACIA registers. I/O using a tri-state buffer and latch works perfectly, but this uses asynchronous communication with the CPU (like the RAM and EPROM), unlike the ACIA which is connected as a synchronous device. This might be the cause of the problem.

I gave a talk on the 68000/68008 at the Swindon week-end, and showed the system in operation - flashing an LED. Not very mind-boggling, but it proved that the beast was working!

The next priority is to get the serial I/O working properly, and to buffer the data, address and control lines so that I can get on with expanding the RAM to 128K using some 64K RAMs that I have had lying around for about a year.

If anyone else is interested in constructing this system, the circuit will shortly be published in 68 Microcosm, the Journal of the 68 Micro Group, and ACCumulator, the Amateur Computer Club newsletter. Give me a ring if you would like to join either or both of these organisations.

Leon Heller

A Boot Up, Battery Maintained Real Time Clock

For Model 3 or 4. By Roy Barber.

The need to type in the date at power up and the necessity of setting the time when correct time is a system requirement is an unnecassary chore. This real time clock will do it for you.

The clock has battery backup and will maintain operation for about a year without battery replacement. The clock is designed mainly to allow an auto'd boot up which loads the time and date to the system, displays both and returns to dos ready.

I have called the software CLCKLD3/CMD for model 3 and CLCKLD61/CMD for model 4 mode. Key in the code under debug and dump to disk using the

DUMP CLCKLDxx/CMD:x (start=X'F000',end=x'FF80',tra=X'F000')

or the equivelant program. Delete the request for date entry at power up by SYSTEM (TIME=NO) or equivelant then set AUTO CLCKLD61

The clock includes a switch which must be opened after the clock is set to prevent any faults causing a write into the clock resetting it. The clock is decoded to work at ports 40 to 4F hex but a number of other port addresses are available from the LS138 decoder if this conflicts with any ports already in use.

I have fitted the clock to my IO connector using about a foot of 50 way ribbon cable. The box can be one of the small 4 by 2 by 1 1/4 inch plastic Vero types. On a friends machine the cable was led up the back and the box fitted to the rear centre screw using a small plate. This makes a neat and convenient job.

If you wish to use other devices on the I/O connector the clock may be fitted inside the model 3/4 case but carefull soldering will be required.

The +5vlt needed to power the clock board when it is in use must be obtained from the computer. A wire can be tacked to a 74LS device pin 16 near the I/O connector and run to pin 45 of the connector. Pin 45 is at present unused in model 3 and 4. but remember you have made the connector non standard and check carefully the effect on anything else fitted to the I/O plug. Damage could result.

The circuit is provided and can be assembled on a piece of Vero board to fit in the box you have chosen. The battery must have wires soldered to it unless you can make up a suitable clip. Do not overheat the battery during this soldering. Duracells can explode if heated too much. A clip should be used if a lithium battery is used as these cells can be very dangerous if heated. If wires are soldered to a Duracell battery they should be taken to the clock board via screw connectors so that the battery can be removed and changed whilst the computer is supplying power. By this method resetting the clock can be avoided.

A simple basic program is given for setting the clock as this should not be neccassary often. Remember to close the Write

protect switch during setting the clock and open the switch again before switching off the computer.

A data sheet on the National Semiconductor MM58174 Clock would be usefull to the constructor. This may be obtained from the manufacturer or an agent.

This clock chip will not update the year so keep a copy of the program listing so that the boot program can be patched where shown.

Be sure to use a germanium diode where called for on the diagram. A silicon diode will work but will cause a loss of apparent battery life due to its higher voltage drop.

The ICs, crystal, cable and connector can be obtained from Technomatic. Total cost of parts should be less than £20.

The clock can be used to update the internal computer clock at any time using suitable software.

Included in the model 4 program is the code to enable TRSDOS6 to provide the facility to prompt for disk number of sides during formatting. If you only have single sided drives put NOPs or 00 bytes where shown in the listings.

While running the CLCKLD programs, under TRSDOS6 the time and date being entered to the system will be displayed on the bottom line of the screen followed by DOS ready. Under NEWDOS80 the date and time will be displayed in the usual places but with random data shown. As CLCKLD is run this data will be overlayed by the correct date and time from the clock. Perhaps someone will write a patch to the system boot files allowing the correct date and time to be entered from the clock before completion of the boot. If so will they let me have a copy.

I hope the clock will be of interest and use to members. Please contact me for more detail or on any problems.

Roy Barber. 01 304 3856 Bexleyheath Kent.

Epson TX80 Printer.....£125.00
Tandy Model 1 CPU with speed up and Lower Case.....£ 75.00
Line Printer V11.....£150.00
Dosplus Ver 3.4/4.0 SD/DD with manual as new.....£ 60.00
Orch 85 with board and a number of programs.....£ 50.00

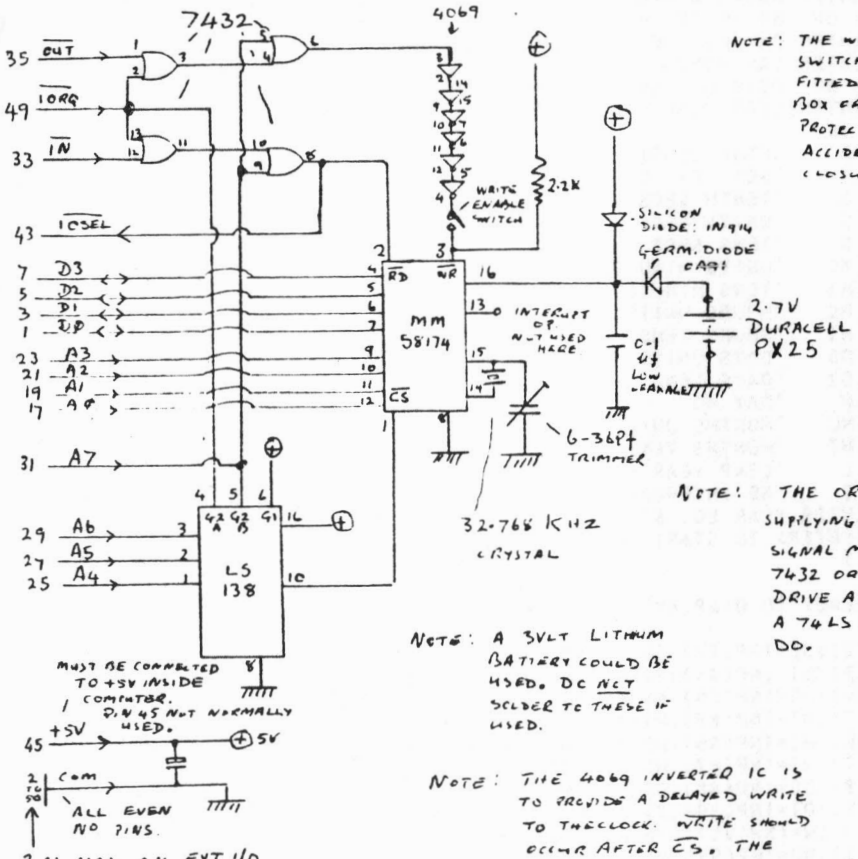
The following cassettes are also for sale:-

Word 4 Word/Micro Music/Micro Movie/T.Bug/Toolkit2
Mailing List/Gambiet/Dancing Demon/BlackJack/Algebra
Budget Management/Checkers/Payroll/Portfolio/Level2
Course/Backgammon:
Also included are a number of blank tapes with some
programs on them.....£100.00

Most of the above programs have got literature,and all items are negotiable. For further details please phone:-

D.F.Wood. London (01) 831 7063

MODEL 3/4 REAL TIME, BATTERY BACKED UP CLOCK (R. BARRER 11-83)



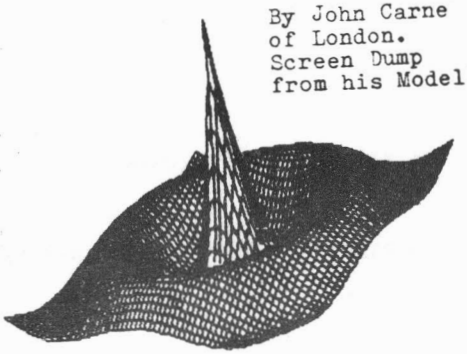
NOTE: THE WRITE ENABLE SWITCH SHOULD BE FITTED INSIDE THE BOX OR SHOULD BE PROTECTED FROM ACCIDENTAL CLOSURE.

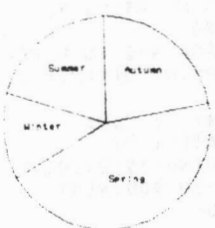
NOTE: THE OR GATE SUPPLYING THE IOSEL SIGNAL MUST BE A 7432 OR BE ABLE TO DRIVE A 150OHM LOAD. A 74LS32 WILL NOT DO.

NOTE: A 3VLT LITHIUM BATTERY COULD BE USED. DO NOT SOLDER TO THESE IF USED.

NOTE: THE 4069 INVERTER IC IS TO PROVIDE A DELAYED WRITE TO THE CLOCK. WRITE SHOULD OCCUR AFTER $\overline{CS}$. THE 4069 MAY NOT BE NEEDED ON MODEL 3 AT 2MHz.

By John Carne
of London.
Screen Dump
from his ModelIII





```
100 'RTC SET UP PROG    (MOD 3)              RTCSET/BAS
110 R=0:CLS
120 PRINT"CLOCK SET-UP...":PRINT
130 PRINT"     SET CLOCK SWITCH TO WRITE ENABLE...."
140 INPUT"ENTER HOURS & MINUTES.  FORMAT 0,3,5,8 = 03:58";H1,H0,M1,M0
150 IF H1>9 OR  H0 >9 OR  M1>9 OR  M0 >9 THEN 140
160 INPUT"ENTER DAY NO. OF WEEK. MONDAY=1 ";W
170 INPUT"ENTER DAY MONTH. FORMAT 0,4,0,5 =04/05/83";D1,D0,MT,MU
180 IF D1>9 OR  D0>9 OR  MT>9 OR  MU>9 THEN 170
190 INPUT"ENTER LEAP YEAR + X YRS.";L
200 OUT236,16
210 OUT 94,0     'STOP CLOCK
220 OUT 80,0     'SET TEST OFF
222 OUT 83,0     'TENTH SECS
224 OUT 82,0     'UNITS SECS
226 OUT 81,0     'TENS SECS
230 OUT 84,M0    'UNITS MINUTES
240 OUT 85,M1    'TENS MINUTES
250 OUT 86,H0    'HOURS UNITS
260 OUT 87,H1    'HOURS TENS
270 OUT 88,D0    'DAYS UNITS
280 OUT 89,D1    'DAYS TENS
290 OUT 90,W     'DAY NO.
300 OUT 91,MU    'MONTHS UNITS
310 OUT 92,MT    'MONTHS TENS
320 OUT 93,L     'LEAP YEAR + L
330 OUT 95,0     'NO INTERUPTS
340 INPUT"ENTER YEAR EG. 83";X
350 INPUT"<ENTER> TO START CLOCK...";ZZ
360 OUT 94,1
370 '
380 INPUT"READY TO DISPLAY";S:OUT236,16
390 P=X
400 X=INP(82):S0=INP(82):S0=S0 AND 15:IF S0>9:GOTO 400
410 X=INP(83):S1=INP(83):S1=S1 AND 15:IF S1>9:GOTO 410
420 X=INP(84):M0=INP(84):M0=M0 AND 15:IF M0>9:GOTO 420
430 X=INP(85):M1=INP(85):M1=M1 AND 15:IF M1>9:GOTO 430
440 X=INP(86):H0=INP(86):H0=H0 AND 15:IF H0>9:GOTO 440
450 X=INP(87):H1=INP(87):H1=H1 AND 15:IF H1>9:GOTO 450
460 X=INP(88):D0=INP(88):D0=D0 AND 15:IF D0>9:GOTO 460
470 X=INP(89):D1=INP(89):D1=D1 AND 15:IF D1>9:GOTO 470
480 X=INP(90):W=INP(90):W=W AND 15:IF W>9:GOTO 480
490 X=INP(91):MU=INP(91):MU=MU AND 15:IF MU>9:GOTO 490
500 X=INP(92):MT=INP(92):MT=MT AND 15:IF MT>9:GOTO 500
510 PRINT
520 PRINT"TIME : ";
530 A$="#"
540 PRINT USING A$;H1;H0;:PRINT":";:PRINTUSING A$;M1;M0;:PRINT":";:PRINT U
SING A$;S1;S0
550 IF R<1:FOR N=1 TO W:READ D$:NEXT N
555 IF R<1:PRINT"DISABLE CLOCK WRITE SWITCH...."
560 R=1
570 PRINT"DAY  : ";D$
580 PRINT"DATE : ";
590 PRINT USING A$;D1;D0;:PRINT"/";USING A$;MT;MU;:PRINT"/";USING "##";83
600 FOR X=1 TO 900:NEXT          'DELAY TO SEE
610 GOTO 390
620 END  '1
630 DATA "MONDAY","TUESDAY","WEDNESDAY","THURSDAY","FRIDAY","SATURDAY","SU
NDAY"
640 END '2
```

******* THIS LEDGER PRINTED ON 22:Feb:1983 AT 04.14 HOURS

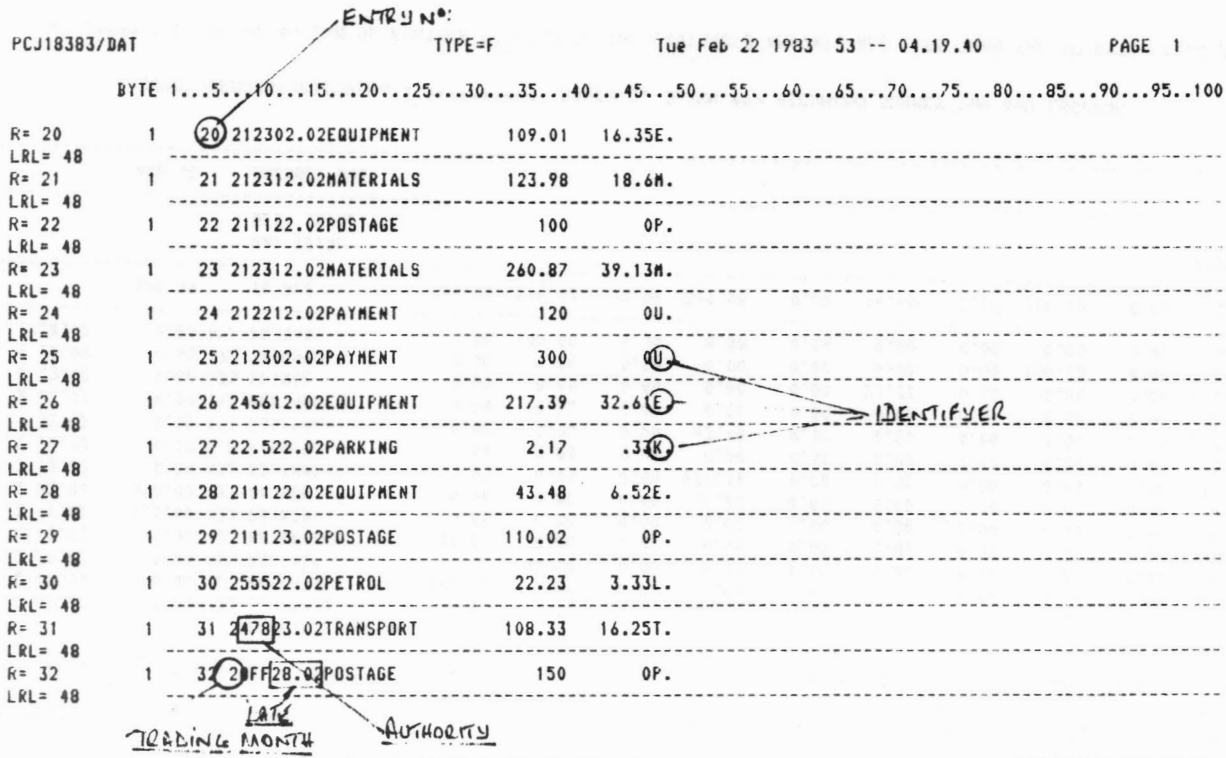
***** PETTY CASH LEDGER ** Feb:1983 ** PETTY CASH LEDGER ** Feb:1983 ** PETTY CASH LEDGER ** Feb:1983 ** PETTY CASH LEDGER *****

E/n	Mn	Date	Py'nt	Auth	Details	Mats	Post	Stat'y	Plant	T'phone	Petrol	Pk'ng	T'port	Sndry	Vat	TOTAL
					PREVIOUS BALANCE											2126.75
20	2	02.02	0.00	123	EQUIPMENT	0.00	0.00	0.00	109.01	0.00	0.00	0.00	0.00	0.00	16.35	125.36
21	2	12.02	0.00	123	MATERIALS	123.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.60	142.58
22	2	22.02	0.00	111	POSTAGE	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
23	2	12.02	0.00	123	MATERIALS	260.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.13	300.00
24	2	12.02	120.00	122	PAYMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	2	02.02	300.00	123	PAYMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	2	12.02	0.00	456	EQUIPMENT	0.00	0.00	0.00	217.39	0.00	0.00	0.00	0.00	0.00	32.61	250.00
27	2	22.02	0.00	2.5	PARKING	0.00	0.00	0.00	0.00	0.00	0.00	2.17	0.00	0.00	0.33	2.50
28	2	22.02	0.00	111	EQUIPMENT	0.00	0.00	0.00	43.48	0.00	0.00	0.00	0.00	0.00	6.52	50.00
29	2	23.02	0.00	111	POSTAGE	0.00	110.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	110.02
30	2	22.02	0.00	555	PETROL	0.00	0.00	0.00	0.00	0.00	22.23	0.00	0.00	0.00	3.33	25.56
31	2	23.02	0.00	478	TRANSPORT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	108.33	0.00	16.25	124.58
32	2	28.02	0.00	OFF	POSTAGE	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	150.00
			420.00		TOTALS	384.85	510.02	0.00	369.88	0.00	44.46	2.17	216.66	0.00	133.12	1800.60
					VAT TOTAL										133.12	133.12
					NETT TOTAL											1667.48
			420.00		BALANCE DUE											3507.35

DUMMY DEMONSTRATION DATA ********** DAVID J. SWANN *** RICHMOND SURREY TW9 4HD ENGLAND

NOTE**** THE LRL of 48 CAN BE FURTHER REDUCED IF THE ENVISAGED AMOUNTS ARE LESS THAN THE 10 BYTES ALLOCATED.

ILLUSTRATES HOW THE PETTY CASH DATA IS STORED ON DISC USING DIRECT ACCESS WITH 48 BYTES RECORD LENGTH



DIRECT ACCESS HANDLING - MODEL2 - PART 2

David J. Swann - Richmond - Surrey - TW9 4HD - England.

The previous comments regarding PETTY CASH DATA using DIRECT ACCESS LEDGER FILES did not, perhaps, fully indicate just how these can be economically stored on disc. Obviously, I cannot write descriptive programs for demonstration purposes and have had to use those used in my businesses.

The enclosed CASH LEDGER PRINT-OUT shows an 'UN-TYPICAL' CASH LEDGER in as much that there are far too many CHEQUES for the same SUPPLIER in the month indicated. This is because the program and the data created was used as a test bed, to ensure that all financial transactions were in fact covered and that all types of CREDIT/DEBITS could be handled, without entry error or calculating error. For example, Entry 22 indicates a CHEQUE REFUND from a supplier (never ever been known before) while the next entry is a CHEQUE PAID to the same supplier. Therefore, the whole of the DEMONSTRATION DATA was to prove the accuracy and versatility of the program under all circumstances and events.

Using the AUTO CHEQUE/HAND CHEQUE WRITE options eliminates a lot of the double handling but then BANK COSTS rise but are in keeping with the overall costs/savings involved.

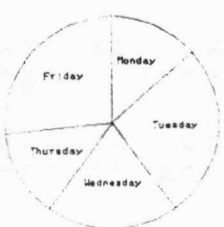
Each entry occupies just 54 bytes, see the next DATA SHEET being the printout of the data stored on DISC. The third/fourth alpha digits (R=1 CB) are the allocation code and identifyer. For instance, I used CB = CASH BALANCE : PU = PURCHASE : SA = SALES : SY = SUNDRY etc., The last three/four digits indicate the cheque number which was changed from 3 to 4 digits (see Entry 36 and 37)

This set of printouts, perhaps, indicate far better the versatility of using DIRECT ACCESS FILES, not only for DATA-BASES but for LEDGERS holding all records etc.,

The remaining data, on the two printouts should be self explanatory and remember, these indicate that the DATA FILES have been previously CREATED using the CREATE option - regarding NUMBER of RECORDS and Logical Record Length to a maximum LRL of 54 bytes.

Trust this further information is of use to other serious and business programming members.

10th NOVEMBER 1983 *** 4.20am *** RICHMOND SURREY TW9 4HD ENGLAND ***



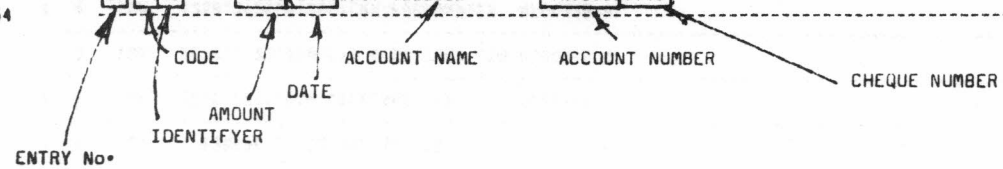
CASH LEDGER FOLIO PREPARED 31:Jan:1983 AT 11.23HRS FOLIO NUMBER 1 FOR THE FILE NUMBER :- CLJ18383/DAT

MONTH/YEAR		Jan.1983		CREDIT		CASH LEDGER			DEBIT				MONTH/YEAR	Jan.1983
ENTRY	MTH	SALES	SUNDRIES	CB/BWD	TOTAL	DATE	DETAILS	ACT/NO:	Ch/No:	PURCHASE	Gen/EXP	S'DRIES	DB/BFWD	TOTAL
1	1	0.00	0.00	12000.00	12000.00	01.	CR*BALANCE*DR		0	0.00	0.00	0.00	0.00	0.00
2	1	2345.77	0.00	0.00	2345.77	11.01	R WILLIAMS LTD	RW0017S	0	0.00	0.00	0.00	0.00	0.00
3	1	2874.12	0.00	0.00	2874.12	22.01	WHITE STAR CORP LT	WS0021S	0	0.00	0.00	0.00	0.00	0.00
4	1	1258.39	0.00	0.00	1258.39	25.01	WESTERN FOUNDARIES	WF0032S	0	0.00	0.00	0.00	0.00	0.00
5	1	653.25	0.00	0.00	653.25	22.01	STAR ENG'G LTD	SE0022S	0	0.00	0.00	0.00	0.00	0.00
6	1	0.00	0.00	0.00	0.00	12.01	WINGETT WATER LTD	WW0312P	123	2589.36	0.00	0.00	0.00	2589.36
7	1	0.00	0.00	0.00	0.00	12.01	SOUTHERN TRADERS	ST0309P	124	925.36	0.00	0.00	0.00	925.36
8	1	0.00	0.00	0.00	0.00	22.01	GEN ENG'G LTD	GE0310P	125	2542.36	0.00	0.00	0.00	2542.36
9	1	0.00	0.00	0.00	0.00	12.01	OFFICE RENTAL SERV	OR0803G	126	0.00	3526.78	0.00	0.00	3526.78
10	1	0.00	0.00	0.00	0.00	22.01	LONDON BORO' RUBBI	RB0807G	127	0.00	1253.89	0.00	0.00	1253.89
11	1	125.88	0.00	0.00	125.88	25.01	WHITE STAR CORP LT	WS0021S	0	0.00	0.00	0.00	0.00	0.00
12	1	0.00	0.00	0.00	0.00	28.01	GEN ENG'G LTD	GE0310P	128	3000.00	0.00	0.00	0.00	3000.00
13	1	0.00	0.00	0.00	0.00	22.01	NORTHEN SUPPLIES	NG0301P	129	125.36	0.00	0.00	0.00	125.36
14	1	0.00	0.00	0.00	0.00	12.01	SOUTHERN TRADERS	ST0309P	130	2369.36	0.00	0.00	0.00	2369.36
15	1	0.00	0.00	0.00	0.00	12.01	H.M. CUSTOMS EXCIS	CE0910G	131	0.00	0.00	1452.36	0.00	1452.36
16	1	2700.00	0.00	0.00	2700.00	31.01	WESTERN FOUNDARIES	WF0032S	0	0.00	0.00	0.00	0.00	0.00
17	1	0.00	0.00	0.00	0.00	31.01	WINGETT WATER LTD	WW0312P	132	616.44	0.00	0.00	0.00	616.44
18	1	0.00	0.00	0.00	0.00	31.01	SOUTHERN TRADERS	ST0309P	133	527.14	0.00	0.00	0.00	527.14
19	1	0.00	0.00	0.00	0.00	01.01	NORTHEN SUPPLIES	NG0301P	134	400.00	0.00	0.00	0.00	400.00
20	1	0.00	0.00	0.00	0.00	23.01	LONDON BORO' RUBBI	RB0807G	135	0.00	1000.00	0.00	0.00	1000.00
21	1	0.00	0.00	0.00	0.00	01.01	GEN ENG'G LTD	GE0310P	136	120.36	0.00	0.00	0.00	120.36
22	1	0.00	1000.00	0.00	1000.00	31.01	NORTHEN SUPPLIES	NG0301P	0	0.00	0.00	0.00	0.00	0.00
23	1	0.00	0.00	0.00	0.00	31.01	NORTHEN SUPPLIES	NG0301P	137	3000.00	0.00	0.00	0.00	3000.00
24	1	4500.00	0.00	0.00	4500.00	31.01	THAMES ENG'G LTD	TE0018S	0	0.00	0.00	0.00	0.00	0.00
25	1	0.00	0.00	0.00	0.00	31.01	NORTHEN SUPPLIES	NG0301P	138	253.36	0.00	0.00	0.00	253.36
26	1	0.00	0.00	0.00	0.00	31.01	WINGETT WATER LTD	WW0312P	139	2000.00	0.00	0.00	0.00	2000.00
27	1	0.00	0.00	0.00	0.00	31.01	LONDON BORO' RUBBI	RB0807G	140	0.00	1256.36	0.00	0.00	1256.36
28	1	0.00	0.00	0.00	0.00	31.01	H.M. CUSTOMS EXCIS	CE0910G	141	0.00	0.00	500.00	0.00	500.00
29	1	0.00	0.00	0.00	0.00	31.01	PETTY-CASH	PC0920G	142	0.00	0.00	250.00	0.00	250.00
30	1	5000.00	0.00	0.00	5000.00	23.01	R WILLIAMS LTD	RW0017S	1	0.00	0.00	0.00	0.00	0.00
31	1	0.00	0.00	0.00	0.00	28.01	SOUTHERN TRADERS	ST0309P	143	52.36	0.00	0.00	0.00	52.36
32	1	100.00	0.00	0.00	100.00	12.01	R WILLIAMS LTD	RW0017S	1	0.00	0.00	0.00	0.00	0.00
33	1	200.00	0.00	0.00	200.00	22.01	BOULDING TUBES LTD	BT0020S	1	0.00	0.00	0.00	0.00	0.00
34	1	250.00	0.00	0.00	250.00	18.01	BOULDING TUBES LTD	BT0020S	1	0.00	0.00	0.00	0.00	0.00
35	1	100.00	0.00	0.00	100.00	12.01	WHITE STAR CORP LT	WS0021S	1	0.00	0.00	0.00	0.00	0.00
36	1	0.00	0.00	0.00	0.00	12.01	NORTHERN SUPPLIES	NG0301P	1144	1091.12	0.00	0.00	0.00	1091.12
37	1	0.00	0.00	0.00	0.00	12.01	BRIT TELECOM	TH0806G	1145	0.00	2000.00	0.00	0.00	2000.00
		20107.41	1000.00	12000.00	33107.41		TOTALS			19612.58	9037.03	2202.36	0.00	30851.97

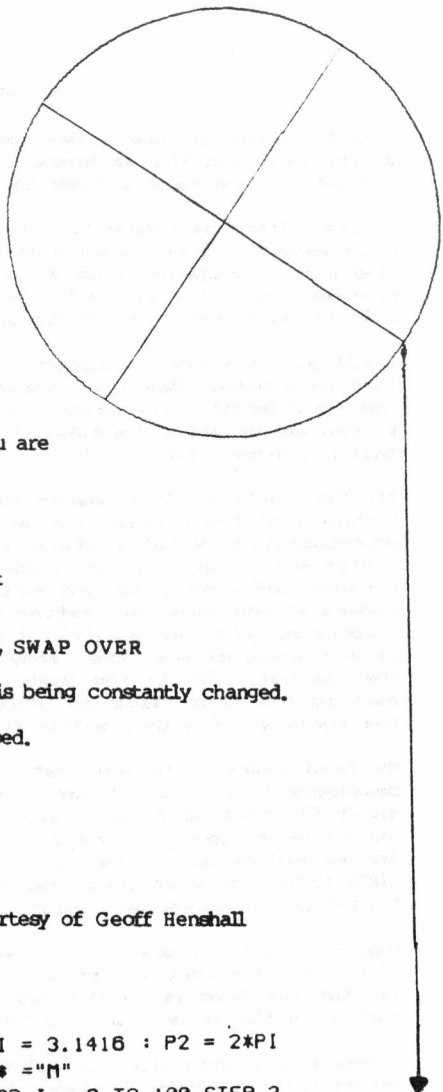
```
        BYTE 1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80...85...90...95..100

R= 1      1  1  1CB     1200001.  CR*BALANCE*DR                0
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 2      1  2  1SA   2345.7711.01R WILLIAMS LTD     RW0017S 0
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 3      1  3  1SA   2874.1222.01WHITE STAR CORP LTD WS0021S 0
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 4      1  4  1SA   1258.3925.01WESTERN FOUNDARIES  WF0032S 0
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 5      1  5  1SA    653.2522.01STAR ENG'G LTD      SE0022S 0
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 6      1  6  1PU   2589.3612.01WINGETT WATER LTD   WW0312P 123
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 7      1  7  1PU    925.3612.01SOUTHERN TRADERS    ST0309P 124
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 8      1  8  1PU   2542.3622.01GEN ENG'G LTD       GE0310P 125
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 9      1  9  1SC   3526.7812.01OFFICE RENTAL SERVICOR0803G 126
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 10     1  10 1SC   1253.8922.01LONDON BORO' RUBBISHRB0807G 127
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 11     1  11 1SA    125.8825.01WHITE STAR CORP LTD WS0021S 0
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 12     1  12 1PU      300028.01GEN ENG'G LTD       GE0310P 128
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 13     1  13 1PU    125.3622.01NORTHEN SUPPLIES    NG0301P 129
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 14     1  14 1PU   2369.3612.01SOUTHERN TRADERS    ST0309P 130
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 15     1  15 1BV   1452.3612.01H.M. CUSTOMS EXCISE CE0910G 131
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 16     1  16 1SA      270031.01WESTERN FOUNDARIES  WF0032S 0
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 17     1  17 1PU    616.4431.01WINGETT WATER LTD   WW0312P 132
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 18     1  18 1PU    527.1431.01SOUTHERN TRADERS    ST0309P 133
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 19     1  19 1PU     40001.01NORTHEN SUPPLIES      NG0301P 134
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 20     1  20 1SC      100023.01LONDON BORO' RUBBISHRB0807G 135
LRL= 54   ------------------------------------------------------------------------------------------------------
R= 21     1  21 1PU    120.3601.01GEN ENG'G LTD       GE0310P 136
LRL= 54   ------------------------------------------------------------------------------------------------------
```

```
R= 22      1  22  1SY      100031.01NORTHEN SUPPLIES    NG0301P 0
LRL= 54
R= 23      1  23  1PU      300031.01NORTHEN SUPPLIES    NG0301P 137
LRL= 54
R= 24      1  24  1SA      450031.01THAMES ENG'G LTD    TE0018S 0
LRL= 54
R= 25      1  25  1PU    253.3631.01NORTHEN SUPPLIES    NG0301P 138
LRL= 54
R= 26      1  26  1PU      200031.01WINGETT WATER LTD   WW0312P 139
LRL= 54
R= 27      1  27  1SC   1256.3631.01LONDON BORO' RUBBISHRB0807G 140
LRL= 54
R= 28      1  28  1DV       50031.01H.M. CUSTOMS EXCISE CE0910G 141
LRL= 54
R= 29      1  29  1DV       25031.01PETTY-CASH          PC0920G 142
LRL= 54
R= 30      1  30  1SA      500023.01R WILLIAMS LTD      RW0017S 1
LRL= 54
R= 31      1  31  1PU     52.3628.01SOUTHERN TRADERS    ST0309P 143
LRL= 54
R= 32      1  32  1SA       10012.01R WILLIAMS LTD      RW0017S 1
LRL= 54
R= 33      1  33  1SA       20022.01BOULDING TUBES LTD  BT0020S 1
LRL= 54
R= 34      1  34  1SA       25018.01BOULDING TUBES LTD  BT0020S 1
LRL= 54
R= 35      1  35  1SA       10012.01WHITE STAR CORP LTD WS0021S 1
LRL= 54
R= 36      1  36  1PU  1091.1212.01NORTHERN SUPPLIES    NG0301P1144
LRL= 54
R= 37      1  37  1SC       20002.01BRIT TELECOM        TN0806G1145
LRL= 54
```



```
10 '-------------------------------------
20 CLEAR 1000;'sorting in TRS80 Model 4
30 '-------------------------------------
40 'from Howe page 124
50 DEFSTR A ' saves all those $$$$$$$$$$
60 DEFINT B-Z 'helps the program to run faster
70 INPUT"file size :-";N
80 DIM A(N)
90 'first loop - the outside loop
100 FOR C = 1 TO N
110 'second loop - the outside loop
120 FOR CC = 1 TO 5
130 D=INT(RND(26)) + 64
140 'build up 5 character string
150 A(C) = A(C) +CHR$(D)
160 'incrementing the inside loop
170 NEXT CC
180 'incrementing the outside loop
190 NEXT C
200 'print out to the screen to prove how clever you are
210 FOR I = 1 TO N
220 PRINT I;A(I),;
230 NEXT I
240 'setting up the looping instructions
250 FOR I = 0 TO N-1 : FOR J = I+1 TO N
260 ' compare the current array element to the next
270 IF A(I)<=A(J) THEN 350
280 'a(j) above easily be a(i+1)
290 'IF CURRENT IS GREATER THAN FOLLOWING , SWAP OVER
300 DU$=A(I):A(I)=A(J):A(J)=DU$
310 'try & use du$ for the dummy variable , which is being constantly changed.
320 PRINT DU$
330 'print out how many times the strings are swopped.
340 CO = CO + 1 : PRINT CO;
350 NEXT J : NEXT I
360 PRINT
370 PRINT"size of file :- ";N;" no of passes :-";CO
380 ' print out the sorted array
390 FOR I = 1 TO N : PRINT I ; A(I): NEXT I
400 END
410 'this printed on the dwp 210 d/w price 599, courtesy of Geoff Henshall
415 'Tandy Northampton 0604 - 20574
420 SAVE"sort/m4
430 END
```



Brian Pain

```
10 '*** pieonly by Mike Gordon-Saker
20 '*** at Swindon, November 1983
30 '*** many thanks Brian Pain
40 '*** on Luton College's new CGP115 Pr
inter
50 LPRINT"A"
60 'centre location in following line
70 LPRINTCHR$(18);"M0,-240,240,-240"
80 LPRINT"I"
90 M=100:R=200
100 INPUT"How many sectors for Pie chart
.";N
110 FOR I = 1 TO N
120 PRINT"Sector percentage";I;:INPUTU(I
)
130 PRINT"Sector label";LB$(I)
140 NEXT I
150 PI = 3.1416 : P2 = 2*PI
160 A$ ="M"
170 FOR I = 0 TO 100 STEP 2
180 S = I/100*P2
190 X = INT(SIN(S)*R) : Y = INT(COS(S)*R
)
200 LPRINT A$;X;",";Y:A$ ="D"
210 NEXT I
220 S = 0
230 FOR I = 1 TO N
240 S = S + U(I)*P2/M
250 X = INT(SIN(S)*R)
260 Y = INT(COS(S)*R)
270 LPRINT"MD";X;",";Y
280 NEXT I
290 '**** headings *****
300 LPRINT"H" :REM LEFT SET PEN
310 LPRINT"I" :REM SET PEN LOCATION
```

BEEB vs TANDY continued

I feel obliged to make a few comments about Derek Trayler's comparison of the Beeb and TRS machines in the Oct newsletter. I started with a TRS-80 and now have a Beeb as well.

On the matter of comparison for word processing I shall not comment. I acknowledge Derek as an expert in this area. It is difficult to find a micro magazine from anywhere in the world which does not contain a word processed letter from Derek. (By the way, thanks for the acknowledgement in 80 Micro, Derek).

I will just say that I support his use of the word processor as a free form data base. Beats all these - 'set the number of records', 'set the field length' data bases, hands down. I also use it as a Basic screen editor and a terminal receiver for transmitted ASCII files, but that's another story.

All the points which he makes about the Beeb are essentially true but I think that the perspective on them is not quite right. Microcomputing is not a static subject. It is developing and changing continually. Users cannot expect everything to be exactly right, straight off, when a machine first comes on to the market. Tandy owners should know this better than anyone. (I am mumbling - lowercase, under my breath). I would claim that the Beeb at its start is way ahead of what the Tandy was when it started. Derek refers to the simplistic DOS of the Beeb. Absolutely true, but cast your mind back to the first issue of TRSDOS. That could be guaranteed to take the surface off a disc within five revolutions.

My first reaction to the Beeb DOS was - here is an area ripe for development; why don't I get to work and write a decent DOS? Why didn't I? Because I could hear the Ah Ha's all round the country as others were coming to the same conclusion. Give it a year at the most and we will be up to the ears in DOS's which will make NEWDOS 190 and LDOS 12.5a look what they are; very good efforts to overcome the limitations of outdated design.

Making a direct comparison between Beeb and Tandy at this stage, one might conclude that the pros and cons are about equal. The difference is that the Beeb is on the way up and the Tandy on the way down. This for me is the determining factor on choice.

A micro is a good micro if a lot of people use it. An argument which incidentally, I extend to languages. A language is a good language if a lot of people use it.

Structure? Who said structure? Who wants to be the only person in the world writing structured programmes in a language no one understands. Particularly when the rest of the world uses unstructured programmes which they all understand? Many beautifully structured languages have disappeared for ever along with beautifully designed microcomputers. Down the tubes simply because no one used them.

When I detect the world is moving to Pascal then I shall move to Pascal (or even C). The language I use doesn't matter that much to me. It's just a means to an end. I suspect that the life of all languages as we know them is limited and superior alternatives to achieve the same ends will emerge. It makes arguments over what

language is best, quite futile.

Whilst I am riding hobby horses let me have a go at another this rubbish about GOTO in Basic programmes. It is inherent to the nature of programming microprocessors that one should be able to jump about the memory. This is the way they work. This is what they do. I never hear people saying that one should try to write machine code programmes without using the JUMP instruction. GOTO is just the higher level interpretation of JUMP.

For some reason it seems to upset human aesthetic sensibilities to see a GOTO in a programme. I say for some reason, but I suspect that is in fact because a GOTO represents an apparent discontinuity. My advice is to learn to live with discontinuities. There's a lot of them around. Try to understand and accommodate them. Computers work that way and you will do better to approach the computer on its terms and understand the availabity and use of this function than to contrive ways of avoiding it. Why pick on GOTO anyway? I think I'll start up a campaign to stamp out FOR NEXT on the grounds that it is repetative.

Back to the point. Lets have a look at some of Derek's objections.

The Beeb requires a colour monitor which costs as much as the micro. On the face of it true, but I suspect that because of the popularity of this machine that more TV's will be fitted with RGB inputs as standard. Also if you know what you are doing it is not too difficult to convert a modern TV to RGB input anyway. I have just done such a conversion on one one channel of my set and I now get excellent colour and 80 column resolution. It cost me about £10. Whilst I was in there I set up a system to lift teletext out of the decoder and into my micro so that I can download Ceefax software directly to the micro. The BBC adapter to do this costs about £200. I had enough bits around to set up my system at no cost.
The point I'm making is not that I would expect everyone to do this for themselves, but if sufficient people are looking for this type of modification then others will begin to market them, and it should be at reasonable cost. It will happen.

The point about the 8271 Floppy Disc Controller being an oversight in Beeb design is also apparently true, but there is a bit more to it than it just being an obsolete chip used in the design. The 8271 is in fact rather more sophisticated than the 1771 used in the model 1. It has the capability to format tracks inbuilt. It can also find a string anywhere on a disc from an inbuilt instruction. The 1771 can only do these things by software. It, like the 1771, has only single density but the problem is not that it was an obsolete design at the time of conception but that it became so, soon after, due to the development of the 8272. This has DD but was a radical redesign and not therefore pin compatible with the 8271. It was rather unfortunate timing that left the Beeb with the 8271. However, all is not lost. Such is the power of the Beeb demand that the 8271 has now become readily available and can no longer be classified as an obsolete chip. As for DD, there are now available add on boards, very similar to the model 1 board, at about the same price, which give DD. Interestingly, the one I use has a 1797 which is a variant of the chip used in the model 1 rather than the 8272.

One other point worth commenting upon is that Derek mentions that

drives are interchangeable between the two systems. This is only true for drives with a fast track access time. Say 6ms.
The earlier Shugart and Micropolis types use about 12ms and will not work properly in consequence. I should add that it is possible to alter the DOS to accommodate the slower rate, but since this is Eprom resident, that is rather more easily said than done.

Also I have an old Cumana drive which if used on the Beeb will, with certain programmes, zap a disc faster than TRSDOS 1.2. Cumana deny that this can happen but I have heard of others having the same problem, so be warned.

Another point, not raised by Derek but one that I often hear levelled against the Beeb and one that may influence those thinking of buying. When the Beeb is in its highest graphics mode there is only about 4k of user memory left. Absolutely true. The first thing to keep in mind is that the mode gives 640x256 pixels, to be compared with 128x48 on the TRS. The second thing to ask is why should this be? The answer becomes apparent as one looks around inside the system. All addresses used by the system are 32 bit. The system assumes that this computer is much larger than the £399 Model B. Although capable of operating as a microcomputer in its own right, the system is actually a moderately high quality graphics, and certainly smart, I/O terminal for some host system. This is the second processor option yet to appear on the market. I confidently expect one day to read a letter in one of the mags asking why Acorn wasted 4k of memory that could have been used for better screen definition.

So in six months time when I am sitting in front of my 64k RAM, 6MHz, Z80 computer running Wordstar in CPM, I don't think anyone will be drawing comparisons between that system and the Tandy. Yes it will cost, but that is what the Beeb is. A highish cost, highish tech system and likely to be supported in software to a level not previously dreamed of - even by Tandy users.

To answer the unasked question. No, I dont think I could make a second processor unit from bits I have lying around. Finally, do I intend to get rid of my TRS-80? No way. It gives the Beeb something to talk to while I'm out.

Andrew Donald (01-554-6219)

An Acknowledgement to GNOMIC.

A few weeks ago I upgraded to disk by buying the GNOMIC DP2000 combined printer and disk controller/Canon drive unit for my Video Genie. Unfortunately there was a problem and that was when I experienced the friendly customer service offered by General Northern Microcomputers (GNOMIC) of which I had already heard through these columns.

GNOMIC dealt promptly with my problem and although thought to be due to a peculiarity of the particular mark of my old Genie gave their full attention to altering the design of their DP2000. In fact it seems they were pleased to be able to pin down a mismatching Genie. Especially pleasing was the way that they allowed me to remain involved in the solution of of the problem because of my declared interest in the hardware (hobby electronics before hobby computer), even to the extent of posting sketches of logic and circuit details to me. The resulting modified board was installed but gave other problems

when formatting. On my analysis that the power supply was no longer able to feed the new board and within the week, a special PSU was built and Barry Dunn, GNOMIC's workshop manager gave up his weekend to travel 600 miles in order to finally resolve the problem.

I am now the pleased to own what must be the the most cost effective and reliable disk conversion kit on the market and saving hard to buy the other goodies I heard of from the GNOMIC production line. These include an EPROM programmer before Xmas; a modem with a difference - UK and USA standards; an RS232 kit and special Prestel hardware. Prestel it appears is an especial interest of the GNOMIC boffins and their aim is to enable us mortals to set up our own Prestel bureau(x) instead of linking through Micronet.

My reassurances go to all who consider purchasing GNOMIC products including the redesigned DP1000 and DP2000 for Genies, my apologies for any delay to their new products and my sincere thanks to the staff at GNOMIC.

R.G.Grantham,
Sudbury, Suffolk. Tel 0787 76879

P.S. EACA parallel printer Interface for sale.

To be XOR not to be (the question of Boolean algebra)

Mr G.Brittain asks in the October newsletter how to produce an XOR effect with OR's, NOT's and AND's. Here is a short note on Boolean algebra - which is named after George Boole a 19th century mathematician. Being I believe of Irish descent, it occurred to him that a whole new system of arithmetic could be developed using only the two numbers 0 and 1. (This would presumably greatly simplify the teaching of the subject in primary schools).

Compare the Boolean operators AND and OR with the multiplication and addition operators in conventional mathematics. It should be clear why AND is sometimes called "logical multiplication" and OR called "logical addition":-

0 * 0 = 0	0 AND 0 = 0	0 + 0 = 0	0 OR 0 = 0
1 * 0 = 0	1 AND 0 = 0	1 + 0 = 1	1 OR 0 = 1
0 * 1 = 0	0 AND 1 = 0	0 + 1 = 1	0 OR 1 = 1
1 * 1 = 1	1 AND 1 = 1	1 + 1 = 2	1 OR 1 = 1

To a pure mathematician the 0's and 1's have no special meaning - they are just symbols to be manipulated lovingly in accordance with certain rules, with a view to finding what interesting new combinations arise. To a logician however, and nowadays to a computer buff, the meaning TRUE is assigned to the symbol 1 and FALSE to the symbol 0. Hence the logical statement "if A is true and B is true then C must also be true" can be re-written succinctly as "A AND B = C". In a computer program, when we want the variable C to take on a value equal to the value of (A AND B) we write something like "LET C=A AND B" and we mean "let C have the value TRUE if both A and B have the value TRUE, but otherwise let C have the value FALSE". Having established C as true or false we can go on to use statements such as "IF C THEN...." meaning "if C is true then ....."

How do A and B get their true or false values in the first place? Probably by some such statements as:-

```
LET A=(X>Y) :    LET B=(INKEY$="B")
```

In each case the expression in brackets must be either true or false, and the values of A and B will be set accordingly.

Another necessary Boolean operator is NOT which has the effect:-

```
NOT 1 = 0   (ie NOT TRUE = FALSE)
NOT 0 = 1   (ie NOT FALSE = TRUE)
```

and hence, for example:-

```
NOT (A OR B) = (NOT A) AND (NOT B)
NOT (A AND B) = (NOT A) OR (NOT B)
```

No more operators are strictly necessary, but others such as XOR can be used to simplify some otherwise lengthy expressions. The word "or" is used in two ways in normal speech. At an early age we learn to distinguish the two meanings according to the context, without giving a thought to the ambiguity. If I ask "have you seen Alan or Bob?" you understand immediately that I use the word "or" in the inclusive sense of "have you seen A or B or both of them?". I do not expect the answer "No" if you saw them together.

On the other hand the question "do you want an apple or a banana?" implies that you can have A or B but not both. The word "or" is being used in the exclusive sense. This is where we need XOR to avoid, in computer programs, the ambiguity that we tolerate in everyday usage. By (A XOR B) is meant "A or B, but not both A and B" and thus we can define it formally:-

```
(A XOR B) = (A OR B) AND NOT (A AND B)
```

This is the combination of AND, OR & NOT which Mr Brittain was looking for. However it won't help him much, because what he really wants is to write in Basic:-

```
POKE 15423,(PEEK(15423) XOR 10)
```

Since we have no XOR in Basic its simulation comes out as:-

```
POKE 15423,((PEEK(15423) OR 10) AND NOT
   (PEEK(15423) AND 10))
```

which looks even worse than his IF-THEN-ELSE construction!

"Hold on!" I hear you cry. "You said we were going to do Boolean arithmetic with only 0's and 1's! What on earth is this (PEEK(15423) XOR 10)?"

The explanation is that a computer, of course, can handle 0's and 1's in bunches (called bytes!). When it performs a logical operation, say XOR, on two bytes (each of 8 bits as we know) it can do eight XOR operations at one go. So (32 XOR 10) and (42 XOR 10) work like this:-

```
0 0 1 0 0 0 0 0     32          0 0 1 0 1 0 1 0     42
0 0 0 0 1 0 1 0  XOR 10         0 0 0 0 1 0 1 0  XOR 10
---------------     --          ---------------     --
0 0 1 0 1 0 1 0   = 42          0 0 1 0 0 0 0 0   = 32
===============     ==          ===============     ==
```

The XOR operation has been performed column by column in accordance with the Boolean definition of XOR which is:-

0 XOR 0 = 0 0 XOR 1 = 1 1 XOR 0 = 1 1 XOR 1 = 0

and you can check the example to see that XOR has been carried out according to this definition.

AND and OR and NOT, which are available in Basic, can work in this sort of way, and can be used for logical operations on 16-bit integers. In machine code we have XOR as well, whilst in procedure oriented languages such as Pascal we can have as many Boolean functions as we like just by writing them for ourselves. Here is a Pascal XOR function:-

```
FUNC XOR(A,B); (* returns (A XOR B)  *)
   BEGIN
      XOR:=(A OR B) AND NOT (A AND B)
   END;
```

A final reminder - just to confuse us further the Basic interpreter actually chooses to represent the value TRUE of a Boolean variable by the integer -1 rather than the integer 1. For most purposes this is of no significance. Fortunately the value FALSE is represented by an integer zero, as you would expect.

John Gale, Hemel Hempstead

WORD-COUNTER for TAPE SCRIPSIT Comments

It was interesting to see Mr Bebbington's neat program for counting words in memory for use with Scripsit. I wonder if he has looked at the programs and correspondence on this subject about a year ago (August to November). I have since then found counting words in a text to be invaluable and I would not be without it.

I must confess that I had not bothered to omit counting the format statements, since it is usually easy to make a small allowance for them. However, stimulated by Mr Bebbington's comment I added the 3EH to my program. I am not too sure to what extent Mr Bebbington is restricted in space, but it is not too complicated to arrange not to count words following the format uses of > and yet to count the words when > occurs somewhere in the text. I find I need 29 extra bytes to do this. It uses of course the fact that format uses of > always immediately follow a CR. Hence one checks for > (3EH) first (because a format line is always on top of the Scripsit text), but after this first time, one only checks for > when there has been a carriage return (CR). In other words, the only time that a format 3EH occurs not following a CR is at the very beginning, and one can arrange subsequent loops not to check for 3EH except when a CR has just occurred. The total words here (including what is below) count up to 277, which seems correct.

061-973-3604
November 10th 1983

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

DOTWRITER 3.Ø

This is a greatly enhanced version of the original, and offers many more facilities - such as column printing on those printers which will support it, such as the C.Itoh. It prints from an ASCII text file compiled by any wp program, but needs dot commands such as those used by Newscript. Character fonts are called up by the .bf command, and this new version allows an alternative font to be loaded with the .af instruction; this alternate font set is then accessed by enclosing the text with %...? - Newscript users will recognise this as the means of calling up italics in the standard Epson script usage.

The font character sets used with Vn3.Ø are named the same as the original sets, but are different in that the individual characters are proportionally spaced and thus give a much neater result. One does not *HAVE* to use proportionalised print, called by the .pr on command, but if you do then there is the .sdn command to define the dot spacing between characters. Other new commands such as .lh and .up to define line height and underline patterns, and .hl to draw a horizontal line, .em for emphasised print (as well as the original .da command), .vl for vertical lines, .re for reverse printing (white on black), these all add up to make this one of the few software packages to be really worth the price. You can use the .rd instruction to read from a datafile (form letters), .tr is available to translate characters - such as lower to upper case, and there is even a command to tell your Epson-lookalike how to behave like an Epson! The package includes a stripped-down version of Geap which allows you to either create or alter lettersets - very useful for changing dollar signs into pounds! Not included, but fully described in the manual, is the Manipulation Utility which allows, as the name suggests, full manipulation of the different font character sets.

Many members will have seen the various notices that I have produced at different workshops etc., and all agree that the use of different coloured ribbons makes a good effect. Since I am regularly being asked where I get them, may I give a plug for Workforce, 14Ø Wilsden Ave, Luton (Ø582 454456 evgs only). The last refill ribbons that I bought were priced at £2.5Ø Black, and £3.5Ø for Colours, plus VAT.

ZEN84 For Models I, III, and IV

As a rank novice in the subtle art of mc programming, my only criticism of Zen was that the documentation did not clearly describe the (admittedly very few) differences between Zen and Edtasm formats - since the £5ØØ' worth of mc books that I had bought all referred to the latter, I was very confused and discouraged! Well, ZEN84 has certainly changed that! A 48 page book fully covers not only these points, but fully describes some 8Ø+ operations and/or commands available. I purchased the original as an Assembly program - ZEN84 is an Assembler, a Debugger, a Monitor and an Editor, all in one package which also includes software to customise to your system (disk), and to breakdown large Edtasm files into smaller units. (One disadvantage of Edtasm is that its files are around 3Ø% larger than the ZEN equivalent.) It should be noted that the Assembler will catch, and report, all incorrect statements.

Also included are a demo program to remove spaces from a Basic program, and a demo listing to display a message on the screen and await the ENTER key. I don't know whether Leon has finally got through to Laurie, or whether Laurie has given up the struggle, but another useful utility included is called MAC/BAS -

this allows both the use of named routines from a library file, and the expansion of macro statements into full Z80 mnemonics. MACRO/LIB includes some sample routines.

The Model IV version (ZEN4) is fundamentally the same but without any cassette i/o.

A listing of important Zen addresses is given, as is a procedure for either reading in a Scipsit text file, or for recovering crashed Scripsit.

This is another example of full money's worth. ZEN has now been developed for other micro's, and it is also very nice to know that if one does have a problem then help is only a 'phone call away!

David Washford

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This is a ring-back system, ring twice & call back.

MODEL 4 TRANSPORTABLE ANNOUNCED

In the States, Radio Shack have announced a transportable version of the Model 4. The 26 lb Model 4P has a 9" display, two 5 1/4" drives, 64K RAM and a Centronics printer port, all for $1799.

Leon Heller

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24 COLUMN PRINTER

This 24 column printer is based on the M160 printer manufactured by Epson in Japan. The printer control is using a mask programmed 8049 single chip micro-processor. This IC gives the printer a great versatility.

The main features are:

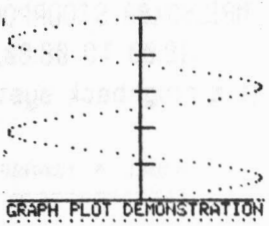
1 Either 9-12V AC or 5V DC power supply.
2 Upper and lower case ASCII character set or graphics. All printing can be inverted to give a data logging output.
3 72 character printer buffer.
4 Standard 3U fitting with a 4 inch (8E) width.
5 Centronics parallel connection using 26 way connector.
6 Serial data at 110 to 2400 baud using TTL levels.
7 Easy access to printer for changing the printer ribbon.
8 Impact dot matrix printing, this means no special paper is needed and the print does not fade.
9 Very neat appearance.
10 Print speed of 1 line per second.
11 Very low cost.

Electrical specification

Power supply: 9-15 AC (20VA min.) or 5V DC. The max. current is 2amps during printing and 100mA quiesent.
Input/output: All input and output are TTL compatible. 0= -0.5 to +0.8v 1= 2.0 to 5.0v
Temp. range: 0 to 40 degrees C.

Print sample:





PCB CONNECTIONS

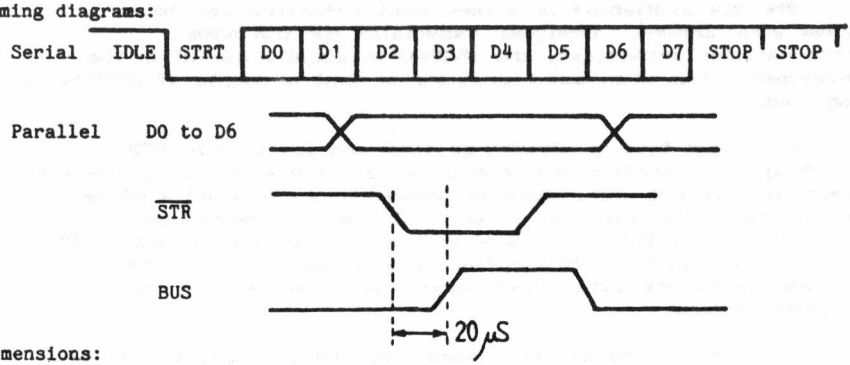
Power supply: A.C. supply 9 to 12 V 20 VA via two solder pins
D.C supply 5 volt dc 1 Amp via two solder pins or on pin 25 of 26 way connector with link L1 inserted. (The board can also supply upto 50 mA to an external circuit).

Connections:

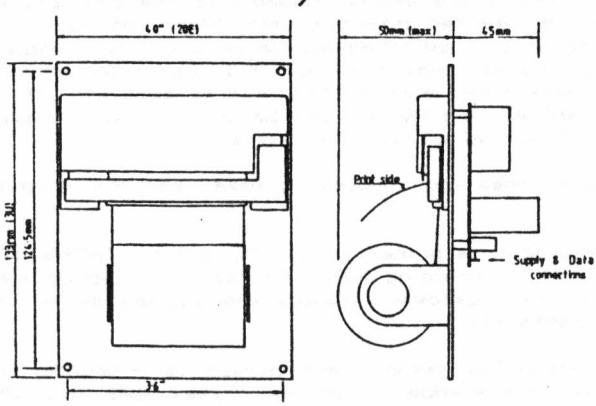
	$\overline{STR}$	D0	D1	D2	D3	D4	D5	D6	P/S	nc	BUS	nc	nc
Pin no.	1	3	5	7	9	11	13	15	17	19	21	23	25
	2	4	6	8	10	12	14	16	18	20	22	24	26
	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND

$\overline{STR}$ = Data stobe in parallel mode and serial input in serial mode
D0 to D6 = Parallel data in parallel mode.
D0 to D4 = Gnd in serial mode.
D5 & D5 = Serial baud rate select.
P/S = Parallel or serial data select.
BUS = Busy signal.

Timing diagrams:



Dimensions:



Prices: The unit price for the 3U panel mounting is 69.50 + V.A.T. including post and package. The price for the stand alone version is 76.50 + V.A.T..
Terms are cheque with order and delivery is 7 to 14 days.

Ground Control

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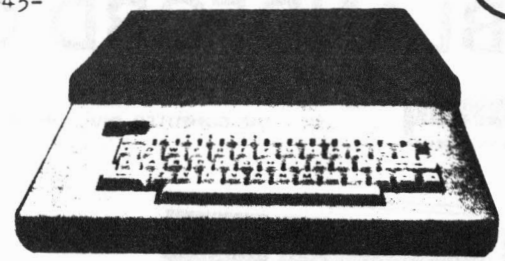
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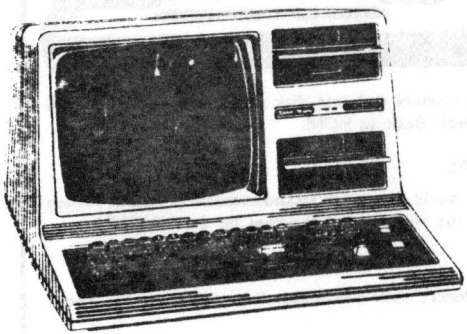
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NATGUG NEWS

VOLUME 5 No. 6 December 1983

OFFICIAL JOURNAL OF THE

National TRS-80

& Genie Users

Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. 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 from time to time. Sub-groups also exist for medical and educational users.

The Group runs 80-NET, a computerised bulletin board service that is available to all users of microcomputers.

The Group maintains three software libraries (Models I, II and III) which are free to members. Library lists are obtainable from the Secretary. The medical and educational sub-groups maintain their own libraries.

A membership list is obtainable on disk from the Secretary.

Back numbers of the Newsletter are available.

Please send all contributions for the Newsletter to the Editor.

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Model 4 Ken Arntsen Phone 0279-730354

****Eric Hartley 0020 - 22880 RS232 board & L/Case.

MKMUG our local club, every TUESDAY, around 80 - 110 enthusiasts, 5 Erica Road, Stacey Bushes. Very Close to the concrete cows and Central Milton Keynes Railway and Bus stations.

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WORKSHOPS 1984

FEBRUARY 24/25/26 MILTON KEYNES - Woughton Campus.
The rooms have been booked for the whole weekend, and the following is definite :-
FRIDAY Stock, Sales, Purchases and General Ledger on Model 4
How to go about buying a computer for business Colin Ashford
Micros saving energy in big users premises - Colin Ashford.

SATURDAY 8 hours on machine code with Laurie Shields. This will be highly structured day, and is aimed at the beginners again. Building the MAPLIN MODEM from opening the box; building Eric Hartley's RS232 board from scratch, building a 64k print buffer - ring for the spec; and putting steppers onto the TANDY ARMATRON. The hardware will be there, the soldering irons will be there - will you ?

SUNDAY SUPERSCRIPSIT with a volunteer; PENCIL2 with John Kilpatrick; Model3 HIRES with John Carne; how the RS232 actually works Leon Heller; the TANDY VOXBOX hooked to a tank, and firing blanks and the ASM.

EDITORIAL

Thanks to all those members who responded to my plea for articles, we should get this issue to you before Christmas, with a bit of luck.

I have had a couple of enquiries about the progress I am making with the Small C compiler for the Model I. I can now compile all the modules using the C/80 compiler, having corrected some dodgy syntax in the source code. Whoever typed in the code was rather naughty, and left out some spaces between some of the operators. It took me the best part of a whole evening to find all the errors and correct them. However, there is still something wrong, as Macro-80 does not like the assembly language that results from the compilation. The main problem seems to be multiple label definitions. I think I will have to print out all the source code files, and go through them with a fine tooth comb.

With the new Model 4P mentioned in the last issue, and the Model 2000 I.B.M. PC clone, Tandy now market a quite bewildering range of computers. Processors used by Tandy include: Z80, 8085, 80186, 68000, 6803, 6809E, and whatever Sharp use in the little hand-held machines. One wonders how they can possibly support all these different machines!

It only remains to wish you all the best for Christmas and the New Year.

Leon Heller

GUIDELINES FOR CONTRIBUTORS

1. If possible, send material in printed form.
2. Scripsit or Pencil disks/cassettes are acceptable.
3. Ensure your ribbon is in reasonable condition.
4. Printer output should be on A4 paper if possible.
5. If you send in hand-written material, write lesibly.
6. Do not fold the sheets when posting them. Use a large envelope and keep them flat.

Leon Heller

MEMBERS' LETTERS

I would like to express my thanks to all those who replied to my plea in the newslatter regarding interfacing a Micro-Writer with a Model 1 TRS.

Special thanks must go to Phil Page, Ian Wright and a member in Andover, whose name and address I unfortunarely can't decipher.

A welcome spirit of co-operation,

Yours,

Pete Bamfield

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TANDY LAUNCH I.B.M. COMPATIBLE SYSTEM

Tandy are now selling a new I.B.M. compatible system in the States. For an entry price of $2750 the Model 2000 gives you an 80186 processor, 128K RAM, high-resolution colour graphics, and twin floppy disk drives with a capacity of 720K.

The 2000 offers three times the speed of the I.B.M. PC, and twice the disk capacity, for several hundred dollars less!

A possible problem with the new system is the availability of the 80186 chip; Intel are having production difficulties.

Unusually for Tandy, they will be selling most of the software for this machine in original form. Industry-standard products like Wordstar and dBase II will be available.

It is not yet available in this country, so you can't rush out and order one!

Leon Heller

PROBLEM SECTION

I have found the letters and articles of great interest, although I suffer a long time lag, I read them and don't understand them, then remember something some three months later and have to reread the lot to find the item I want, coincedently finding other items that I now understand.

I have a Vidio Geni Mk 1 with an Expander box giving around 38K of Memory I also use twin Cumara Disk drives. I am currently interested in an update to a double density system and upgrading the V.G memory to 62K or so. Do you know of any suitable circuit boards that can be self installed.

One further small Help! I bought a copy of Visicalc from the local Tandy shop. Its a Model 111 , which preformes very well in all aspects but one. I cant get the Print command to work. Anyone know of a Patch?.

Donald Hartley

85 Dacres Road LONDON S.E.23 2NS

-------- 01-699-5662---------

It is a bit of a cheek to ask favours of you so soon in our acquaintanceship but I was wondering if you might be able to put me in touch with someone who could advise on two problems that I have. The first concerns Scripsit and the lack of pagination which I find the only major drawback to an otherwise excellent piece of software. I wondered if anyone to your knowledge had found a way of demonstrating where page breaks are going to occur without the need to print the entire document out first.

My second query is also about Scripsit but concerns modifying the program to run on a Genie 1 with a serial printer attached. I wanted to pass on my tape version to a friend who uses his Genie for labelling in a pharmacy but even though I have changed the printer addresses as detailed in the Newsletter for June 1982 it steadfastly refuses to print anything. My knowledge of machine code is such that I can only put into practice what someone else has already sorted out!

Any assistance you may be able to offer will be very welcome.

Dr Michael J. Painter,
264 Altrincham Road,
Northenden,
Manchester.
061 998 9682

(* Brian tells me that Dr. Geoff Smith has a patch for the pagination problem. LFH *)

My Experience With A Modem and a Little More On Model 4.

From Roy Barber.

As a newcomer to the use of modems I thought my experience may be of interest to others so here goes.

There has been considerable publicity about the services being provided to computer enthusiasts in both the newsletter and the commercial magazines. The implication being that we are missing out on one of the latest developments if we have not got a modem. I must admit to being influenced by what has been written and consequently I purchased a 2A modem from Display Electronics for £45. With the aid of the article by John Newgas in the Newsletter about using the 2A modem I had no trouble in getting up and running with the device attached to my model 4.

Reception of my first text by courtesy of Distel was quite exiting and scanning my first bulletin board promised some useful information would be available. However from then on I rapidly became disillusioned. The prime cause of my disappointment is the apparent unreliability of the service provided. I have now formed the impression that most bulletin boards are more often out of commission than they are in service. Those operating under the Forum 80 title appear to be the least reliable. I do appreciate that the service is provided free and is in its infancy but surely the boards should not be so widely advertised as providing a 24 hour service if they are so unreliable. Out of ten listed in PCW only five have been in service over the last month and one of these has only been contactable once. Should I be so critical? I admit I only invested £45 but I can see little benefit so far.

Out of the ones I have been able to contact there appears to be little information of value to the average computer enthusiast. Technical information is of a pretty low level and what is there has not encouraged me to try and donate anything. If I have anything of value to offer it would reach a far larger and more directly interested audience in the Newsletter or with some return in a commercial computer magazine.

If I wanted to converse at some length with someone else who has a modem I feel sure a better method of interchange of ideas could be achieved by direct speech via the phone lines. A prepared text could perhaps be sent from disk slightly cheaper but I do not normally have a need to send this kind of message. I suspect most averge users will not need this facility either.

I recently watched the Micronet service in action on a friends BBC machine. He paid £80 plus for the subscription and modem and pays about £8 per quarter forever more. After seeing him trying for about half an hour to download a program with no eventual succsess and looking at relatively uninteresting snippets of information about computer clubs which would be better provided in a printed handout for a few pence it will be a long time before I subscribe to this service!

As you will have gathered, I am a bit disenchanted with this form of computer communication. Perhaps someone can describe the advantages I seem to have missed.

well, in spite if the foregoing I do not intend to sell my modem. I am optimistic about most new technology and will wait patiently for the service to improve.

Now a few words to add to my previous correspondence about Model 4;

I have now got TRSDOS6.1 but I notice no significant improvements over 6.0. KSM/FLT is still not a self relocating file and any high memory code still conflicts with it. Also a number of bugs still appear to exist in the JCL. Calling a JCL file from within basic still returns to DOS! This is a major bug which should be corrected. There are also a number of minor ones (or the manual is wrong.).

I have been using the DOSPLUS enhancements to TRSDOS6.1 for a while now. They do improve it considerably. Most of the shorthand entries are now available, a sort is added, labels can be used for program entry points and gosubs etc. A global find and replace routine is added and a much needed xref facility is included.

Along with the additions to the Basic enhancements there is a very good Diskzap, Diskdump, Directory check and repair and a Map utility. All are first class and are a must for TRSDOS6.

I consider TRSDOS6 with these enhancements is now nearly as good as NEWDOS80 (Thats inviting a comeback surely!). I gather a NEWDOS for model 4 is soon to be released anyway.

My friend who uses a model 4 is in the process of getting the DOSPLUS full operating system, I expect it to be better than TRSDOS + DOSPLUS enhancements. I shall be interested in seeing how much better it is but I am pretty committed to NEWDOS files myself so I shall probably save my money in anticipation of NEWDOS.

I will do a short review of the DOSPLUS when it arrives and will try to be unbiased.

As a kind of PS may I suggest that anyone interested in getting these latest programs gets someone in the States to keep them up to date with what is available there. We seem to be being kept in the dark about developments for the model4. Even the US mags are way behind with this information. Some of our group must have connections with the trade over there and could surely write a short 'stop press' telling us what is on the market there.

Roy Barber. 01 304 3856 Bexleyheath.

Processing addresses for certain functions in CASSETTE SCRIPSIT

In response to fellow OU student E.D.Bebbington's letter in the October newsletter here are some useful (I hope) notes on CASSETTE SCRIPSIT.

I always use 5EE5H (24293) as a 'warm start' address. Although restoring all the text as it was before leaving it does print 'INVALID COMMAND'. Inspection of the code reveals that a jump to 5EFDH (24317) instead ought to get round this small point.

At the end of SCRIPSIT there is an area of unused memory from 69C6H to 6B97H which appears to free of use. I suspect it was left for the purpose of patching and I have several patches there that have yet to cause me any trouble.

Mr.Bebbington's word counter for instance fits nicely into the area and could be patched into say the <BREAK> ?L command as follows:

```
        ORG     5953H
        JP      START       ;jumps to Word Count after ?L

        ORG     69C6H       ;start of Word Count patch

START   ;save registers used
;       rest of Word Count program

REPORT  LD      (6BB4H),BC ;store count in SCRIPSIT buffer
;       restore registers
        JP      5961H       ;print number of words on bottom line and return to
                            ;normal SCRIPSIT processing
        END     4300H       ;start SCRIPSIT after loading
```

Incidently, there is no need to take the tortuous path described by Mr.Bebbington when loading SYSTEM tapes. After loading SCRIPSIT instead of typing / <CR> at the second prompt just type the name of the next program to load. If the next program has been assembled with END 4300H as shown above then SCRIPSIT will start if you type / <CR> at the next (3rd) prompt. Alternatively load both programs using a monitor such as MON 3 and re-record as one block. (I couldn't stand the interminable wait of these long loads and have now put SCRIPSIT, Editor Assembler, Pascal and Monitor into EPROMs. But that's another story).

After some time looking through my disassembly of SCRIPSIT (which I estimate will fall to pieces at about the time it is fully commented!) and checking tables of codes and vectors which are processed at 49EDH (using a Monitor to find references) I came up with the following information:

6D41H Buffer used for keyboard input after <BREAK>

5876H Routine to print message pointed by HL followed by ASCII decimal number stored in buffer at 6E44H (1st byte of message must be number of bytes to follow)

5B58H Blank bottom line of display

5B37H Print message pointed by HL on bottom line of display

5BF0H Convert binary number in buffer pointed by HL to ASCII decimal and store in 6E44H+ (with leading zero suppression)

Direct Key functions

↑	462AH
↓	45B6H
<CTRL> ↑	5D93H
<CTRL> ↓	5DCCH
←	45F8H
→	4615H
<BRK>	53FBH
<CTRL> W	5D1CH
<CTRL> Q	4967H
<CTRL> E	49B2H
<CTRL> R	5EB1H
<CTRL> A	45F8H
<CTRL> S	4775H
<CTRL> D	4980H
<CTRL> F	461FH
<CTRL> X	5E95H
<CTRL> C	5E62H
<CTRL> V	5EA6H
<SHFT> ←	5D87H
<SHFT> →	5DBFH
<CTRL> →	5ACEH
<SHFT> ↑	5D93H
<SHFT> ↓	5DCCH

<BREAK> 'SPECIAL COMMAND' Functions

<BRK> W	556FH
<BRK> P	55ADH
<BRK> I	56C5H
<BRK> ?	58F4H
<BRK> T	5895H
<BRK> S	566CH
<BRK> L	566CH
<BRK> F	57A4H
<BRK> R	56F8H
<BRK> D	5769H
<BRK> H	541DH
<BRK> C	5E99H
<BRK> V	52C9H
<BRK> E	5555H
<BRK> ?C	5900H
<BRK> ?W	591FH
<BRK> ?I	592CH
<BRK> ?M	5939H
<BRK> ?L	5953H

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PRINT USING and LPRINT USING With The £ Sign

I have often found it irritating that the exceedingly versatile PRINT USING function works only with $ and not with £. I wrote a short routine that overcame the problem for the VDU, and this was published in the March 1982 NATGUG Newsletter. The problem still existed for LPRINT USING though. I recently returned to this problem when wanting to format some outputs to the printer and came up with this solution. It should work with either Level II Basic or Disk Basic.

Add to your program the subroutines at 30000 and 30200 in the Basic listing. GOSUB 30000 will set the patch and GOSUB 30200 will reset it. The reset is important, because if you attempt to set the patch twice without resetting in between, it will cause the computer to hang up. The subroutine requires that you have a protected area of memory (50 bytes) for the patch, and asks for the address. You can change the line numbers and variable names to suit your program except for SW% which the Assembly Language routine uses.

The patch works by checking each character to be PRINTed or LPRINTed and, if it is $, changes it to £. This may be inconvenient sometimes, so the variable SW% is used to switch the patch on or off. If SW% = 0 then the patch is switched off, and if SW% = 1 it is switched on. The demo in the Basic listing shows how this works.

On my system, the VDU uses CHR$(96) and the printer CHR$(35) for £. If your's is different then change the 35 and 96 in the last DATA statement.

The assembler listing shows how the routine works. It makes use of a DOS exit which Don Bannister and I happened upon at 3 o'clock on Sunday morning at the Swindon workshop weekend while working on a different problem (how to get the TRS-80 to LPRINT CHR$(10) - of which more in another article maybe). This exit is at 032CH and is a CALL 41C1H instruction which is in RAM and can be altered by the programmer as necessary.

There are several of these DOS exits in ROM, but this one is useful because it comes in the middle of the PRINT and LPRINT routines and allows us to examine the next character to be printed and change it if necessary. It is the ideal place to capture the $ in a PRINT USING routine and change it to a £.

The initialising Basic subroutine saves the instruction at 41C1H which will be RET in LEVEL II Basic and JP nnnnH in Disk Basic. This instruction is stored at exit in the patch and is replaced by a jump to the patch. The reset subroutine returns the original instruction to 41C1H.

The routine first checks if a $ is being printed; if it isn't a jump is taken straight to the exit instruction. Within the patch is CALL 260DH which is the VARPTR routine in ROM. HL must be pointing to the variable name before making this call. It returns with the address of the variable in DE. The LSB of SW% is checked; if it is 0 the switch is off, otherwise the switch is on.

The contents of 409CH is examined to differentiate between the printer and the VDU. When the printer is being used a 1 is stored there and 0 when the VDU. This is necessary as the printer and VDU use different codes for £ as explained above. The appropriate value is loaded into A and C, and an exit made.

```
10  GOSUB 30000: ' Initialise
20  '
    ' Your program goes here
    '
99  '
    ' This is a demo program
    '
100 P$="$$###.##"
110 SW%=0: ' SWITCH IS OFF
120 FOR I=1 TO 6
130   A=RND(10000)/1000
140   PRINT USING P$;A;: 'LPRINT USING P$;A;
150 NEXT I
160 PRINT: 'LPRINT
170 SW%=1: ' SWITCH IS ON
180 FOR I=1 TO 6
190   A=RND(10000)/1000
200   PRINT USING P$;A;: 'LPRINT USING P$;A;
210 NEXT I
220 PRINT: 'LPRINT
9999 '
     ' End of your program here
     '
10000 GOSUB 30200
10010 END
29999 '
```

Subroutine to initialise (L)PRINT USING patch

```
30000 INPUT"Enter start address (0 - 65535)";ZS
30010 Z2=INT(ZS/256): Z1=ZS-Z2*256: Z3=ZS+46: Z5=INT(Z3/256): Z4=Z3-Z5*256
30020 IF ZS>32767 THEN ZS=ZS-65536
30030 FOR ZI=0 TO 7: READ ZD: POKE ZS+ZI,ZD: NEXT ZI
30040 POKE ZS+8,Z4: POKE ZS+9,Z5
30050 FOR ZI=10 TO 42: READ ZD: POKE ZS+ZI,ZD: NEXT ZI
30060 POKE ZS+43,PEEK(16833): POKE ZS+44,PEEK(16834): POKE ZS+45,PEEK(16835)
30070 FOR ZI=46 TO 49: READ ZD: POKE ZS+ZI,ZD: NEXT ZI
30080 POKE 16833,195: POKE 16834,Z1: POKE 16835,Z2
30090 RETURN
30100 DATA 254,36,32,39,197,213,229,33,205,13,38,26,254,0,40,11
30110 DATA 58,156,64,254,1,40,8,254,0,40,8,62,36,24,6,62
30120 DATA 35,24,2,62,96,225,209,193,79,83,87,37,0
30199 '
      'Subroutine to reset contents at 16833 (41C1H)
      '
30200 POKE 16833,PEEK(ZS+43): POKE 16834,PEEK(ZS+44)
30210 POKE 16835,PEEK(ZS+45)
30220 RETURN
```

```
00100 ;PATCH TO ALLOW PRINT USING AND LPRINT USING WITH £
00110 ;VERSION 1.3 - 28/11/83
00120 ;
00130         CP      '$'             ;IS CHARACTER $
00140         JR      NZ,EXIT         ;NOT INTERESTED, SO JUMP
00150         PUSH    BC              ;SAVE REGISTERS
00160         PUSH    DE
00170         PUSH    HL
00180         LD      HL,SWITCH       ;POINT AT SW% NAME
00190         CALL    260DH           ;VARPTR SUBROUTINE
00200         LD      A,(DE)          ;DE POINTS TO VALUE OF SW%
00210         CP      0
00220         JR      Z,NOCNGE        ;JUMP IF SWITCH IS OFF
00230         LD      A,(409CH)       ;OUTPUT DEVICE CODE
00240         CP      1               ;PRINTER
00250         JR      Z,LPRINT
00260         CP      0               ;VDU
00270         JR      Z,PRINT
00280 NOCNGE  LD      A,'$'           ;RESTORE $
00290         JR      WAYOUT
00300 LPRINT  LD      A,35            ;£ FOR PRINTER
00310         JR      WAYOUT
00320 PRINT   LD      A,96            ;£ FOR VDU
00330 ;
00340 WAYOUT  POP     HL              ;RESTORE REGISTERS
00350         POP     DE
00360         POP     BC
00370         LD      C,A             ;ROM EXPECTS VALUE IN C
00380 EXIT    DEFS    3
00390 SWITCH  DEFM    'SW%'           ;VARIABLE NAME
00400         DEFB    0
```

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EASTER SUNDAY

While leafing through some old mags recently I came across a curiosity in PCW (Personal Computer World) on calculating the date of Easter. The topic is mildly interesting in its own right, but in addition the program attached provides the opportunity to illustrate one or two useful Basic techniques which might well generate a few responses and lead to further ideas.

The program that follows is in Disk Basic. I've added a list of changes for non-Disk users.

Program comments:

- line 7 - this is a standard MOD function; it produces the remainder when I is divided by J.
  Rosenfelder (Basic Faster and Better) is a rich source of Defined Functions. Another ref. is PC (Practical Computing) 11/83 p.171. I know Charles Davis is very fond of these functions. It really is amazing how powerful and efficient they can be.
  Perhaps other readers might like to supply their favourite Defined Functions; we could build these into a NATGUG library for general use.
  Here are a few more to start the ball rolling!

```
DEFFNI$(I,J)=STRING$(I,J)
DEFFNI$(N)=CHR$(N+48-7*(N>9))
 converts a decimal int. (0-15) to a hex char. (0-F)
DEFFNI%=PEEK(&H4020)+256*PEEK(&H4021)-15360
 gives current cursor PRINT@ address
```

- line 8 - US$ is a PRINTUSING string.
  Again, this is a very powerful Basic function and is far more flexible than the Level II manual suggests.
  Let's have more please - send in your favourites to build into a library.

- line 12-13 - this is adapted from the "Half-scroll" USR routine given in the 2nd ed. of the Level II manual. Used in conjuction with the subroutine at lines 66-67 it will scroll a designated portion of the screen, leaving the rest intact. The data (line 13) is for :-

```
LD   HL,3CC0      ;HL=>4th line of VDU
LD   DE,3C80      ;DE=>3rd line
LD   BC,02BF      ;11 lines to scroll
LDIR
RET
```

  If you want to use a different sized window for scrolling just change the appropriate addresses and block length for the first three instructions. Remember to change the LN% comparison in lines 66-67 as well

- lines 60-61 - this is the "formula" for converting a valid year (Y) to the Easter date (P) and month (M)

- line 65 - CP% is current cursor position

John Phelan (Chessington)

```
4 REM ===== Init. - variable & function definitions ====
5 REM <EASTRSUN> calc. of Easter Sunday  ref.John Waddell
   PCW 8/81 p.142
6 CLEAR100:DEFINTI,J,K,D,Y,M,N,P
7 DEFFNM%(I,J)=I-J*INT(I/J)
8 A$(1)="March":A$(2)="April":
  US$="Easter Sunday in #### falls on  ## %   %"
12 ML$="123456123456":
  M=PEEK(VARPTR(ML$)+1)+256*PEEK(VARPTR(ML$)+2):
 FORI=0TO11:READJ:POKEM+I,J:NEXT:
 DEFUSR=M
13 DATA33,192,60,17,128,60,1,191,2,237,176,201

49 REM === Main Menu ===
50 CLS:PRINTTAB(9)"** E A S T E R  S U N D A Y **

 <1> Particular year
 <2> Year list
 <3> Background history

      enter 1-3"
52 GOSUB90:IFINSTR("123",I$)=0 THEN52
  ELSE ONVAL(I$) GOTO100,200,300

59 REM === Subroutines ===
60 I0=FNM(Y,19):I1=Y/100:I2=FNM(Y,100):
  I3=FNM(I1,4):I4=(8*I1+13)/25:I4=19*I0+I1-INT(I1/4)-I4+15:
  I4=FNM(I4,30):I0=(I0+11*I4)/319:I1=FNM(I2,4):
  I1=2*I3+2*INT(I2/4)-I1-I4+I0+32
61 I1=FNM(I1,7):I0=I4+I1-I0:I1=(I0+90)/25:P=FNM(I0+I1+19,32):
  M=2+(I1=3):RETURN
62 PRINT@1000,"<key> for menu..";:GOSUB90:
  PRINT@1000,CHR$(30);:RETURN
63 PRINT@1000,"<key> to continue..";:GOSUB90:
  PRINT@1000,CHR$(30);:RETURN
64 PRINT@990,"<C>ontinue or <M>enu ..";:GOSUB90:
  PRINT@990,CHR$(30);:RETURN
65 CP%=PEEK(&H4020)+256*PEEK(&H4021)-15360:RETURN
66 IFLN%<11 THENLN%=LN%+1
67 IFLN%=11 THENZZ=USR(0):
  PRINT@768,CHR$(30);:GOSUB65:RETURN ELSERETURN
68 CLS:PRINTTAB(9),"** E A S T E R  S U N D A Y **":
  PRINT@64,STRING$(64,132);:RETURN
90 I$=INKEY$:IFI$="" THEN90 ELSERETURN

99 REM === Main modules ===
100 REM Particular year
105 GOSUB68:PRINT@896,STRING$(64,140);:CP%=128:LN%=0
110 PRINT@CP%,CHR$(30);"What year  (1582-4000)";:INPUTY:
  IFY<1582 ORY>4000 THENGOSUB120:GOTO110
112 GOSUB60:PRINTCHR$(27);CHR$(30);
  USINGUS$;Y;P;A$(M):GOSUB65
115 GOSUB64:IFINSTR("Cc",I$)<>0 THENGOSUB66:GOTO110
  ELSEIFINSTR("Mm",I$)<>0 THEN50
  ELSE115
120 PRINT@CP%,CHR$(30);"Can't help with";Y;
  ".Choose a year in range 1582-4000";:GOSUB63:RETURN
```

```
200 REM Year list
205 GOSUB68:
 PRINT"Calculate date of Easter for run of years ..":
 PRINT:INPUT"  starting at year  (1582-4000) ..";Y1:
   INPUT"  ending   at year                ..";Y2
210 IFY1<1582 ORY1>4000 OR Y2<Y1 THEN230
215 PRINT@128,CHR$(31);:PRINT@896,STRING$(64,140);:CP%=128
220 FORY=Y1 TOY2:GOSUB60:
  PRINT@CP%,USINGUS$;Y;P;A$(M):
  GOSUB65:GOSUB66
222 IF(Y-Y1+1)/10=INT((Y-Y1+1)/10) THENGOSUB64:
  IFINSTR("Cc",I$)<>0
  ELSEIFINSTR("Mm",I$)<>0 THENY=Y2:NEXT:GOTO50
  ELSE222
224 NEXT:GOSUB62:GOTO50
230 PRINT:PRINT"Invalid year spec. ..<R>e-enter or <M>enu ?"
232 GOSUB90:IFINSTR("Rr",I$)<>0 THEN205
  ELSEIFINSTR("Mm",I$)<>0 THEN50
  ELSE232

300 REM Hist. background
302 CLS:Q$=CHR$(34):PRINT@15,"** EASTER SUNDAY **"
304 PRINT@64,"
Calculation of the date of Easter Sunday was laid down at the
Council of Nicea in 325 A.D as the Sunday which followed the
full moon which occurred on, or next after, the day of the
spring equinox.";
306 PRINT"
Thus the date depends on the motions of the sun and moon, but
since these are not regular approximations were agreed for a
mean solar year and lunar month and these were incorporated
in the calculation.";
308 PRINT"
Religious and political considerations further complicated the
issue, but a formula was agreed. Details are provided in the
bood ";Q$;"Puzzles and Paradoxes ";Q$;"by T.H.O'Beirne (Oxf. 1965)-";
310 PRINT"
see ch.10 ";Q$;"Ten Divisions Lead to Easter.";Q$;
312 GOSUB63:PRINT@960,CHR$(31);
314 PRINT"
The Julian calendar was reformed in 1582 and the Gregorian
calendar was inaugurated in Catholic Europe - 10 days were
lost to correct for the approximations mentioned above. By";
316 PRINT"
the year 4000 a further correction will have to be made.
The Gregorian calendar was not adopted in this country and the
American colonies of the time until 1752. Bear this in mind
when using the program.";
318 PRINT"
The spring equinox is always on 21st March, so the earliest
possible date for Easter is 22nd March. The latest possible
date is 25th April. You could use option 2 of this program
to discover when these dates next occur!"
320 GOSUB62:GOTO50
```

==========

Line changes for non-Disk users.

These changes do **NOT** allow for lower-case responses to on-screen prompts. I've not tested these changes, so use with caution.

- omit line 7
- line 12 - change last statement <DEFUSR=M> to
  <POKE16527,INT(M/256):POKE16526,M-256*INT(M/256)>
- line 52 - replace this line with

```
52 GOSUB90:I=VAL(I$):IFI=0 ORI>3 THEN52
   ELSEONI GOTO100,200,300
```

- lines 60-61 - replace with

```
60 I0=Y-19*INT(Y/19):I1=Y/100:I2=Y-100*INT(Y/100):
   I3=I1-4*INT(I1/4):I4=(8*I1+13)/25:I4=19*I0+I1-INT(I1/4)-I4+15:
   I4=I4-30*INT(I4/30):I0=(I0+11*I4)/319:I1=I2-4*INT(I2/4):
   I1=2*I3+2*INT(I2/4)-I1-I4+I0+32
61 I1=I1-7*INT(I1/7):I0=I4+I1-I0:I1=(I0+90)/25:
   P=I0+I1+19-32*INT((I0+I1+19)/32):
   M=2+(I1=3):RETURN
```

- line 65 - replace with

```
65 CP%=PEEK(16416)+256*PEEK(16417)-15360:RETURN
```

- line 115 - replace with

```
115 GOSUB64:IFI$="C" THENGOSUB66:GOTO110
    ELSEIFI$="M" THEN50
    ELSE115
```

- line 222 - replace last 3 lines with

```
222 .....
    IFI$="C"
    ELSEIFI$="M" THENY=Y2:NEXT:GOTO50
    ELSE222
```

- line 232 - replace with

```
232 GOSUB90:IFI$="R" THEN205
    ELSEIFI$="M" THEN50
    ELSE232
```

~~~~~~

A CP/M FILE PURGE UTILITY WRITTEN IN C

The following simple little C program illustrates the power of the language rather well. Utilities such as this are usually written in assembly language and are quite difficult to write. I produced this program in about five minutes and it worked first time!

The program is run by a command line of the following form: PURGE <ambiguous file name>. For instance, PURGE B:*.REL, would erase all the files with the extension .REL residing on drive B, checking with the user before erasing each file.

The program illustrates two important features of the C/80 compiler. Firstly, the ability to pass command line arguments to a program. Secondly, the ability to expand wild-card command line characters. Most CP/M C compilers have these features.
~~~~~~

```
/* purge.c */

#include <fprintf.h>

main(argc, argv)
int argc;
char *argv[];
{
     char c;
     extern char Cmode;
     Cmode = 0;

     command(&argc, &argv);
     *++argv;
     while (--argc) {
          printf("\n%s KILL - Y/N: ", *argv);
          c = toupper(getchar());
          if (c == 'Y') unlink(*argv);
          *++argv;
     }
}
```

Leon Heller

ANOTHER DATE PROGRAM

The following is yet another date program that may be used as a sub-routine. The difference is in the format for outputting the date i.e. Thursday 25th. January 1983.

The date is also returned in a three byte string (D3$) which is useful for comparison or sorting but makes a mess of the screen if printed, better to convert back to form "DDMMYY".

Error checking is built in and hopefully it is infallible?

This routine has been adapted from a formula that I learned over twenty years ago. The sum of the year plus a quarter of the year (ignore remainder) plus the date plus a substitution for the month code 0336 1462 5035, divided by seven and the remainder gives the value for the day - 0 equivalent to Sunday, 1 equivalent to Monday, etc. Care must be taken mentally to deduct one from the sum if and only if the month is less than 3 and it is a leap year. (This is achieved in the program by LP*(MM<3), where LP=1 if a leap year and MM is the month).

The magic figures 0336 1462 5035 took an awful long time before it dawned how they were calculated - food for thought over the Christmas holiday? If the solution still eludes you then send a stamped addressed envelope and I will give you the solution.

Here also are two define functions (derived from the G/Base conversion table of the Level I manual) which may be used to force the first character of IN$ to either upper case or lower case :-

```
DEF FNLW$(IN$)=CHR$(32 or ASC(IN$) )

DEF FNUP$(IN$)=CHR$(95 and ASC(IN$) )
```

```
7000 CLS:CLEAR999:DEFINTA-Z
     PRINT,"D a t e   R o u t i n e - John Rutherford"
    :PRINTSTRING$(64,"=")
7001 PRINT"This routine will give date in following format"
    :PRINT,"Monday 25th January 1900"
7003  DEFFNDA$(DA)=MID$("st.nd.rd.th.",
                       -(DA=1 OR DA=21 OR DA=31)
                       -4*(DA=2 OR DA=22)
                       -7*(DA=3 OR DA=23)
                       -10*(DA>3 AND DA<21)
                       -10*(DA>23 AND DA<31), 3)
7004  RESTORE:FORII=0TO6:READDD$(II):NEXT
     :DATA
     " is loving, giving, merry and GAY ?",
     is fair of face,
     is full of grace,
     is full of woe,
     has far to go,
     is loving and giving,
     works hard for a living
7005 PRINT@192,CHR$(30);:INPUT"Date  <DD/MM/YY> ";A$
7010 YY=VAL(MID$(A$,7,2))     :   LP=-(YY/4=INT(YY/4))
    :MM=VAL(MID$(A$,4,2))     :   DA=VAL(MID$(A$,1,2))
    :IFMM<1 OR MM>12 OR YY<0 OR DA<1 THEN7080
7020 IFDA>VAL(MID$("312831303130313130313031",MM*2-1,2))
           -LP*(MM=2)    THEN7080
7030
DD=YY+INT(YY/4)+DA+VAL(MID$("033614625035",MM,1))+LP*(MM<3)
7040 DD=DD-INT(DD/7)*7
7050 PRINT@256,CHR$(31); MID$("Sunday  Monday  Tuesday
Weds'dayThursdayFriday  Saturday",DD*8+1,8)
     + " "      + STR$(DA) + FNDA$(DA) + "  "
     + MID$("JanFebMarAprMayJunJulAugSepOctNovDec",MM*3-2,3)
     + STR$(1900+YY)
7060 PRINT
    :PRINTMID$("Sunday  Monday  Tuesday Wed'sdayThursday Friday
 Saturday",DD*8+1,8)+"'s  child "+DD$(DD)
7070 D3$=CHR$(YY)+CHR$(MM)+CHR$(DA)
    :PRINT@512,"Three byte date   (useful for sorting)
                    CHR$(YY) + CHR$(MM) + CHR$(DA)   =  D3$";
7075 INPUT"Press  <Enter> for another go"A$
    ::GOTO 7005
7080  INPUT"Error in entering - please try again and take
care"A$
    : GOTO 7005
```

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HARD DISK VERSUS FLOPPY - SOME BENCHMARKS

By Edward Rashbrooke

During the Swindon weekend, Leo Knaggs, Colin Bowyer and myself ran a few performance tests of hard drive and floppy diskette operating systems. A short BASIC program was written to PUT 500 records of 255 bytes into a file on disk. It was decided to run the test in two different ways for each combination of disk and operating system.

Firstly, let the program create the disk file as it ran. A second run then re-used the pre-allocated space that the first run had found. To add some excitement, several operating systems were used. Anyone with vested interests in NEWDOS, LDOS etc would thus have something to jump/cheer/boo about.

Since the original "controlled" experiment at Swindon, I have also had the opportunity to run the same test on another combination of hardware (LDOS hard disk) and have therefore added this to the original figures.

In all cases, the platter being used for the 500 record write was completely empty, except for directory/boot tracks.

RESULTS

Test nr	disk type	DOS	hard ware	clock speed	step rate	file type	time secs
1	hard	N80	VG3	4	-	new	110
2	hard	N80	VG3	4	-	old	26
3	flop	N80	VG3	4	6	new	244
4	flop	N80	VG3	4	6	old	193
5	flop	N80	VG3	4	30	new	235
6	flop	N80	VG3	4	30	old	192
7	flop	L514	M4	3.3	6	new	215
8	flop	L514	M4	3.3	6	old	99
9	flop	L514	M3	2.2	30	new	254
10	flop	L514	M3	2.2	30	old	101
11	hard	L514	M4	3.3	-	new	25
12	hard	L514	M4	3.3	-	old	17
13	flop	T6	M4	4	6	new	232
14	flop	T6	M4	4	6	old	33
15	flop	T13	M3	2	30	new	251
16	flop	T13	M3	2	30	old	72

where:

N80 = Newdos80 R2.5
L514 = LDOS 5.1.4
T6 = TRSDOS 6.0.0
T13 = TRSDOS 1.3

VG3 = Video Genie 3
M4 = Model4
M3 = Model3

SURPRISES
Listed in order are the results of the runs, fastest to slowest, indexed to fastest.

CREATION RUNS Rank	DOS	Type/step	Index	Graph 0 1 2 3 4 5 6 7 8 9 0 1 2
1	L514	hard/4	1.0	***
2	N80	hard/3	4.4	**********
3	L514	flop6/3	8.6	********************
4	T6	flop6/4	9.3	**********************
5	N80	flop30/4	9.4	**********************
6	N80	flop6/4	9.7	**********************
7	T13	flop30/2	10.2	************************
8	L514	flop30/2	10.2	************************

REWRITE RUNS Rank	DOS	Type/step	Index	Graph 0 1 2 3 4 5 6 7 8 9 0 1 2
1	L514	hard/3	1.0	***
2	N80	hard/4	1.5	****
3	T6	flop6/4	1.9	*****
4	T13	flop30/2	4.2	**********
5	L514	flop6/3	5.8	**************
6	L514	flop30/2	5.9	**************
7	N80	flop6/4	11.3	**************************
8	N80	flop30/4	11.4	**************************

CREATION TO RE-WRITE RATIOS DOS	C:R	Graph 0 1 2 3 4 5 6 7
NewdosB0 30 step	1.2:1	***
NewdosB0 6 step	1.3:1	***
LDOS514 hard	1.5:1	****
LDOS514 6 step	2.2:1	*****
LDOS514 30 step	2.5:1	******
TRSDOS13 30 step	3.5:1	********
NewdosB0 hard	4.2:1	*********
TRSDOS6 6 step	7.0:1	****************

Interestingly, the graphs show that TRSDOS 6 is extremely respectable when compared against the hard drive operating systems for re-use of pre-CREATED space.

Of equal note was the relatively poor performance of NewdosB0 on the re-writes, compared with all of the other systems used.

INTERPRETING THE RESULTS

A few salient points emerged from the tests:

1 CREATE-ing a disk file prior to use gave a dramatic performance improvement of between 1.2 and 7 times as fast.

2 Step rate on disk drives made little significant difference to overall elapsed times.

3 Clock speed differences were insignificant, due to relatively small amounts of computation involved.

4 Hard disks can certainly speed disk access, but the choice of operating system can make a big difference as well.

HUMAN FRAILTY

Swindon was a fairly intense weekend, with 3 am sessions and early breakfasts for some (most of us. Consequently, there may be a degree of "Reaction Time" (otherwise known as hangover co-efficient) in certain of the figures.

The test set out to represent a fairly typical kind of disk access used in many program situations whilst providing a benchmark that was easy to prepare.

It would be useful for anyone with access to other hard disk/operating system combinations to run similar tests and submit them to the newsletter for addition to the statistics so far produced. A fuller benchmark than the one produced so far would also be of interest, subject to volunteers to test it.

THE BENCHMARK PROGRAM

Come on all you Model 1 owners, why not give it a spin! Remember to use an empty data disk for a fair comparison.

```
010 CLEAR 1000
020 DEFINT A-Z
030 OPEN 1, "R", "DEMO:1"
040 FIELD 1, 2 AS D1$, 254 as D2$
050 FOR I=1 TO 500
060     LSET D1$ = MKI$(I)
070     LSET D2$ = "X"
080     PRINT I ;
090     PUT 1,I
100 NEXT
110 CLOSE
```

It would be interesting to add line 95 as :

```
095     PUT 1, 501-I
```

To try to throw the head around a bit more during the test.

The EPSON FX-80 printer.

The following notes may be of help to those who are trying to make up their minds whether to buy an FX-80. They are written from the point of view of one who has not used any of the **Epson** range before, so some of the features I find exciting may be old hat to those who have been using the MX series for some time.

I have until now used first the **Microline 80** and then the **82a**. Both of them are excellent; in particular the latter is built like a tank and very fast indeed at 120 chrs/sec. Their only failing as far as I was concerned is that you have to dig deep to reach the DIP switches needed to change many of the options, and they didn't have very many anyway.

Virtually all the options on the FX-80 may be changed by sending control codes in the text to the printer. There are 73 basic codes listed, many of them may be qualified by adding an ON or OFF code, many others may be quantified by adding an extra number to the code. The description of these codes alone uses up 107 pages of the manual (which is excellent).

There are two different print fonts in the ROM - the normal one (this one) and an *ITALIC font, which although it is not quite as readable as the* ordinary one, *is useful as an alternative way of emphasizing bits of text.*

Either font may be printed in a number of different sizes:

This is CONDENSED print at 17 chrs/in.
This is ENLARGED.
This is ENLARGED CONDENSED.
ELITE is a new size of 12 chrs/inch.
This is ENLARGED ELITE.
This is PROPORTIONAL printing.
There are also subscript,
and superscript sizes.

With some exceptions, any size in either font may be underlined, **emphasized**, **double-struck**, or any combination of all three. For a real impact, **emphasized & double struck** print takes some beating! In case the difference is not clear, emphasized print puts two dots close together horizontally, and double striking does it vertically, by moving the paper up a bit after the first pass and then back again.

If you want to add small print to a document, try using

subscript print in condensed size!

Elite print can't be condensed or emphasized. Proportional print is a size on its own and can't be enlarged or condensed - it is already emphasized and can't be double struck.

Apart from print sizes and styles there are a lot of other functions which overlap with word processor facilities and I haven't implemented them yet. These include setting right and left margins, vertical and horizontal tabs, etc. You can have forward and reverse line feeding by any amount from 1 dot to 256, also from 0/72 to 85/72 inches. Different National character sets may be selected and skip-over perforations or not. As if all that wasn't enough you can define your own character set, and print dot addressable graphics. The manual has many examples in Basic.

The speed is advertised as 160 chars/sec, but I find it marginally slower than the 120 char/sec Microline 82a. I think this is because it pauses longer between lines. The difference is small - about 5 seconds slower for a sheet of A4 paper. Most of the fancy print effects are definitely slower than this.

I have never fully understood all the correspondence about CHR$(0) and the Epson, but all is now clear. In the FX-80 you have to append CHR$(0) or CHR$(1) to some control codes and these serve as off and on switches respectively. Now I see why people have been getting upset when the TRS-80 filters out all the CHR$(0)'s! With the FX-80 Epson have accepted the existence of the TRS-80 and in all cases where the CHR$(0) is needed as a switch you can send CHR$(48), or "0" instead. There is still a problem with some of the more complex codes, however: for example to select the download character set instead of the ROM one, you have to send 27,37,1,0 to the printer, and to change back again 27,37,0,0. To copy the ROM characters into the download area the code is 27,58,0,0,0. I have got around this by putting the character to be sent in a variable (in this case PT) and then calling the following subroutine:

```
1000 IF PEEK(&H37E8)<>63 THEN 1000 ELSE POKE &H37E8,PT:RETURN
```

it's a bit cumbersome, but it works, and you don't have to do it all that frequently. I suppose a better answer would be to create a USR routine, but even that is rather like hard work unless you have a lot of characters to send.

All this about the download character set may be worth explaining. The FX-80 has 2k of RAM normally used as an input buffer which speeds up printing operations. This RAM may also be used to store a user-defined character set (at the expense of losing the buffer facility). Characters are defined column by column by sending rather long strings of control codes to the printer - up to 16 may be needed to define a single character. The new character then sits in RAM in lieu of any character you like to choose when defining it. If you only want to define one or two characters you don't want to spend ages redefining all the normal ones, so there is a facility for downloading the complete ROM character set into RAM; having done that you can then redefine your special characters. It isn't as difficult as it sounds provided you write a short

Basic program to do most of the work for you. I shall probably write myself a USRn(X) routine to do this some time.

All in all, I'm very pleased with the FX-80. it's smart, fast, quiet, and gives a nice result. Anyone want to buy a cheap, practically mint Microline 82a, boxed and complete with the extra roll paper holder? Best offer over £275 will secure!

Another Word Processor.

This letter is being typed on the "CLEAN SLATE" Word Processor (CSW from now on). I found this while fighting my way round the PCW show looking at printers, and it offers many advantages over the Scripsit which I have been using for several years.

Most obvious, it has facilities for sending all those control codes to the printer in the middle of a line or wherever you want them. It does this by providing for up to 16 different graphic tokens to be inserted in the text on the screen. The user predefines the graphic shape he wants, the key combination he wants to use to invoke it, and the command it is to send to the printer. For example, in my current set-up, pressing clear/6 will put the graphic block defined by decimal 189 in the text and it appears on the screen as an identifiable shape; when the page is printed it is intercepted and the control string 27,112,49 is sent to the printer. This makes the printer use proportional print. When I want to turn proportional print off again I press shift-clear/6; a different graphics block (190) appears in the text which, when sent to the printer is converted into the control string 27,112,48. By using this facility I can make full use of the FX-80's abilty to change print styles in mid-stream.

You don't have to have an FX-80 to get some of the effects. CSW offers underlining and bold printing simply by going over the line again, and there are a lot of other features not available in Scripsit. Text is held on disk, a page at a time, in special files created by CSW as it operates. You can read in a plain ASCII file or write one out from the CSW files if you want to. Doing this is a very good way to write source files for assembly code. Because most of the text is on disk, and only the page you are working on is in memory you stand to lose less in the event of a mains failure etc, and documents can be of unlimited size.

Moving a block of text can be done either by lines or by rectangular blocks; by positioning the cursor at either end of the block to be moved it is saved to a special disk file and can be re-inserted in any other place, or page, or document as desired. A rectangular window can be inserted in the middle of a text page using this system, and it can also be used for creating multi- column text.

A very useful feature is a glossary file to contain blocks of frequently used text, e.g. addresses. By typing clear/g, followed by any one of 250 or so letter-and-shift/clear(or both) keys you can call up a particular piece of stored text and insert it where the cursor is. This is rather like the LDOS keystroke multiply system but with a much larger scope since the glossary is on disk and not in memory. It is possible to redefine any key on the keyboard to be anything else you want it to be, and you can build your own Dvorak keyboard if you wish. I can obtain }{~ keys if I want and if the printer will print them. This is how the graphics blocks are selected. One special code deselects the keyboard so that any keys struck do not go into the text. This is useful when using NEWDOS 80's 123, DFG, and JKL functions.

The two-column format above was obtained by using a 30 column page width and then moving the bottom half of the page up beside the top. It could be done equally easily for 3 or 4 too.

CSW has all the normal functions for centring, justifying, setting horizontal and vertical tabs and margins, and some others too. It can put a backspace in the text to produce ¥¥ or similar characters when needed, and can unjustify lines by cutting out all added spaces. If you don't like justified text, a quick-format facility allows you to skip through the text quickly getting the maximum number of words onto each line, borrowing from or overflowing to the next line where necessary. This is very useful when you've been inserting words in lines and have made them too long, or vice versa. Text is formatted in memory and the screen forms a window on to that text. The way it looks on the screen is the way it will look on paper, which is a great improvement on Scripsit. You end a page when you want to, which means no more headings on the bottom line of a page. You format and justify on the screen and if you don't like the result you can change it. Headers and footers are well catered for.

Finally, it has full terminal facilities for receiving and sending text over the phone, as well as setting up the RS-232 parameters. I don't know enough about these to comment on them.

CLEAN SLATE was written in 1982/3 by an American called Henry Melton, specially for the TRS-80. It costs only £15.25.

There has to be a snag, of course! It is sold as a book of source code by Howard W. Sams and you have to type it in. At the last count I made it 8,413 lines by missing out all the remarks. There are 16 modules which must then be assembled separately and linked together using MACRO-80. It might be possible using ZEN or EDAS, both of which will assemble from disk to disk, but the code would need altering as it is written for Macro-80, with Global and External variables, etc. Also, I'm not sure whether there would be room for all the labels if

it were all assembled in one lump. There are quite a number of errors in the text, some of them serious, and I wouldn't recommend doing it yourself unless you are well up in assembler programming, quite apart from the sheer slog of typing in nearly eight and a half thousand lines without making your own mistakes. When it comes to checking, a complete list of global variable addresses is given, and a memory map, but both of these are little use at first as there are text messages in the coding, but no indication of the number of spaces in these, as the type-setters used variable length spaces to make the lines in the book look pretty! The consequencce is that your text messages come out the wrong length and put all your labels in the wrong place so that you can't check them!

Criticisms apart, it's a very nice word processor to use and a great asset is that it was written to be altered and adapted by the user. I have already made alterations to suit me and my set-up, for example getting full directory displays. The code is very fully described, and has many spare spaces, hooks, and unprogrammed keys for you to add your own features. It runs, the book says, in a 32k machine, needs 2 disks (or maybe 3 to assemble it if they are only single density). It will work with Model I or III but not II, using TRSDOS, NEWDOS (all versions), VTOS, LDOS, DOSPLUS(3.4 or 3.5), and Doubledos, but not with Microdos.

The book has 382 pages, about two thirds being annotated source code (NOT full assembly listings with object code), and the rest instructions on how to use it. If I can be of any help to anyone who has bought the book and is having problems with assembling it, please get in touch. I may not have got all the bugs out of it yet, but it does all work, as can be seen from this letter.

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Tel: 0235 21921

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Footnote to FX-80

Since writing the above I have worked out a better way of sending multiple control strings to the printer:

```
10 FOR A=1 TO n;----where n is the no of bytes to be sent
20GOSUB 1000
30NEXT A
.
.
1000IF PEEK(&H37E8)<>63 THEN 1000;---wait if printer not ready
1010READ A1:POKE &H37E8,A1:RETURN
.
.
10000DATA xx,yy,zz, etc for n (decimal) numbers
```

The advantage of this is that once the subroutine and its calling lines are written, you only have to type the numbers separated by commas, which is a lot less effort than pages of LPRINT CHR$(xx)'s or POKE &H37E8,xx's.

SWINDON - A SURVIVOR'S REPORT - Edward Rashbrooke

The Wiltshire Hotel seemed to cope very well with the recent invasion of NATGUG. Throughout the weekend of 18-20 November, the discreet tap-tap of keyboards and gentle buzz of printers announced to the staff that these computerists were serious!

As a TRS80 user and enthusiast, such weekends are a valuable way of keeping up-to-date with what is going on in the world of micro-computers. Throughout the weekend, various presentations, demonstrations and discussion groups took place formally in various seminar and lecture rooms and also informally over lunchtime pints.

These weekends attract a wide range of Tandy and Video Genie users from all backgrounds and act as an excellent means for interchange of ideas.

My weekend included database design, accounting methods, communications using micros, JCL and the 'C' language. Numerous small discussions ensued on everything from high-res graphics to ways of keeping the case of a model 4 clean! I'm sure that anyone else that attended the weekend has an equally varied range of experiences to report.

An integral part of the event is the comfort of the hotel itself. The "system room" is used for the setting up of all of the computers and various adjacent rooms are used for lectures etc. Coffee and "other drinks" were available throughout the weekend and for those of us staying in the hotel, the food and service was excellent. The benefits of only a short stagger to one's room at 3 am after an extended PROFILE 3 session need to be experienced to be appreciated.

I am sure I also speak for others when I say that the whole weekend was a very entertaining and valuable experience. All of those involved in its organisation are to be congratulated and I shall certainly be back for more in March!

MODEL 4
(Communications and others)

Yesterday I managed to drag myself to London and I was fortunate to meet the top brass and some of the members of the Group in the Hospitality Room. As my "boss" remarked "What a nice set of people". This was the first time that I came face to face with my fellow sufferers of computero-mania - TRS kind. In my younger days I had some slight acquaintance with IBMs 707 and their high priests whilst being in charge of the input control and subsequent sorting of processing rejections, distortions etc. In those days the input was via IBM 80 column punch cards which, after a machine sort and occasional wreck, were transferred on tape, checked to agree control totals, then checked for edit errors (is all the information required to process that type of the occurrence (we, being Army, used to call it casualty) there and in the right column?), then finally occurrences, which have passed the checks were batch processed against the master file. And, as usual, there were further rejections caused by illogical or unacceptable information. I remember one year when, after some amendments, the end of year tax run gave every soldier sizeable refund though luckily a signal cancelling the output reached all concerned in time to prevent the troops drawing their newly acquired wealth. In those days the high priests consisted of officer class (system analysts and console operators) and warrant officers and staff sergeants (programmers and other technical supporting staff.) It was noticeable that the programmers normally walked with glazed eyes, absorbed expression on their faces and were completely divorced from their surroundings - none ever reacted to a call unless this was repeated at least three times. My boss says that I am like that when pondering some obscure programming problem, which I am not going to solve anyway. I must admit that the group members, whom I met that Saturday, were not exactly as my programmer-friends from the days gone by. We had enjoyable chats, and a demonstration of a Data Base on Model 100 (very clever and also a nice little machine) and we shared the problems, thoughts etc. Even if I won't make any workshops, which is most likely, I promise myself to be in the Hospitality Room next year.

In this same Hospitality Room there was a representative from Blandford Computers - by coincidence I have served with his uncle back in 1962 in Catterick, which has nothing to do with the story - and so there was also my RS232 and the accoustic coupler. When I say "my" I mean the one I ordered but have not paid for yet. The friendly representative carried myself, my boss, RS232 and the coupler in his car to my place and here he proceeded to install it. Half an hour's job and so it proved only we had not managed to get it going even three hours later. I thought that if I ever see SETCOM on the screen again I shall go mad. We have tried TRSDOS 1.3 and the program from the Manual (it does not work), we have tried NEWDOS80v2 and all sorts of routing and linking and getting all sorts of PARAMETER ERROR, and we have tried the communication program in TRSDOS 6.0. Not much luck with that either and (a posteriori) I must say that, although the program works the Manual is not that helpful - to put it very mildly.

Anyway, once I was left on my own I had a few more tries (about 2 hours), then one more hour after midnight. Today was spent looking through the publications, reading the manual for the umpteenth time and so on but, finally 50% success. I managed to get the program to cause the computer to send a file and there is was - the lovely music from the coupler (telephone not attached). Having got so far there was the question of seeing whether a file could also be received. As my forays in the directions of Rewtel and Distel came to nothing and I did not think that, with the show going, our net was likely to be available I found an old tape with either a program or data from the old ZX80 days and I played that back having placed the tape recorder on the coupler. A lot of rubbish started to appear on the screen and it also got into the designated file on the diskette. It mattered not that it was all rubbish, that the screen was getting reversed or changed into forty characters, the computer was receiving and recording. I now know how AG Bell felt !

Actually the communications program of TRSDOS 6.0 is quite easy to use. One has to set first RS232 to the driver program, then set up RS232 and finally execute the communications program. The set of commands is SET *CL COM/DVR, SETCOM (BAUD=300,WORD=7,STOP=1,PARITY=NO). The word of course may need to be set to 8 bits, more than 1 stop bit may be required and parity may have to be YES. The correct settings should be discovered before one does attempt a contact. My first attempts, which were made with the settings shown in March 1982 Newsletter were a complete disaster. I managed to get one transmission consisting of seven characters and that was the lot. All that for the

cost of some eight or ten telephone calls. As it was the transmission came from a Board, which requires word length of 8 bits. The trouble is that some publications, like Personal Computer World, list the Boards, telephone numbers, hours of operations and names of the system operators, they do not give the required RS232 settings and, as far as I can see, unless RS232 is set correctly you just will not receive anything you can recognise nor will you be able to get any help from the sysop. To get such help one has to log in first and you just cannot do it if you have "communication problems".

Finally with the previous help of Leo Knaggs I managed to make my first contact and, I must admit, it was a thrill even though I was quite useless at it. In my younger days I was trained in Army radio operations and also, whilst serving in Hong Kong, I had to man the radio every time I was the Duty Officer - those were the days of Hong Kong bombs and troubles in the days of the Red Guard revolution - and I thought that I was thoroughly familiar with the transmission discipline. Well this does not help with computer communications. The basic difference is that with radio there is another human being on the other end but a Bulletin Board is just a dumb computer. It is no good trying to talk to it as it does not take any notice of you. Luckily the sysop realised that I was quite useless at this game and cut in to give me advice.

The basic problem is that, having made contact, one is as a child in a jungle, or someone playing a maze game on a computer. You just don't know which way to turn. There are menus flashing on your screen, which is rapidly scrolling and invariably leaving you with the message "Command" right on the top line - the menu having just scrolled off the screen before you were given a command choice. So you keep pushing the buttons - sorry - the keys until finally something happens and the screen starts scrolling again. There were articles in the Newsletter or the computer publications on Bulletin Board access. Some of them went so far as to give RS232 settings, whilst others limited themselves to the telephone numbers - but none of them went far enough to prepare a novice for a successful contact.

As far as I can make out the Bulletin Board settings for RS232 are 300 Baud, word either 7 or 8, one stop bit and even parity for seven bit word or no parity for eight bit word. Using the 8 bit word and no parity I managed to access the Blandford Board and also TBBS London - with, I must say, varied success. On some occasions the transfer was good on others the data was distorted. I also tried Forum-80 Hull and Mailbox-80 Liverpool using a seven bit word and even parity. These tries were absolute disasters. Liverpool seems to have a very high rate of transmission and my screen was filled with a continuous string of meaningless letters culminating in a pause and a flashing cursor obviously expecting me to do something. I tried to log in and as a result in each case I was cut off. Very much like "get off the line - we don't want to play with you". Oh, and I should mention that, whilst the string of data was streaming over my screen the buffer kept opening and closing without any action on my part and to finish it all there was nothing in it.

I have also tried Forum-80 Milton - having previously spoken to the Chief, who set it up for me - and that was a disaster too. The transmission was so distorted that I could not make any sense out of it and had to hang up.

The distortions will always be there to some extent, and one has to edit whatever one has received to make any sense of it. I have set up Superscripsit on my communication disk and, after saving the buffer onto the disk, I convert it from ASC to Scripsit file and print it out. And only then I can have a good look at what has happened and, hopefully, learn how to use these blessed Boards.

For those who may be interested and who may know even less about it than I do (if this is possible) here to start with are two telephone numbers:

0258 54494 Blandford Board

01 348 9400 TBBS London

(Incidentally if you happen to ring 051 428 2733 thinking that you get Mailbox-80 Liverpool you most likely get a resigned lady who will ask you whether you got that number from the magazine and, on your affirmation, will tell you that the number is 051 428 8924. I will not mention the name of the magazine which gives the incorrect number but this same magazine quoted the address of suppliers of accounting programs for TRS Mod 1. As some time I wanted to buy an accounting program I tried to contact three of them. In one case the number was not obtainable, in the second case the supplier stopped stocking the program

some three years ago and, in the third case, I managed to get hold of the supplier and, eventually the program, only the supplier has moved to Blandford and the address and telephone number in the magazine were well out of date.)

Did I say that the TRSDOS 6.0 communication program is easy to use? I think I did so. Well, in theory, I am right. All you do is to type SET *CL COM/DVR, then SETCOM (covered above) and finally COMM *CL. If you are just playing about the things are easy. (For brevity's sake I will refer to the CLEAR key as Cl). The first thing you do is to press Cl and then 8. This will show you an abbreviated menu, tell you what the different devices are capable of etc. Assuming that you want to receive a file you press Cl/6 Cl/9. This will ask you for file name to receive the input. If you want to send a message, program or a file you press Cl/5 Cl/9. You will be asked again for the file name, which no doubt you have prepared in advance using a word-processing program and which you have saved in ASCII. To activate either receipt of a text or despatch of the file you press Cl/6 Cl/; for receiving and Cl/5 Cl/; for despatch. Having opened the buffer with Cl/6 Cl/; you will wish to save what you managed to receive to the disk. In theory you press Cl/7 Cl/; to write to the disk, then Cl/6 Cl/0 to close the file, and finally Cl/6 Cl/- to clear the buffer. As I said this is what you should do - in theory. You may however find that the file you have saved and which cost you some £1.50 to obtain contains nothing. It is really amazing that when I play with this program I find it easy but when it comes to using it for real, with the bullets flying, then things can go awfully wrong. Let us say that I don't find the communication program that easy when making a contact.

This was the reason too why I opted for STERM. This is much easier to use in the real situation for a novice like myself. The program is loaded by typing STERM. The first thing to do is to press Cl/h to get the menu of the commands. Cl/i sets RS232. The setting is given in the top line and is Baud=300,Word=7,Stop=1,Parity=Even. You are then given the option to change each one in turn. The setting responses are on INKEY$ so don't use <RETURN>. And don't make the silly mistake of selecting option "3" for the baud rate- just press <return> for that.

Cl/r switches the Echo on and off. Make sure the echo is off otherwise you may have 25 e's in George before you reach the "o". On making a contact you will be asked for your first name, last name, city etc. It is a good idea to prepare a log on file, which you can send in answer to this request. The format is "Firstname;Lastname;City,State" (to illustrate: Another;Moron;25 Funny Street,London SW3.) To send your LOGON file you press Cl/M. You will be asked the file name, which you will supply. I don't whether know this is general to the STERM, or my program is, but then I get a message saying something to the effect that there is no carrier (or something like that). If you should get a similar message just press Cl twice in succession and your LOGON file will be sent. Your LOGON details will be repeated by the Board, you will be asked to confirm your details, you will be welcomed and you will be given the menu. Your first choice should be "I" (for information). Before you make this choice open your buffer by Cl/b and store the information in the buffer. This information is meant to introduce you to the use of the Board. Having got the gen, I suggest, that on the first contact you leave the Board by choosing option G from the main menu. Then use Cl/f to write the buffer to the disk (you will be asked for the file name), close the buffer with Cl/b and get out with Cl/e.

The first hurdle over, load the disk file into a word-processing program. Edit out all the blank lines (there are plenty of those), all the incorrectly received or echoed data and finally print it out. You will have then something to guide you in the Board protocols - maybe! My last attempt at a quick scan of the messages at the Blandford Board (call of 12 minutes and 18 seconds - the Board will supply Logged on and Logged off times at the signing off) resulted with me being presented with messages 271 and 305 out of 325 messages available on the Board. Try as hard as I could all I could do was to get these two messages.

If you intend to use the particular Board regularly you should register as a new user. You will be asked to specify your password which, on all future contacts, must be typed in exactly as supplied by you with due attention to lower and upper case.

The other STERM commands, which I have not mentioned so far, are Cl/c clears the buffer, Cl/g loads the buffer with a file you wish to send. I tried that once and I have sent the file after which I was given the option to edit it, abort or get out. I decided to edit and

I got a lot of ASC rubbish, which I could not understand so I aborted. Cl/l clears the screen and this is all right if you do it. If however the screen clears by itself you have lost the contents of the buffer as well and £1+ spent on the call. Cl/o sends the buffer previously loaded with Cl/g command. So, if you are brave enough to attempt sending a file and the buffer was open to receive data, write the buffer to the disk with Cl/f and clear it with Cl/c, open it again with Cl/b, load it with Cl/g and send it Cl/o and don't blame me for not warning you.

If you should wish to enter the communication game you must be prepared for the fact that the whole thing is in it's infancy. Having, however, made a conscious decision to try get a good accoustic coupler (stress being on good) or still better a decent modem and then experiment. Frustrations there are plenty, Boards being continuously engaged (at the popular times), distorted data, lost buffers, not knowing what to do etc. But it is fun also, especially if the "boss" (wife) pays the telephone bill.

To wrap up I will finish this with an appeal to those who have already mastered the art of using the Boards. The above shows what difficulties a novice does face. How about going into print and letting us know (in plain English and words of not too many syllables) how to do things properly.

Anon.

68000 ASSEMBLY LANGUAGE PROGRAMMING - PART 1

Here is the first installment of the series of articles on 68000 assembly language programming I promised you in the last issue. Part 1 describes the 68000 programming model (how the processor looks to the programmer).

The programming model is described in Fig. 1. and consists of 17 32-bit registers, a 32-bit program counter, and a 16-bit status register. The first eight registers (D0 - D7) are used as data registers for bit, byte (8-bit), word (16-bit) and long word (32-bit) operations. The second set of seven registers (A0 - A6) and the system stack pointer (A7) may be used as stack pointers and base address registers. A0 - A6 may be used for word and long word operations. All 17 registers may be used as index registers. The system stack pointer may be either the supervisor stack pointer (SSP), or the user stack pointer (USP), depending on the status of bit 13 (S bit) in the status register. This enables different stacks to be maintained for the operating system, say, and user programs. All programs developed in this series of articles will assume that the supervisor stack pointer is operative, with the S bit set.

The status register (Fig. 2) may be thought of as consisting of two bytes, a user byte, and a system byte. The user byte contains five bits which define the carry (C), overflow (V), zero (Z), negative (N) and extend (X) condition codes. The system byte contains five bits which define the current interrupt priority (seven levels of interrupt), whether the processor is in Trace mode, and/or the supervisor or user state. In Trace mode, the processor will go into an exception processing state (like a software interrupt) after every instruction. This makes the writing of single-step debugging utilities very easy. Hardware single stepping is quite easy to achieve, also.

The program counter is a 32-bit register, but only 24 bits are available in the case of the 68000 (16 Mbyte address space) and 20 bits for the 8-bit bus version, the 68008 (1 Mbyte address space). The 68020 processor will have the full 32 bits available, giving 4 Gigabytes of address space!

Most instructions operate on bytes, words and long words.

PROGRAMMING MODEL

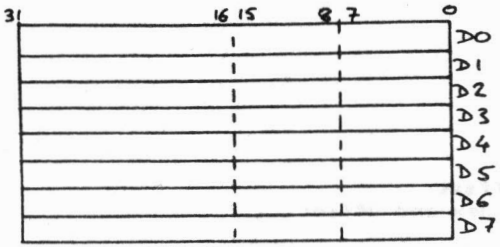


FIG. 1

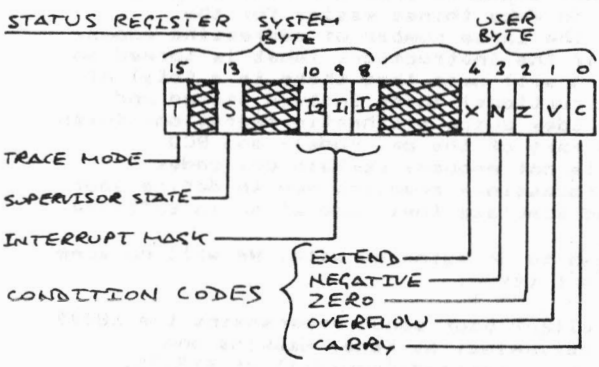


FIG. 2.

There are 14 addressing modes available:-

Register Direct

  Data Register Direct
  Address Register Direct

Absolute Data

  Absolute Short
  Absolute Long

Program Counter

  Relative with Offset
  Relative with Index and Offset

Register Indirect

  Register Indirect
  Postincrement Register Indirect
  Predecrement Register Indirect
  Register Indirect with Offset
  Indexed Register Indirect with Offset

Immediate Data

  Immediate
  Quick Immediate

Implied

  Implied Register

The instruction set was designed around a relatively small number of mnemonics, to make things easier for the programmer. However, the large number of addressing modes, which apply to most of the instructions (what is termed an orthogonal instruction set) mean that there is a total of over 1000 useful instructions! These include signed and unsigned multiply/divide, quick arithmetic operations (with an 8-bit quantity as part of the op. code), and BCD arithmetic. If that is not enough, certain op. codes initiate exception processing, enabling you to define your own instructions, and simulate their operation in software.

I think that is enough to be going on with. We will do some programming in the next issue.

Incidentally, an excellent book about programming the 68000 is 68000 Assembly Programming, by Kane, Hawkins and Leventhal, published by Osborne/McGraw-Hill at £13.95.

Another point, don't try hand-assembling 68000 code, it'll drive you round the twist! I have hand-assembled a couple of small programs and found it extremely difficult, in spite of having hand assembled programs for a wide range of other processors.

Leon Heller

SWINDON November 1983

Jan Spencer turned up with a 48k GENIE, disk drive and GENERAL NORTHERN PRODUCTS interface, which worked in the cassette environment,but not in the DOS mode. Leon Heller suggested returning to 16k, and connecting the system up again. During the Saturday various components had been swopped around, with suspicion pointing at the keyboard. Come Sunday morning Leon's idea was tried out, and this proved successful - with the problem of sorting out the system fault - using the memory discarded earlier.

Tony Wise from Milton Keynes advised me that he had just received two disks from Jim Glanville - USA - which were self teach on German and Spanish.

Colin Foster would like to contact anybody screen dumping to the STAR printer

Tim Bullock handed over copies of the HAYDEN Book Accounts programs
Brian Pain
Gerald Catling has a paper punch going free to a member

Carl Rabe has a LINEPRINTER II (Centronics 730) 90

Brian Pain

SWINDON - NOVEMBER 1983

John Carne has the TANDY HIRES fitted to his Model III, and could not get a screen dump to his EPSOM. After dinner on the Friday evening those doyens Don Bannister and Jim Bartholomew first met, and then set about disassembling the software, and proceeded to write a patch for John's printer. About 2 hours later the mod was working with a rather delighted John.
Brian Pain.

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INDUSTRIAL PROCESS NEWSLETTER - NOVEMBER 1983

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Here at Industrial Process we have just ended our second year as the major producer of cassette labels for the microcomputer industry. To all of our clients, many of whom are now our friends, we would like to say thank you. Thank you for your support during our earlier days when we could not get the labels out fast enough; for your kindness and the compliments about our labels in the letters you write to us; for using our labels in a market that looks set to be the largest single mass market in economic history; and above all, thank you for the prompt payment that has characterised our dealings with the overwhelming majority of our software producer clients. This last point, of course, being the main reason why we have been able to increase our stocks to the present levels and thus continue to fulfil orders on a 24 hour basis. To all prospective clients we would like to use this, our first News letter, to introduce our range of services and to tell you something about our company and the way that we operate.

Industrial Process is a small independent company, based on the modern Eurolink Industrial Estate in Sittingbourne, North Kent. We do not try to undercut or undersell label companies in general, nor do we give undertakings that we cannot live up to. What we do provide is a first class service to the microcomputer industry, which is gearing itself up to the delivery times which are forced upon all of us from time to time as we try to cater for the buying whims of a public which is not only ultra-demanding but is increasing in size at a rate that defies superlatives.

The reasons behind our specialising in labels for microcomputers date back quite some time and are directly connected with the way that most commercial label companies manufacture labels to be used on large mainframe computers, generally with heavy duty line printers. This type of equipment needs the popular heavy duty type of self adhesive label that has dominated the market so far. These labels are typically produced on a heavy backing paper, two, three, four or more across the web, in a fanfold format, with a wide variety of perforations to enable the labels to be handled after printing. The way that this type of label is supplied makes it not only very expensive for a micro computer user, but individual small quantities are difficult to obtain with any sort of realistic delivery time. We realised this, and our range of labels was designed to:-

a. Enable our retail division to supply labels from stock, and ensure a 24 hour service.
b. Allow small quantities to be supplied at a reasonable cost.
c. Be compatible with all of the modern dot matrix and daisy wheel printers.
d. Give clients a really fast and efficient service when custom printed labels are required.

In order to be able to supply both blank and printed labels we had to become a very sophisticated printing company, with all of our artwork and platemaking for both sheet and roll labels being produced in-house. This gives us a degree of production flexibility that is the envy of our competitors.

For 1983 and through into 84 we intend to continue the range of microcomputer labels that has proved so popular, and have extended our range of services and products with the items that follow:

1. COLOURED LABELS - We have had numerous enquiries about tinted labels, and have been experimenting with a range of tinting inks and label papers that are compatible with dot matrix and daisy wheel printer ribbon inks. Smear and ink repulsion are common problems, but with our latest range of inks we think that we have found the answer to at least some of the colours which are in popular demand.
2. OVERPRINTING - We are now able to undertake overprinting of most of our standard range of labels via our computer print department. This facility has been quite widely used when labels are required with the utmost urgency, and most of the time 'labels while you wait' are provided. Costs are very reasonable at around £8.60 per thousand plus blank labels.
3. LABELLING SOFTWARE - During 1983 we began a search to find programmers to help us put labelling programs together for most of the popular micros and printers. These projects are nearing completion and the first, a Spectrum/Epson FX80 program is now available on cassette.
4. CASSETTE LABELS ON A4 SHEETS - Many software producers now have their self adhesive cassette labels printed by a local instant print company. In order to cater for this we have decided to produce a range of labels in the sheet size which fits the type of printing machine that is most widely used by instant printers. At the time of writing, the cutter for these labels is being made and we hope to be able to commence supplies by the end of November. The price will be just slightly more than the Ref 28 label, as there are 12 labels to the sheet.

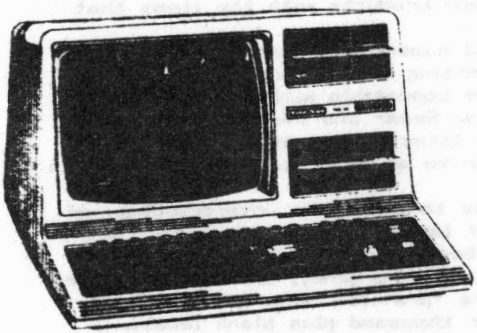
We hope that you have found our comments on computers and computer labels of interest and the enclosed samples give an idea of the type of product that we manufacture. The enclosed self adhesive calendar comes with our compliments (Ref 33, printed two colours) and if you would like any more copies just send a 16p stamp. If you would like to try any of our labels, most can be supplied in quantities of 1000 minimum, with the cassette labels in smaller lots, as few as 100 labels when on sheets.

CONTACT - MAVIS PHILLIPS, for blank labels from stock.
KEITH FORD, for printed labels or technical advice.

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