National TRS-80 Users Group

Newsletter

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INFORMATION ON THE GROUP

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

Details of the Group accounts and the constitution of the Group are obtainable from the Secretary.

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

Workshops are arranged from time to time in various parts of the country.

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

The Group maintains two software libraries (Model I and Model II) which are free to members. Library lists are obtainable from the Secretary (price £1.00). The medical and educational sub-groups maintain their own libraries.

A membership list is available from the Secretary (price £1.00).

Back numbers of the Newsletter are available.

Please send all contributions for the Newsletter to the Editor.

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EDITORIAL

I have been inundated with contributions this month, so I am holding some over to the February issue!

The subscription renewals seem to be rather slow in coming in, Brian tells me. However, we have an advertisement in this month's PCW, which should get in some new members.

It looks like Tandy are breaking into the 16-bit market at last (see my note in this issue). In fact, this puts them ahead of their main opposition, Apple and Commodore, who have yet to announce their 16-bit offerings.

Is anyone using 'The Last One' yet? Tandy have been selling it for some time, so at least one of you should have tried it out, or know someone with some experience of using it 'in anger'. How about a review?

The Milton Keynes (Houghton) workshop and A.G.M. will have taken place by the time you read this. I hope to still be in the editorial chair for the next issue.

Leon Heller

********** CANCELLATIONS **********

LONDON WEEKEND IN MARCH and the JULY WEEKEND WILL NOT RUN DUE TO CIRCUMSTANCES BEYOND OUR CONTROL.

********** 2nd FEBRUARY 1982 **********

********** NOTICE TO 80-NET USERS **********

AS A RESULT OF A DECISION REACHED AT THE AGM ON 30th JANUARY 1982 THE ABOVE WILL BE RUN UNTIL THE NEXT AGM BY S. BIRD. CONTACT HIM FOR FURTHER DETAILS. ACCESS WILL BE FREE IN THE FUTURE & ON A 24 HOUR BASIS WITH ITS OWN LINE FOR THAT PERIOD. Brian Pain.

****

MEMBERS' LETTERS

From David Washford

I can't offer any great advice regarding the disk I/O errors mentioned last September/October by Laurie King and Ariela Taylor - my own units are now back with Tandy for the third time in six months ! In my last tragedy, even the backup copies 'crashed' and caused me many hours work in reconstruction; I run two main series of programs which cause about two hours input each day. One program results in a daily printout, so that is relatively easy to rebuild. However, the other is used for rather complicated reports every ten days or so - and the tedious hassle caused by losing this data on the 21st of the month has caused me to write another short program which now gives me a daily hardcopy listing of the bare essentials. I would strongly recommend every disk user to do likewise, and not to just rely on a backup disk ! Incidentally, I did find that the greater capacity 'format' disks gave more frequent trouble than a smaller capacity 'minimal system' disk so I now only use the latter.

Partly due to the above, I resolved to give myself disk copies of tape programs, and tape copies of disk progs. and so I proceeded to load MON4; after obtaining new addresses from A.J.Harding (the addendum was confusing!) I managed to get this monitor onto disk - only to find that it wouldn't read any tapes. Another 'phone call to AJH resulted in the advice that there is a known problem with the 'L' command (only in the UK) and a fix is expected early in the New Year.

Although I've had my TRS for nearly a year now, I've been too scared to try Assembly Language - please give my grateful thanks to Laurie Shields because his article about SpaceV (May 81), together with a drop of Xmas spirit, got me started ! I had put Spacev on disk by using TDISK and although it runs OK, the 'gameover' sequence always results in a reboot to DOS, so Laurie's article was very interesting. I had also been afraid of using Newdos80, but since I couldn't understand the RS disk editor/assembler I used the Newdos Edtasm to create "bounce/cmd" ! I spent many happy hours changing bytes here and there, so thank you again, Laurie - you've got me started ! Mind you, Spacev still reboots to DOS !

What happened to Steve Bird's articles on Newdos? And is version 2.0 much different to that so far described ? I ask because some of the commands don't work as described by Steve, but seem more in common with TRSDOS 2.3 commands.

Thank you, User Group, have a Prosperous New Year,

David Washford,
1 Alexandra Rd,
Bournemouth BH6 5JA

From Dennis Long

I enclose my cheque for the next six months subscription with a plea that you ask members who contribute such valued hints and tips, to improve the quality of their printout. Without wanting to name anyone in particular I was most frustrated by Al Redhouse's items which as always are very interesting but most difficult to read.

I would like particularly to thank Mr. J.R. Barber for helping me to get a decent lower case on the Model I with his circuit for the Teletext character generator. It worked very well - I'm delighted! The next move is to try Al's speed-up switching method.

HIGH SPEED - TRS-80

I've never seen any notes on the subject of speeding up the TRS-80, just a circuit modification which I carried out and which didn't work on my very old Model I. Last weekend I spent some hard earned cash on 16 200 ns 4116 memory chips and a Z80A micro chip. I fitted these and with the help of NEWDOS/80 v.2 I was able to boot up at 2.66MHz and every-thing has worked smoothly since. So if any members have tried the speed up and failed then I recommend they do the same - the total cost was only about £20.

OLD RAM FAILURES

Two weeks ago I started having many inexplicable hang-ups, failures to boot properly and several automatic reboots in the middle of a BASIC program. After having cleaned all the printed circuit connecters for the tenth time (that's the usual cure for such odd problems), I decided there was more to it than that. Using MON3 I found that several bytes in the area 5200H to 7FFFH were corrupted by gaining an extra bit D1. By this I mean that an ASCII "M" would appear as a "0" and a an "E" would become a "G". I tried the TRSDOS ROM/RAM test and it passed I tried using MON3 to change the values in the area to all sorts of values and it all looked good.

Despite this I concluded that I had RAM problems in the old original (three year old) 4116 chips. I could have changed the chip on the D1 line but decided that if one was going I might be in for all sorts of trouble if I didn't change the lot. Well the outcome is documented above, I purchased the faster chips and all is very well now - The old TRS-80 has been given a new lease of life.

NEWDOS/80 v.2

I have just completed a BASIC data base program handling 1600x52 byte records. The program carries index arrays which point to the required record on disk. The main features could only have been carried out using NEWDOS/80's really fast indexing array sorts; above all the facility for clearing unwanted arrays and dimensioning new ones. All these, combined with the fixed format file method (FF files) of NEWDOS/80 has made me highly delighted with this latest version out of Apparat.

I tried using Profile, which takes about two hours to do a disk based sort of data (nearly wearing out the disk drives in the process) and it doesn't permit direct access to a required record; Profile always scans sequencially from the start of file which seems to take ages to find a record. With the indexed sorted arrays which take about 15 seconds to do, I can now find any record out of my 1600 records in an average of three seconds.

So full marks to Apparat for the NEWDOS/80. Profile gets quite a lot of marks from the setting up and data entry point of view. But I just had to go to a BASIC program to get the data back again. My program now contains a very similar cursor/screen data entry and editing routine to Profile's - so thanks Tandy for the ideas but Profile is now "on-the-shelf". If anyone wants a copy of the BASIC program just drop me a line and a few pennies for paper and post and they can have a copy. It should be fairly easy to modify for your particular data base - ideal for lots of telephone numbers or a store, shop or garage inventry system I should think.

FAST DATA TO DISK

If anyone has to store vast quantities of numeric data on disk - by this I mean conversion tables or similar numeric information. Then I have a machine code routine which slaps data on to disk so fast that three blinks and you've missed it. I thought it hadn't worked the first time I tried it, it was so fast compared with the normal sequential and random file methods using BASIC.

An article on the subject was published in August Electronics and Computing. Back numbers may still be available but if you are interested I can supply a disk containing a Scripsit Article on the subject with the machine code program and a BASIC demonstration program for the paltry fee of £8 - well I must pay for my new RAM somehow! The data must be in arrays and to give you some idea haw fast it is a 2000byte integer array takes 28 seconds to put to disk using sequential files, my program takes about three seconds - in other words it's ten times faster.

Final Comments

1. Concerning an item in Christopher Perraton's article for beginners. Under FAST TYPING he suggests that the slow return of the prompt was something to do with mains voltage. I think most of us would explain this by the fact that when enter is pressed after editing a long program, it takes quite a long time for the operating system to move the whole program up in memory to make room for the modification. The actual time taken depends on the length of the program and how far from the end the editing is being done. The answer to this problem is to take your time and wait for the return of the prompt.

2 Concerning difficulties using tapes from one machine on another. I have found that many tape loading problems are related to the angle of the tape head on different recorders, this is known as the azimuth setting. The Tandy tape recorder has a little hole about an inch above the PLAY button. This takes a small cross-head screwdriver which lines up with an adjusting screw when the recorder PLAY button is pressed. The easiest way to adjust it is to take a professional tape and play it through the tape recorder speaker. Adjust the screw for maximum sound level or highest frequency.

NOTE: This could mean that you won't be able to play your old tapes back if the recorder was well out of alignment. However, it is a simple matter to readjust the recorder to load these old tapes.

Dennis Long

From Dave Holman

I have just recently purchased two disk drives from Blandford Computers and at last can use SCRIPSIT in the manner that I am sure it was intended. Until now I was a floppy tape owner, although I only intended floppy tape as a "bridge" between cassettes and disk. To that end floppy tape is useful and increases the reliability of programme loading, however I still had some problems with the tapes themselves.

Using the Extended Basic provided the real insight into disks and it put the Aculab system closer to the disk system, and incidentally helped me convert to disks much easier ( ) that CVI MKI$ etc).

However on powering up my disk system all was magic, until my first unintentional reboot after about two hours, the fridge was the problem. Through the newsletter I had read up on all the things not to do and I haven't done them yet.

There are a few people saying that the Newsletter is far too advanced, I must disagree, the newsletter covers a very broad spectrum, especially if the backnumbers are bought; in fact reading through the backnumbers is like growing up with the machine all over again. Most of the answers are somewhere if you are prepared to look. I have included a few programs for the Aculab which may be useful and perhaps could be included in the library. A few small tips I discovered that I could use line number 0 for programs and with some renumber programs although with the NEWDOS+ RENUM, using 0 as a line number prevents renumbering without removing that line and retyping it after renumbering. I don't know which is the best way to send letters to you, whether on disk or printed out as I have, using the Epson MX-80 and the SCRIPSIT patch from the newsletter.

Dave Helman

(* On the whole I prefer contributions on disk, as the Newsletter can then appear somewhat more uniform in style. If everyone sent in material in machine readable form, the Newsletter could be properly put together. I just do not have the time otherwise. LFH *)

From Tony Wise

Just a few notes on the discussion of beginners understanding the newsletter. My basic problem is that although some of the more complex articles look very interesting unless there is a very simple explanation at the beggining I cannot grasp either what the article or program is trying to achieve.
So please, when submitting for publication a simple explanation will save hours of puzzlement to some of us not quite on the same plane.

If anyone is interested there is a simple modification to the ctr-40 cassette recorder that enables it to be used for the sound output on the Tandy. It requires a wire soldered across two points on the PCB. The original idea came from Tim Walden. I would like an electronics buff to check that it does not interfere with any of the other functions before it goes on general release.

For those with Viscalc and Pencil I only recently realised that by saving the file using Cmd"P"then "File", the vc file is saved with the suffixs of /PRF. Using rename change it to /PCL and load it as a Pencil file. Add a few lines at the start and finish and your tabulations take on a whole new meaning

A. R. WISE
Hartwell, Northants.

DEAR ALL AT THE USERS GROUP,

ONE THING I DON'T LIKE IS SOMEONE WHO MOANS,SEEMINGLY FOR SOMETHING TRIVIAL,OR CONDENMING SOMEONE WHO IS DOING A BETTER JOB THAN THEMSELVES.HOWEVER I AM DRAWN INTO THE FIRST CATEGORY MYSELF.THE COMPLAINTS ARE MANY EVEN IF EACH IS QUITE TRIVIAL,AND I AM SURE ONE OR ALL HAVE OCCURED TO THE AVERAGE USER.

FIRSTLY I AM A BIT SCEPTICAL ABOUT TANDY PROFIT MARGINS,200 POUNDS OFF A STEREO LEADS ME TO THINK THAT IT WAS OVERPRICED IN THE FIRST PLACE(ESPECIALLY WHEN IT GOES BACK TO THE ORIGINAL PRICE AFTER THE 'OFFER'.THIS MUST THEREFORE APPLY TO COMPUTER SALES ALSO.I HAVE HELD ONTO MY 'LOWER CASE MONEY' UNTIL SUCH TIMES AS SOMEONE DOES IT CHEAPER.IN THE DECEMBER NEWSLETTER THIS IS ADVERTIZED BY A MEMBER,GOOD ON YOU MATE!
NEXT,HOW UNFORTUNATE THAT TANDY PUT THE PRICE OF THEIR COMPUTER TAPE UP TO 2.49 FROM 1.49 WHEN BOOTS(THE CHEMIST) LAUNCHED THEIRS AT 50 PENCE.(5 FOR THE PRICE OF 1)
45 POUNDS FOR SCRIPSIT IS EXCESSIVE.THE PRODUCT IS REMARKABLE,BUT NO WONDER PEOPLE PIRATE,MORE ON THAT LATER.
AS IF THAT ISN'T ENOUGH MOANING,WHAT ABOUT PRICES OF TAPE SOFTWARE IN GENERAL? MOST OF MY BETTER GAMES HAVE NOT BEEN BOUGHT,THE IMPLICATIONS ARE OBVIOUS.I AM LIKE MOST OTHERS CAUGHT UP IN THE 'RECESSION' BUT COULD BUDGET,SAY 10-15 POUNDS A WEEK ON SOFTWARE BUT NOT WHEN THIS MEANS ONE CASSETTE.
BACK TO PIRATING.I CANNOT SEE WHERE AN OFFENCE IS COMMITTED IF THE COPYING IS NOT DONE 'FOR FINANCIAL GAIN,AS WITH AUDIO.
ONLY TWO LEFT,FIRSTLY COULD ADVERTIZERS IN MAGAZINES INCLUDE THE VAT AND POSTAGE,SOME DO,SOME DON'T.
LASTLY IF MAGAZINES PERSIST IN PUTTING IN PROGRAMS THAT EITHER DO NOT WORK,OR ARE 'EASILY ADAPTED TO TRS80' WHICH ARE NOT,DONT BE SURPRISED IF YOUR SALES DROP,AS A RELATIVE BEGINNER ITS VERY DIS-HEARTENING.
WHICH VERY COMFORTABLY LEADS ME ONTO LEARNERS.YES WE DO NEED THE BASIC (NO PUN) ARTICLES TO HELP US.I HAVE ONLY JUST REALISED WHAT THE "PRINT USING" IS FOR! IT IS OFTEN SAID THAT MUCH IN THE NEWSLETTER IS MORE THAN WHAT A LOT OF MEMBERS UNDERSTAND,BUT WITH SIMPLE BITS HERE AND THERE,KNOWLEDGE IS SLOWLY GAINED AND THEN REFERRING TO BACK ISSUES PAYS OFF.THE BALANCE OF THE PAST YEAR HAS BEEN EXCELENT.'AMATUER'COMPUTER CLUBS TAKE NOTE,I WAS LOST AT A LOCAL MEETING AND NEVER WENT BACK.
ALL POWER TO MR DAVIES THE LIBRARIAN,I REMEMBER WHEN OUR MOTORCYCLE GROUP HAD A FEW MEMBERS IN AN EXERCISE BOOK,BUT NOW AT 8000 (AND A TANDY COMPUTER)THE CORRESPONDANCE IS OVERWHEALMING,DONT BE SURPRISED LEIGHTON,IF OUR USERS GROUP GOES THAT WAY.
FINALLY MY LINEPRINTER V11 HAS ADDRESSABLE GRAPHICS,WHAT EVER THAT IS AND TANDYS' HOTLINE COULD NOT EXPLAIN THE MISLEADING ADVERTISING NOR THE DEMONSTRATION PROGAM IN THE INSTUCTION BOOK,WHICH DOES NOT WORK.ANYONE KNOW THE (SIMPLE) ANSWER? OH,AND ONE LAST THING,WHEN I PRESS SHIFT AND THE SQUIGGLY @ ,IN SCRIPSIT MODE,THE LETTERS DONT PRINT THE SAME ON THE SCREEN,LOWER CASE MOD NEEDED MAYBE? ANYWAY A BIG THANKS TO THE 'STAFF' WITHOUT THIS NEWSLETTER,I WOULD STILL BE MESSING AROUND WITH THE LEVEL 1 MANUAL AND THE TV WITH LEGS.

PS.ANYONE GOT ASTEROIDS? ANYGOOD?

GEORGE SMITH

150,HARC[illegible] AVE
SIDCUP KENT
D.A.15. S.L.N.

From Jim Bartholomew

In the November issue of the Newsletter you ask for ideas from beginners of the kind of article they would like to see. I am a beginner, having bought my 16K Level 2 system this summer. Probably most beginners, like me, having saved for the computer can't afford to pay the same again for a printer, or the even higher cost for disk drives. So articles should be geared to the use of Keyboard, VDU and cassette.

Part of the problem of being a beginner is that you don't know what your system is capable of and that makes it difficult to give specific requests. So, if any experienced users have what appear to them to be simple tips or techniques but which are not covered in any of the manuals, write in about them, they will be news to many. Also, a few more listings of interesting programs would be welcome.

Since I bought my TRS-80 I have learnt most about how to program from William Barden, Jr's excellent book 'Programming Techniques For Level II Basic'. He covers a lot of interesting topics, my only criticism being that each chapter is too short. I feel he is only scratching the surface. I would like to see an extension of many of the subjects he writes about, in particular : text editing, the use of arrays, searching and sorting data, using machine language routines in Basic programs and investigating ROM.

I am very pleased to see the start of Richard Jacobs' series of articles on Assembly Language Programming. I have bought Tandy's Series-I Editor/Assembler and am enjoying playing with it, but I am a long way short of writing good programs with it, I am still only writing fairly short routines. A very useful addition to the series of articles would be a section on what subroutines are available in ROM and how they should be used.

Finally, if there are any other TRS-80 users in the Gütersloh area of Germany, I would like to make contact with them.

Jim Bartholomew,
Officers' Mess,
RAF Gutersloh,
BFPO 47

From Steve Alderton

Having been a member of the group for six months and found the Newsletter both entertaining and informative I have pleasure in enclosing my subscription for the next half year. May I also take this opportunity to make one or two comments and observations, mainly prompted by the December newsletter.

First of all let me say that while I am a relative newcomer to micro-computing (I bought my Model 3 six months ago) I have been a Systems Programmer on an IBM mainframe for a large number of years so the art of assembly language programming (yes, it is an art) and programming techniques is not new to me. Let's tackle first the gripes about the lack of articles for beginners. You are quite right when you say "let us know what you want" but do these people know enough to know what they don't know? Probably not in most cases. Do they want articles that teach them how to program? If so you've got a tough job on because no-one has been able to successfully teach another person to write programs; code program statements yes, but write a program no. Perhaps what the beginner needs is ideas for programs. In the highly personal world of micros there is no-one saying "write me a program to do this"; the beginner then being able to work from a written specification and in doing so gradually develop coding and programming techniques which will lead to an understanding of the computer's - and his own - capabilities. My advice to a beginner would therefore be first get your idea for a program - a simple one for a start like a metric conversion routine, telephone directory, simple game etc. and then develop it bit by bit. Experiment with different ways of doing things and note their effects on the program run time (a good indication of efficiency). My suggestion for you is why not publish some ideas for programs with perhaps specifications and/or flowcharts - I think you would find a need for them.

My other point concerns Richard Jacobs' first article on Assembly Language for Beginners. While I must applaud Richard for giving up his time to write I feel I must take him to task on a few points. Firstly the glossary: ORG has nothing to do with line numbers, it simply tells the assembler where the object (or assembled) program is to reside in storage and gives it a BASE address from which it can compute jump addresses etc. DS - Define Storage - does exactly that, it sets a specified amount of storage aside that can be used to hold DATA as an ARRAY; it is usually defined at the end of a program - define it in the middle and the CPU will quite happily treat your data as instructions unless you jump around it. DB - Define Byte - I do not know the Kansas Editor/Assembler but I would have thought this command defined a one byte data item, however I am open to correction. HEXADECIMAL is not a 2 digit number that represents 8 bits (that is BINARY CODED DECIMAL); the second part of the sentence says what it is - a number system using 16 as a base instead of 10. Lastly the table of op-codes, a very good idea but there are two things wrong with it. As Richard has listed only the single

byte op-codes the headings MSB (most significant byte) and LSB (least significant byte) do not apply. Also the table is the wrong way round. Tables like this are normally read 'left column - top row'. If we look at the INC HL instruction for example and use the table in the normal way we get an op-code of 32H when in fact it should be 23H. Sorry to be so pedantic but in an article for beginners attention to detail is vital.

Finally a plea. Do you or any of the other members know of an Editor/Assembler for a cassette based Model 3? I'm fed up with hand assembling and POKEing the stuff in - it takes hours. Tandy's offering is nowhere near ready and I would like a MACRO facility in any case (shame on Laurie Shields).

Thanks again for the Newsletter,

Steve Alderton

From Laurie Shields

On behalf of the small band of authors who have produced software for the Aculab I would like to suggest that users should look no further than Leon's editorial in the December issue for an answer to Mr Brindle's letter. The English TRS80 user simply does not believe in paying for his software, and by paying I mean in such a way that the author gets his royalty, not the current practice of slipping a quid or two to the chap who lets you rip-off his copy.

There are in excess of six hundred Aculabs in use in the UK at the moment and as the best one might expect for any one piece of software would be for it to be used on about 10% of these machines this gives a market at the moment of say 60 users. This potential market however is never fully realised in the UK as the vast majority aquire their copies via 'illegal' means and only about a fifth or less actually purchase their programs. This of course applies to the whole of the personal computer industry, not just Aculabs, but with the cassette and disc market being so much larger and international the resultant number of buying customers ends up a reasonably large quantity even though it is still a small percentage.

So for anyone writing specifically for the Aculab the best the author could expect would be the royalty on just ten or so copies. If anyone should doubt this then I would point out that shortly after Aculab brought out their excellent unit I produced an Editor/Assembler and a fix for Michael Shrayer's 'Electric Pencil'. Latterly Tandy's 'Scripsit' was adapted and improved, giving the Aculab a much more powerful word processor at a lower price than is available on disc. To date the total UK sales of all three programs amounts to the grand quantity of just thirty. Hardly sufficient to justify the hours spent developing this software, no matter how intellectually satisfying it was to actually do it.

With this state of affairs it is extremely unlikely that any new software written specifically for the Aculab will appear except as minor modifications to existing cassette programs - the number of buying users just does not justify it. The Aculab-TRS80 combination is an excellent unit, crying out for a fast mailing like those available on disc and also for a data-base program like Instant Software's 'Find It Quick' but I just cannot see them being written. Software needs a much larger buying market and so I think that as in the past new programs will be either cassette or disc based with a heavy reliance on the States.

Which brings me nicely to a phone call I got at 5.30 a.m. one morning last month. It was from Harvey Pennington of IJG who are on the verge of publishing Ian Sinclair's book on machine code programming and want to sell an assembler alongside the book. Now it may be a bit presumptious to think that they want Zen simply because it is the best assembler for the TRS80 but I'm damn sure they had a good look at what was available in the US first before he got me out of bed.

Thanks by the way Leon for the plug last month. Zen works on the Model 3, cassette or disc, and has done ever since the day after I got my hands on an M3. A number of people have bought copies but as yet I've not had any feedback from them good or bad. The other day whilst zapping passwords on Model 3 discs for the Tandy man at the local shop he told me that he still had not got a disc assembler for the M3. This amazed me as last October, I think it was, when I offered Zen to Ted Russell he said that they had one on the shelf.

News from Holmes Engineering, also in the states, as well as their in-keyboard memory expansion they are now producing a combined speed-up and printer interface. It's called the SPRINTER, doubles the speed of the Z80 (trebles if you buy a Z80B) and simply plugs in between the Z80 and it's socket in the keyboard with no soldering or trace cutting involved. If the printer interface isn't required then a cheaper version is available. The only other information I have is that it automatically compensates for disc accessing and slow memories and that the complete unit imported into the UK will cost about #80.

Here's a little program for NDS80 Ver2 users who are puzzling about CMD"O". It calls for the directory, looks at the screen to get the filenames into an array, sorts the array with CMD"O" and then prints the directory in sorted order. If you have too many names for the video I don't know what happens !

```
 5  ' DIRSORT/BAS
10  CLEAR 1000: AD=&H3C00+128: DIM DI$(56)
15  DX$="FILENAME/EXT": CMD"DIR": N=0
20  POKE VARPTR(DX$)+1,AD-256*(INT(AD/256))
25  POKE VARPTR(DX$)+2,INT(AD/256)
30  IF LEFT$(DX$)+1=" " THEN 70
40  N=N+1: DI$(N)=DX$
50  AD=AD+15: IF N=4*INT(N/4) THEN AD=AD+4
60  GOTO 20
70  CMD"O",N,DI$(1): PRINT @ 128,CHR$(31);
80  FOR J=1TON: PRINT DI$(J),: NEXT J
90  PRINT: END
```

The technique of Pokeing the pointers of a dummy variable to pick up a string of characters from the video is much faster than Peeking at each of the bytes of the video and building up strings by concatenation. This second example shows the use of an index file that points to the sorted order of a string array, leaving the string array untouched.

```
10 CLEAR 1000: DEFINT V: DIM A$(10), V(10)
20 FOR N=1 TO 10: READ A$(N): NEXT N
30 DATA abc, wer, tyuoi, hgtr, 1234, sd, dffr, opitrd, hgti, fgt
40 CMD"O",10,*V(1),A$(1)
50 FOR N=1 TO 10: PRINT A$(N);", ";: NEXT: PRINT
60 FOR N=1 TO 10: PRINT A$(V(N));", ";:NEXT: PRINT
```

Whilst this is just a trivial example using garbage data a real application could be to read the key records of a large unsorted disc file into an array and then after CMD"O" to use the index file to access the file in sorted order. For anybody who has not yet given up writing sorts in Basic my advice is to stop now. The speed of the machine code utilities available is just mind-blowing and if you haven't got NDØ8Ø V2 then those available in GSF or Infinite Basic are just as good if not better and work with disc or cassette.

This next bit I wrote way back in July after that fantastic session at MK but for some reason it never got sent. I think most of it is still valid though:

It was apparent from the questions raised at last month's session at Milton Keynes that too many newcomers to discs are jumping to the conclusion that they can get along without Tandy. Nothing could be farther from the truth !

To all people using discs especially beginners I would recommend that they purchase Tandy's Dos and Disc Basic manual. It costs about #5.ØØ and it covers in the usual excellent fashion of all their manuals the whole of Disc Basic including some examples to code in and get you started. All of the other Dos's are based on Tandy's and because of the laws of copyright none of them cover the fundementals of disc use, their documentation generally being written around what they have added to Tandy.
Put your Newdos, Ldos, Vtos, Dosplus or what have you manuals away in a drawer for three months whilst you learn the basics and then go in for the fancy stuff.

Laurie Shields

From Joe Edwards

I have recently had the opportunity to try out two interesting programs for the TRS-80. Enclosed is a short review for the newsletter.

The programs are both from Microcomputer applications here in Reading. Fortunately both of them work and represent real value for money. This is not always the case with mail-order software and with the growing protectionist trend, it is often difficult to get hold of a program for long enough to see if it is worth spending your money on it. Have you any suggestions? Perhaps we might extend the library so that we could hire commercial programs.

I am currently working my way through Hubert Howe's book Assembly Language and I will try to send you some comments on it for the next edition. I think it is probably a very important book, but I am still a trifle unsure. I will be in a better position to evaluate it when I get my CTR-80 sorted out!

Thank you for producing such a readable and interesting newsletter. It knocks spots off the often pretentious offerings of the computer glossies.

Joe Edwards

GENERALIZED SUBROUTINE FACILITY from RACET

****

GSF (generalized subroutine facility) is an program to control the use of assembly language subroutines in TRS-80 BASIC. It comes supplied with 18 subroutines already written that give an amazing amount of extra computing power.

Five are for screen display control. These enable you to scroll the screen up, down, left and right at high speed and also to switch inverse video on and off. Two more allow you to draw vertical & horizontal lines just as quickly. The demo programs that come with the system show a fascinating series of flashing patterns, and a very impressive moving bar chart. (If only I had high-res!)

Three more are for manipulating data in memory. Two subroutines duplicate bytes in memory, one serially for drawing horizontal patterns and the other with a 64 increment for vertical patterns. A third moves data from one location to another and can be used most powerfully for saving complete screen displays out of the way in protected memory. This makes for very fast graphics as you can of course just move it back into screen memory.

To back this up there are two more subroutines to compress and uncompress data. Thus the 1024 bytes that the screen takes up can be compressed down to perhaps 200 with all the blanks taken out and horizontal lines of characters reduced a few bytes.

Two futher subroutines read & write blocks of data to tape with one command. Thus a whole graphics display or an array full of data can be manipulated very quickly. There are also built in validity checks.

The final two subroutines supplied carry out sorts in memory. One is a string sort and the other a multiple variable sort. They are very fast.

GSF is intended a a means whereby you can write your own assembly language subroutines and manipulate them with the minimum of programming. I am going to see if I can convert the Kansas Screen Copy into GSF so that I can have a ZX81!

The manual is very comprehensive with good examples. For a package that only costs £19.50, again from Microcomputer Applications, it is a tremendous piece of work.

Joe Edwards

* * * WANTED * * *

Centronics 730/Line Printer II.

Contact Mike Burton,
3 Windsor Close,
Towcester.
Tel: (0327) 802238

HOW TO GET A NUMERICAL QUART INTO A FILE PINT-POT !

I have been using a Model 2 TRS-80 for nearly 2 years now and I well remember the early excitement of discovering new features in the Level 3 BASIC and in TRSDOS, as I became more familiar with the machine. It is now quite rare for me to come across anything I haven't discovered yet, but just recently I did.

I was designing a job-costing program, storing a large number of cash amounts and hours worked, in a random access (fixed length) file. The problem was that the amounts varied from £2.20 to £99,000.00, and I therefore had to allow 9 bytes, just to make sure that there was enough room in the record for the largest possible number and its sign (plus or minus). With perhaps 30 amounts to fit in one record, it all seemed impossible. Even ordinary file cross-references needed 5 bytes, to store up to 32000.

Then I discovered....no, not Smirnoff, but MKI$, and his friends MKS$, and MKD$.

I knew that all information on disc has to be in a string, so I converted using STR$(x), thus giving a variable length string of from 5 to 9 characters for each amount. To retrieve the number, I used VAL(x$). What I SHOULD have done is used MKS$(x) (MaKe Single precision number into $tring). This produces a fixed length string of 4 bytes from any single precision number, of whatever value.

MKI$ produces a 2 byte string from an Integer, and MKD$ an 8 byte string from a Double precision number.

```
eg. 50 FIELD 1,4 AS A$, etc,etc
    100 A=5200.20
    200 LSET A$=MKS$(A)
```

Magic ! The problem is solved. The biggest integer in 2 bytes, the largest single precision in 4 ! Just for fun, try PRINTing the string so formed. The results are odd, to say the least. To get those numbers back, what you need is CVI (ConVert to Integer), CVS, and CVD. Note. a 'FC' error results if you try to CVI etc., a string longer or shorter than the correct number of bytes.

Jim Hutton

SCRIPSIT: Anyone using Newdos80 zapped Scripsit should save a standard version for cassette reading or writing. The zap issued by Apparat to provide 'DFG' into minidos prevents Scripsit from disabling the interrupts. Thus any cassette input and output will be corrupted. Electic Pencil is a bit different in that it always disables the interrupts before any cassette reading or writing and therefore the Newdos80 zaps should not affect it.

Floppy Tape.
Apart from passing on Dusty's comment "that he now knew what the F stood for and it wasn't floppy" I would like to add that the cassette Scripsit has now been patched onto the Aculab system with only a 500 byte loss of text and the gain of two new print format commands for control codes and graphics, that were the envy of all the disc users who saw them. Files can be loaded, saved and verified to the Aculab as well as to cassette.
Cost #19.50 for a patch to your cassette Scripsit

Laurie Shields 0245 75568

MODEL II SOFTWARE LIBRARY

Os House seems to have been having some problems in administering the Model II library, and has agreed to Jim Hutton taking it on. Jim's address is:

25 High Street,
Stroud,
Glos.
Tel: (04536) 4423

The library will be run on the same basis as that for the Model 1: you send Jim a disk with a note of your requirements, in re-usable packing with sufficient return postage.

Library lists will be available from Brian Pain in due course.

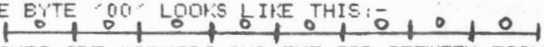
Leon Heller

** UNLOCK 'CLOAD' JAMS **
& RESCUING TAPED FILES.

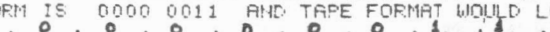
IT IS SOMEWHAT ANNOYING WHEN YOU ARE LEFT STARING AT TWO '**' ON THE TOP RIGHT HAND CORNER OF THE SCREEN AND THE KEYBOARD RATHER DEAD AFTER TRYING TO 'CLOAD' A PROGRAM FROM TAPE WITH THE VOLUME TOO HIGH OR TOO LOW !

THE 'CLOAD' ROUTINE IN ROM STARTS BY FINDING A SYNC BYTE 'A5' HEX FROM THE TAPE, PUTS '**' ON THE SCREEN, THEN LOOKS FOR THREE 'D3's HEX BYTES IN A ROW WHICH ARE AT THE BEGINNING OF ALL BASIC PROGRAM FILES. IF THE VOLUME ISN'T SET RIGHT THE DATA FROM THE TAPE GETS OUT OF SYNC AND YOU ARE STUCK IN ROM WHILE IT GOES ROUND IN A LOOP LOOKING FOR THREE SUCCESSIVE 'D3's.

THE WAY THE DATA IS READ FROM TAPE IS IN 'BITS', 8 'BITS' MAKING UP ONE BYTE 'D3' HEX FOR INSTANCE. EVERY BIT HAS A MARKER IN FRONT OF IT, SO THE FORMAT ON THE TAPE FOR ONE BYTE '00' LOOKS LIKE THIS:-



THE SPIKES ARE MARKERS AND THE GAP BETWEEN EACH IS WHERE THE DATA BIT IS, IN THIS CASE 8 ZERO BITS. '03' HEX IN BIT FORM IS 0000 0011 AND TAPE FORMAT WOULD LOOK LIKE:-



THE SPIKE THAT MAKES A MARKER IS ALSO USED TO MAKE A 1 BIT BETWEEN THE MARKERS. 'D3' HEX IN BIT FORM IS 1101 0011 AND ON TAPE :-



BUT IF THE VOLUME IS WRONG YOU MIGHT READ TOO MANY SPIKES (NOISE) OR MISS SOME SPIKES ALTOGETHER. THE MACHINE SOON CAN'T TELL THE DIFFERENCE BETWEEN A MARKER SPIKE OR A DATA SPIKE AND GETS OUT OF SYNC.

HERE IS A SHORT MACHINE LANGUAGE PROGRAM TO PUT ON TAPE SO THAT WHEN YOU PLAY IT YOU WILL GET BACK TO 'READY' WITHOUT HAVING TO PRESS THE RESET BUTTON. IT WORKS BY SENDING THREE 'D3's AND SOME ZEROS (SIGNALLING THE END OF THE PROGRAM) WITH THE ODD 'BIT' IN BETWEEN TO GET BACK INTO SYNC. IT DOES THIS 8 TIMES WHICH SHOULD BE ENOUGH BUT IF YOU WANT A LONGER TAPE (WHICH YOU CAN START ANYWHERE) THEN LOAD C WITH A HIGHER NUMBER (00 IS MAXIMUM) (CHANGE LINE 100).

MAKE THE TAPE IN BASIC IF YOU WISH BY RUNNING THE BASIC PROGRAM BELOW.

```
00100 LENGTH   EQU     8H
00110 TAPEON   EQU     212H
00120 TAPOFF   EQU     1F8H
00130 WRITE    EQU     264H
00140 SPIKE    EQU     1D9H
00150          ORG     7000H
00160 START    LD      A,1
00170          CALL    TAPEON  ;START TAPE RECORDER 1
00180          LD      C,LENGTH
00190 CONT     LD      B,20H   ;PLENTY OF ZEROS
00200          XOR     A       ;ZERO A
00210 AGAIN1   CALL    WRITE
00220          DJNZ    AGAIN1
00230          LD      B,3
00240          LD      A,0D3H  ;'BASIC' IDENTITY BYTE
00250 AGAIN2   CALL    WRITE
00260          DJNZ    AGAIN2
00270          CALL    SPIKE   ;WRITE A MARKER
00280          LD      B,87H
00290 DELAY    DJNZ    DELAY   ;GAP BETWEEN MARKERS
00300          DEC     C
00310          JR      NZ,CONT   ;LOOP 'LENGTH' TIMES
00312          CALL    TAPOFF  ;TURN OFF TAPE RECORDER
00320          RET             ;OR JUMP TO 6CCH IF YOU GOT HERE
               VIA 'SYSTEM'.
00330          END     START
```

```
10 REM  ** CLOAD UNJAMMER **
20 REM  ** BY JOHN CARDIFF **
30 DEFINT A-Z: CLS
40 PRINT"  PRESS ANY KEY WHEN RECORDER IS READY TO RECORD"
50 FOR I=28672 TO 28672 + 33:
       READ A:
       POKE I,A:
   NEXT
55 I$ = INKEY$:  REM  KEY DEBOUNCE
60 I$ = INKEY$: IF I$ = "" THEN 60
70 A! = 28672/256: A = A!: B = (A!-A) * 256
80 POKE 16526,B:
   POKE 16527,A:
   A = USR(0)
90 DATA 62, 1, 205, 18, 2, 14, 8, 6, 32, 205, 100, 2, 16, 251,
6, 3, 62, 211, 205, 100, 2, 16, 251, 205, 217, 1, 6, 135, 16,
254, 13, 32, 230, 201
100 REM
110 REM  FOR DISK BASIC CHANGE LINE 80 TO :-
80 DEFUSR1=&H7000: A = USR1(0)
```

** RESCUING TAPED FILES **

IF YOU ARE DESPERATE TO RECOVER A TAPED BASIC PROGRAM OF WHICH YOU HAVE ONLY ONE COPY AND WHATEVER YOU DO ONLY PART OF IT IS CORRECT BEFORE IT GOES INTO GARBAGE WHEN YOU 'LIST', I HAVE DISCOVERED WITH SOME AMAZEMENT THAT IF YOU ROTATE EACH BYTE TO THE LEFT OR RIGHT IN THE CORRUPTED PART YOU CAN GET YOUR PROGRAM BACK ! PLEASE CONTACT ME IF YOU WANT MORE INFORMATION BUT BRIEFLY:- MOVE THE 'CLOAD' CODE FROM 2C1FH - 2C76H TO RAM WITH A STOP AT THE END. USE IT TO LOAD THE BASIC PROGRAM FROM YOUR TAPE. INSPECT THE GARBAGE AREA AND DECIDE WHICH WAY TO ROTATE THE BYTES. WHEN FINISHED LOAD HL WITH THE BYTE ADDRESS FOLLOWING THE THREE '00's AT THE END, AND JUMP TO 2C77H.

```
00100           ORG     ANY CONVENIENT PLACE
00110           LD      HL,BEGINNING OF GARBAGE AREA
00120           LD      DE,END OF GARBAGE AREA
00130 CONT      RR      (HL)
00140           PUSH    AF
00150           RST     18H
00160           JR      Z,STOP
00170           POP     AF
00180           INC     HL
00190           JR      CONT
00200 STOP      POP     AF
00210           JUMP    MONITOR
```

JOHN CARDIFF. 01 373 2920

CORRECTION TO &H PROGRAM
==========

IN THE OCTOBER 1981 NEWSLETTER THERE IS A PROGRAM TITLED 'DISK BASIC &H MODIFICATION'. IN LINE 320 THE ADDRESS 5C90H IS O.K. FOR MY SYSTEM WHICH NEWDOS+ BUT TRSDOS USES A DIFFERENT KEY-BOARD BUFFER.
5E30H WOULD BE SAFE FOR TRSDOS. OTHER DOS SYSTEMS MIGHT USE A DIFFERENT AREA.

JOHN CARDIFF. 01 373 2920

APPOINTMENTS

Mike Gibbons is keen to computerise an appointment system. (Nov. newsletter) It can be a bit surprising how much information there is in an appointment book, and how fast it needs to be retrieved. But if he insists, my suggestion would be to use a fixed length record file for storage, with perhaps 1 field for each 'slot'. In his example, he would need 2 bytes for record number, using MKI$, and perhaps 23 for name string.

This would give approx 10 'slots' per record, ie covering 2 and one half hours, with 1/4 hour 'slots'. Four records per day, 20 per week, 1000 for a year. He needs a Model 2 !

Using this arrangement, jumping 4 records gives you tomorrows appointments, and you will need 2 columns (perhaps a.m. and p.m.) on the display, to give 1 day per screen-full.

The time of the appointment could be derived from the record/field number. ie field 3 of record 1 is 09.30 am, field 10 of record 2 is 14.00 (20 * 15 mins). This saves storing times within the file.

His requirement for easy updating is met by 'screen-addressing',ie each field is always in the same place on the screen, and cursor controls are used to place the cursor at the place where updating is needed. A bit like word-processing.

NB I only use a Model 2, so some of this may be more difficult on the Model 1 or 3.

Jim Hutton.

FOR SALE: EXPANSION INTERFACE

As new, Tandy 32K Expansion Interface. In perfect condition with leads, transformer, etc.. I cannot afford discs in the short/medium term so have decided to sell E/I.

Price: £250 (List:£349).

Would be happy to exchange for 2 Exatron Drives (0 & 1) or 2 Aculabs or 1 Exatron or 1 Aculab with cash adjustment. Exatron preferred.

Please ring (after 7pm) or write:

Robin Davies,
40, Lythwood Road,
Bayston Hill, Shrewsbury, Shropshire.
Tel: 074 372-4144

PROBLEM SECTION

I have recently become aware of a problem with my Model I level II 16k machine. As to how long the fault has actually been in existance is anybodys guess. Many programs both basic or system programs run perfectly, but if a large array of string statements is attempted ie. the program on pools predictions in Oct 81 computing today, then the memory becomes corrupted giving many spelling errors which were not entered. These corruptions appear to be caused when transference occurs from video ram to main system ram. Also many syntax errors then occur which even when the relevent lines are edited and show no error, syntax messages ~~MMMMM~~ continue to be displayed. I do not use an expansion interface , so no problems caused there! Naturally my first suspect was faulty system rams , despite a ram poking test being sucessful, I replaced all eight 16k chips anyway but the problem remains. I also tried a replacement cpu , again no joy. As I first mentioned I can even run commercial soft ware which uses 15k of basic and machine code with no problems, but if the program/s (be they commercial or home produced) contain large string arrays then the whole system gets very confused. I have scoped all obvious points with no light, but as I am an electronics eng. and not a computer eng. I would be the first to agree that this is not my field. I now naturally have to expect ROM failure , which puts the frights up me to start with!

I would be really grateful if you could use the SAE enclosed to give any comments that may aid my fault finding. After dealing with Tandy before I really do not fancy returning the unit to them. If you agree with me that the Rom is suspect, how on earth do I go about obtaining the three chips programmed with Microsoft level II basic? I am sure that Tandy would not supply them. When I returned my unit to them some 18 months ago for ram upgrade plus numeric keypad, they forgot to fit the keypad (which had cost me twelve pounds in advance). When I asked if they could send me the kit to do myslef they refused point blank and would not even give me a refund - what kind of people are they?

One last point if I may. Assuming that I do manage to get the system running again I would like to add disks and a printer. However, I am told that RS have now stopped producing the expansion interface. As it is not possible to use disks without it I really do not know what to do. I have tried twice now, unsuccessfully to sell my TRS80 so I am stuck with approx 600 pounds worth of computer which I cannot sell or upgrade. It really does seem a bit stiff.

M. Zanattini

(* If you have problems in obtaining the Tandy expansion interface, it might be worth considering the new Genie unit that Lowes are currently advertising. It can be interfaced to the TRS-80 via a special adaptor. LFH *)

1 Do you, or indeed does any Club Member, know of any way of interfacing the TRS80 with a Research Machines 380Z?

2 Have any members any interest in developing Educational 'Administration' programs, as opposed to 'Teaching' programs?

3 May I offer my services for advice and help, to any member who feels that they are getting bewildered - SAE's would of course be appreciated.

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

(* A direct interface using a serial link between the two systems would work, or you could make use of the member who has offered to transfer 380Z files to the TRSDOS format. See the previous issues for details. LFH *)

HELP HELP HELP !!!!

Has anyone a routine to drive the Seikosha GP80 graphics? It has fine resolution, well adequate for the TRS-80 standard graphics. The printer operating manual tells how to address each dot position on the printer. I need help to find how to obtain the necessary video data and map it in full detail to the printer.

Tony Cottingham,
21 Sandalwood Road,
Loughborough,
Leics. LE11 3PR

LOW-COST SYSTEM DEVELOPMENT WITH THE MODEL I

Using my elderly Model I, I have successfully developed a twin processor system for a three-dimensional movement monitoring system that will shortly be marketed by a former colleague of mine. We need to carry out a numerical algorithm involving 16-bit multiplication and division. The calculations need to be done at extremely high speed, so we are using a Texas Instruments 9995 16-bit processor for the number crunching, loosely coupled to a Z-80 for I/O. All development work was done at extremely low cost by using the Model I as a terminal connected to a T.I. 9995 evaluation board (with a line-by-line assembler) for writing the 9995 code, and MACRO-80 on the TRS-80 for writing the Z-80 code. My EPROM burner was used to program EPROMs for both processors. Although doing the work this way was much less convenient than using a couple of proper development systems (costing several £K each), we were able to get the thing up and running without too much trouble.

The movement monitoring system, which rejoices in the name of CODA, costs £18K, if anyone wants to buy one! The price includes a complete Z-80 based 64K, twin floppy microcomputer for on-line statistical analysis and data reduction, in addition to the aforementioned twin-processor system, which will be upgraded to use four 9995s if anyone wants even more speed and accuracy.

Leon Heller

* * * FOR SALE * * *

22" Rediffusion Studio 99 colour monitors. Composite video input, isolation transformer, and sound capability. Full working order. £60.00

Alan Norman,
Tel: Uxbridge (0895) 36568

By the way, do you know of any payroll software that might work reasonably efficiently on a sixteen K level II cassette based system, for a small number of employees (say 25-30), as, quite frankly, the "Molimerx" program is desperately unwieldy and, believe it or not, I can do very much better on a Sinclair ZX81 system, but as I am "up to the neck" in other business programming, I do not have the time at the moment to convert the Sinclair programme.

L. Sammereff,
2-12 Woodhead Road,
Darnley Industrial Estate,
Glasgow G53 7NU

I would also be extremely gratefull if you could tell me whether it is possible to execute the LCDVR function Shift/0 through the software and if yes ...How ???.

A. Quinn,
18 Gawden Road,
London SW4 6LT

PURGE/BAS

```
10 ⌀LIST:CLEAR200:DIMF$(20):L=0
20 J=1:IFPEEK(17396)=70THENP1=31744ELSEP1=17408
30 P=P1+((O-1)*16):IFPEEK(P+15)=0THEN150
40 IFPEEK(P)<32ORPEEK(P)>122THEN160
50 Z$=""
60 FORN=PTOP+10:Z$=Z$+CHR$(PEEK(N)):NEXTN
70 FORN=1TO8
80 IFMID$(Z$,N,1)=" "THEN110
90 NEXTN
100 N=9
110 X$=LEFT$(Z$,N-1):Y$=RIGHT$(Z$,3):Z$=X$+"/"+Y$
120 A$="":PRINTZ$;TAB(15)" DELETE YES OR NO";:INPUTA$
130 IFA$<>"YES"THEN150
140 L=L+1:F$(L)=Z$
150 O=O+1:GOTO30
160 IFL=0THEN220
170 FORN=1TOL
180 PRINT"THIS IS A WARNING PLEASE CHECK THE ABOVE FILES:-
CONFIRM YOU WISH TO KILL ALL THOSE FILES WITH A YES BESIDE THEM,
     ANSWER YES OR NO";:INPUTA1$
19  IFA1$<>"YES"THENPRINT"          WE WILL ABORT THIS PROGRAMME AND START AGAIN":
END
200 FORN=1TOL:PRINT"KILLING ";F$(N):⌀KILLF$(N)
210 NEXTN
220 ⌀LIST:⌀SAVE"DIR",3,17408
```

Dave Holman

THANK YOU LMOFFSET

It is surprising how you find the most unlikely uses for some programs. The other day I was working on a m/c code cassette based 16K program which, when run spread itself all over memory from 42E9H to 7FFFH. Before running it occupied 4800H to 7FFFH and I was looking for a space inside the program which remained untouched when the program was run to patch in a couple of modifications and the program still had to remain within 16K. The program required a considerable number of runs after each patch for testing and debugging (I never get things right first time!). It was more than difficult trying to load the program from disk as it overlay DOS and I needed quick access to the program in its 'run' and 'unrun' states.
I started off using Monitor 4 and from LII loaded the cassette in, did the patches then to be on the safe side punched out a copy of the program, ran the original and usually crashed!! This took far too long and stretched my patience to its limits. An easier way had to be found.
I run a Video Genie 48K twin TEAC 40 track drives and printer, giving me lots of facilities and 'elbow room'. I ended up adopting the following procedure.....

1) From DOS load Mon4 (or whatever) to the top of memory.
2) Return to DOS and call up LMOFFSET.
3) Load cassette into LMOFFSET and when asked for 'new base address' if your program for eg. starts at 4800H, answer 8800H (This makes it easier for later cross-referencing). At this point NOTE THE NEW ENTRY ADDRESS! DO NOT SUPPRESS THE APPENDAGE! Write file to disk and reboot.
4) Call up file from disk in normal way.
5) Press break then reset to return to LII.
6) Type System /xxxxx to enter Monitor program.

You can now go and look at a 'run' program and still have a uncorrupted program in memory. If you want to try some patches to the program you can do them on the program at 8800H and up, jump into the hi-mem versions start address (you did note it from LMOFFSET didn't you?). Your patched program will then be loaded into its correct operating area and if you are luckier than I usually am it will work first time. If not, toggle back to the hi-mem version and try again. Now you see the reason for picking a base address in LMOFFSET that relates to the original program. If you have a printer it helps to list those areas for modification prior to doing any of the above then cross-referencing is much easier as not all the data is modified correctly when LMOFFSET does its move.
This may seem a long winded way of patching programs, but if you have a program that does all sorts of funnies when run and it overlaps DOS and you need a quick way of reloading the program for debugging after each patch, well give this method a try, its fun if nothing else!!!!!!!!!

Ken Grey.

ANOTHER EDITOR/ASSEMBLER FOR THE MODEL III

One of our local members, David Allerton-Austin, has been using the Misosys Editor/Assembler for some time, and tells me he is very satisfied with it. I have glanced through the documentation and it appears to have most of the features of Zen (sorry about that, Laurie!), plus the inclusion of all the more useful ROM and DOS calls, so that you can use them without having to define them at the beginning of your program. No macros, or relocatability, but you can't have everything. I will try to get David to write a proper review.

Leon Heller

NEW SYSTEMS FROM TANDY

Whilst I was at the Which Computer? show in at the N.E.C., Birmingham, a message came to the Tandy stand from Fort Worth announcing the introduction of a 16-bit system based on the Motorola 68000 processor. It will be an upgrade of the Model II, as I suggested a long time ago. According to Nick Robinson, Tandy will also be introducing a multi-user system based on the 68000, with an ARCNET interface, and up to 40 Mbytes of hard disk storage.

Leon Heller

SOFTWARE REVIEW - B17

Would you believe that a tape-based TRS-80 Model I was capable of loading and saving programs at more than three times the normal speed? I certainly wouldn't have believed it before I discovered 'B17'.

I am writing this letter using Scripsit, which took a mere 54 seconds to load instead of the normal time of 2 minutes 47 seconds. Programs which I use often, such as Sargon II and EDTASM+, now load in one-third of the usual time, and BASIC programs load in almost one quarter of the time which they previously took.

B17 consists of two program modules, one for BASIC programs and one for System (machine code) programs. Both modules allow the user to make tape copies of programs which will then load much faster than before. A special header is attached to the saved program to allow it to be loaded into the computer under the SYSTEM command and with a filename, even if it is a BASIC program. This means that B17 does not have to be present in memory when a B17-saved program is loaded. In addition, machine-code programs are automatically started as soon as the loading has finished; that is, you do not have to type a '/' in reponse to the second '*?' prompt.

But that is not all: the BASIC module also allows the use of the terms PUT and GET to save and load numeric and string arrays much faster than the normal Level II PRINT#-1 and INPUT#-1 commands. I have not as yet fully explored PUT and GET, but, according to the instructions supplied with B17, a 1000-element integer array can be saved or loaded in ten seconds! Why buy disks? Being remarkably easy to use, small in size and allowing verification of a saved program, B17 is a very attractive and useful utility to the frustrated (every?) tape-user. B17 is available from ABS Suppliers, P.O. Box 8297, Ann Arbor, Michigan 48107, U.S.A. (Tel. 313 971-1404).

One more thing: is anyone out there using Tiny Pascal on a 16K system? I have written one or two little programs and have developed a machine-code routine for making source-code listings on a printer (a facility not available with Tiny Pascal). If anyone would be interested in exchanging ideas or programs please get in touch with me.

Ernest Bebbington,
82 Hornsey Lane,
London N6 5LU.
Tel. 01-263 6760

E D U C A T I O N A L
S O F T W A R E
R E V I E W

By Dave Futcher

W O R D W A T C H

The review that follows is my first look at a whole range of American educational software now being imported into the U.K. by

CALISTO COMPUTERS LTD.
of
119, Bright Street,
BIRMINGHAM, B1 1BE

All the material is published and produced in New Hampshire in the U.S.A. by one of the biggest software distributers worldwide -- INSTANT SOFTWARE.

This review will look at a package of four programs called WORDWATCH. The have been particularly designed for the TANDY TRS 80. The programs included in the package are

WORD RACE
HIDE 'N' SPELL
SPELLING BEE
SPELLING TUTOR

It is quite obvious from the title of the package and the program names that Instant Software have moved into the area of language games. Unfortunately though the package contains three spelling programs.

Lets look at what is on offer.

WORD RACE

In this program two children can complete to define words. A useful task in itself, but made all the more interesting by the use of a graphics game situation. The players complete by choosing the correct meanings of words from a display on screen. The player with the correct response then sees their car move accross the screen, nearer to the checkered flag. The screen display shows a word and four possible definitions, and the children playing have to 'race' by pressing their

response key (at either side of the keyboard Q for one player and P for the other). The person who responds first then can go on and define the word on screen by pressing A B C or D. If it is a correct response their car moves one space forward; if it is a wrong response their car moves back one space.

Both the above phases of the program have timing loops that can be easily altered depending how long the teacher wishes the user to have for answering.

The program came with far too difficult definitions fo me, let alone the children, but they were easily to alter by adapting data statements within the program. We soon set about customizing programs for different age ranges and situations.

I think that WORDRACE is the best program in the package being reviewed in this article. It certainly appealed to the children and the idea of racing their car did provide an incentive to them. Although when one considers the graphics that have been used by some authors in recent months the cars do lack the treatment that they could have had.

HIDE 'N' SPELL

Hide 'N' Spell was written to help Primary pupils increase their spelling ability. The aim is to encourage the spoting of the misspelt word. The game centres arround a display of four changing words, one of which is spelt incorrectly.
First the child is asked which word from the four is incorrect and then you are asked to type it in correctly. The faster that you find the hidden word the higher the score that you gain.

Once again the program is much more use when it ahs been altered to suit the level and experience of the children using it. This Just requires the alteration of data lines.

SPELLING TUTOR

This program is described as a program "to help students learn to spell". Whether anything, even a computer program is capable of such a task I doubt it. Instead we have a program that is really a spelling driller.

The teacher types in up to fifty words following prompts from the program. The child is then presented with the words in three different ways. First each word is presented backwards; next, the word is spelt with asterisks replacing some of the letters; and finally the computer substitutes alternate vowels for the correct vowels in the word. Each time the child has to

spell the word correctly.

This program was the weakest of the bunch. It did not appeal to teacher or children, in fact it confused the children completely and they wondered what was going on. As well as the preoccupation on confusing and muddling spellings the program had a serious weakness in it scrolling display.

SPELLING BEE

This was a unique program that sought to link the computer and it's cassette recorder, together to provide a voice. Spelling Bee is thus lifted out from the other two spelling programs in this package and the many, many that are for sale or home brewed.

The words to be spelt are presented audibly using the computer's cassette recorder. Upon hearing the the word being spoken the child has to type in the word using the keyboard, the computer then compares the entry with the original word and the child is told whether it is right or wrong. If it is wrong clues are given

- too long
- too short
- right length but some wrong letters

At the end of the session the program lists up the childs mistakes in three categories.

I have seen one other program that uses this cassette voice system for sound. That was written by a teacher and although it was impressive it did not have the techniques built in that this Instant Software prodram does. Particularly good is the crucial timing that turns on and off the cassette relay after each word has been said. Even the most inexperienced teacher to computing could be lead through the setting up the tape and sound sequence. Everything has been thought of, especially delays for the leader tape, and enough time for speaking. The program was tested with two commonly used TRS 80 tape recorders --- CTR-41 and CTR-80 and excellent results were obtained.

WORDWATCH comes with a small but comprehensive instruction booklet which describes how to run each program as well what the aim of each of the program. The documentation was extremely well printed and produced but was outstandind in the way full details on how to customize each program was given. Other publishers and authors should take note of this!

My tape caused me no trouble in loading, unlike some that we receive from the USA.

EDUCATIONAL SOFTWARE REVIEW

The WORDWATCH package is sold for £6.50 which is extremely good value, even if you feel that some some of the programs in the package and not really suitable for your work in schools. I would still consider it a good buy for two of the programs - WORD RACE and SPELLING BEE.
Both of which have been put into good use in recent weeks at our school with a wide variety of children from different age ranges.

There is plenty of room for the development of programs in the area of Language and lets hope that in near future that authors and Software Houses will move into this area and begin to fill the empty void we at present have.
CALISTO have gone some way by importing this package, lets hope that there will be others on the way.

DIR LLIST/BAS

```
10 CLEAR200:DEFINTF-X:DIMA$(40):X=15569:@LIST
20 A$(J)=CHR$(PEEK(X))+CHR$(PEEK(X+1))+CHR$(PEEK(X+2))
30 X=X+32
40 IFPEEK(X)=32ANDPEEK(X+32)=32ANDPEEK(X+64)=32THEN60ELSEJ=J+1
50 GOTO20
60 LPRINT:LPRINTCHR$(15);:INPUT"Enter tape name";N$:LPRINTCHR$(14);"File Directo
ry for ";N$:LPRINT
70 GOTO110
80 PRINT"Do you want to list another tape"
90 A$=INKEY$:IFA$=""THEN90ELSEIFA$="Y"ORA$="y"THEN220
100 END
110 H=0:LPRINT"Name      Ext  Entry  Start   Sectors":LPRINT
120 O=1:IFPEEK(17396)=70THENP1=31744ELSEP1=17408
130 P=P1+((O-1)*16):IFPEEK(P+15)=0THEN190
140 IFPEEK(P)<32ORPEEK(P)>122THEN200
150 FORN=PTOP+10:LPRINTCHR$(PEEK(N));:IFH=7THENLPRINT"/";
160 H=H+1:NEXTN
170 LPRINTTAB(13);PEEK(P+14)*256+PEEK(P+13);TAB(20);PEEK(P+12)*256+PEEK(P+11);
180 LPRINTTAB(31);A$(O-1)
190 H=0:O=O+1:GOTO130
200 LPRINT"Sectors Free";:LPRINTTAB(31);A$(J)
210 PRINT"The file called DIR is now being updated":@SAVE"DIR",3,17408:GOTO80
220 PRINT"Insert new tape and press any key to list it"
230 A$=INKEY$:IFA$=""THEN230ELSERUN
```

Dave Holman

SCHOOLS COUNCIL COMPUTERS-IN-THE-CURRICULUM PROJECT
MICROCOMPUTERS IN SECONDARY ENGLISH

I HAVE RECENTLY BEEN ASKED BY THE SCHOOLS COUNCIL TO DEVELOP INITIATIVES IN THE FIELD OF MAINSTREAM ENGLISH. THE USE OF MICROS IS AS YET IN ITS INFANCY IN THIS CURRICULUM AREA. ALTHOUGH MANY ENGLISH TEACHERS ARE KEEN TO EXPERIMENT, EXISTING SOFTWARE CONCERNED WITH LANGUAGE TENDS TO DEAL IN A RIGID, INSTRUCTIONAL MANNER WITH SPELLING AND GRAMMAR. THIS KIND OF SOFTWARE HAS RESULTED IN THE WIDESPREAD ALIENATION OF TEACHERS CONCERNED WITH IMAGINATIVE APPROACHES TO MIXED-ABILITY ENGLISH, WHO OFTEN ASSUME THAT THIS IS THE ONLY KIND OF MATERIAL THAT COMPUTERS CAN HANDLE.

MICROS CAN IN FACT BE CREATIVE AND LIBERATING RESOURCES FOR THE ENGLISH TEACHER, AS I HAVE ARGUED ELSEWHERE. (SEE, FOR INSTANCE, MY ESSAY IN 'NEW DIRECTIONS IN THE TEACHING OF ENGLISH' (ED. ANTHONY ADAMS, FALMER PRESS 1982)). THE SCHOOLS COUNCIL IS ANXIOUS TO FOSTER THE CREATIVE USE OF MICROS, BUT THE REAL PROBLEM AT PRESENT IS THE NON-AVAILABILITY OF SUITABLE SOFTWARE. ALTHOUGH I HAVE SUGGESTED ('EDUCATIONAL COMPUTING', NOVEMBER 1981) THAT ONE CAN USE COMMERCIAL PROGRAMS IN AN IMAGINATIVE WAY, THIS IS ONLY A SHORT-TERM STRATEGY. THERE IS AN URGENT NEED FOR PURPOSE-MADE SOFTWARE IF WE DO NOT WANT SCHOOLS EITHER TO IGNORE MICROS IN ENGLISH OR TO FILL THE VACUUM WITH PROGRAMMED GRAMMAR.

THE WELL-KNOWN ADVENTURE PROGRAMS ARE THE NEAREST I'VE COME TO FINDING A USEFUL BASIS FOR LANGUAGE ACTIVITIES, ALTHOUGH EVEN THESE ARE NOT OPEN-ENDED. THEY CAN IN FACT FRUSTRATE AN IMAGINATIVE GROUP OF CHILDREN WHOSE WAYS OF SOLVING SITUATIONAL DILEMMAS ARE NOT THOSE ENVISAGED BY THE PROGRAMMER. ANOTHER PROMISING BASIS FOR DEVELOPMENT IS THE 'ANIMAL' PROGRAM, WITH ITS ROOTS IN THE PARLOUR-GAME OF 20 QUESTIONS. IT'S AN EXCELLENT WAY TO ENCOURAGE THE INTENSIVE USE OF REFERENCE SOURCES AND TO OBLIGE GROUPS TO BECOME INCREASINGLY SOPHISTICATED IN THEIR FRAMING OF QUESTIONS.

IN SEPTEMBER LAST YEAR I TOOK MY TRS-80 TO THE NATIONAL CONFERENCE OF ENGLISH ADVISORS TO TRY TO DEMONSTRATE SOME OF THE POSSIBILITIES. MY ARGUMENTS WERE, I SUPPOSE, LARGELY A MATTER OF FAITH SINCE I COULD NOT WHOLEHEARTEDLY RECOMMEND MORE THAN A HANDFUL OF EXISTING PROGRAMS. NEVERTHELESS, THE ENTHUSIASM OF AT LEAST SOME OF THESE ADVISORS HAS SHOWN THE GROWING NEED FOR SUITABLE PROGRAMS.

I WOULD BE PLEASED TO HEAR FROM ANYONE WHO SHARES MY CONCERNS AND WHO MAY LIKE TO CONTRIBUTE IDEAS WHICH MAY ASSIST ME TO DEVELOP MATERIALS FOR THE SCHOOLS COUNCIL WHICH WILL MEET THE NEEDS OF ENGLISH TEACHERS THROUGHOUT THE COUNTRY.

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A REVIEW OF PROZAP

I purchased my copy of Prozap a couple of months ago and I have been threatening to write a brief review for a while, so here goes.

Prozap was written by Nigel Dibben of Compak fame and is available from Molimerx.

The first thing you notice in the manual is that Prozap can be set up to read a mixture of drives on the same cable, and after making your back-up copy, zapping the appropriate changes only takes a couple of minutes. At the same time you have the opportunity to set the drive stepping rate for each drive.The program lies in memory from 8000H to approx A000H so won't interfere with most DOS programs but could overlap some of your programs.

Prozap will copy all but double density and grossly improperly formatted tracks (Mr. Cooks VTOS?). There are some very nice and novel features in the program eg: typing PROZAP followed by your program filespec, Prozap will immediately enter its relative file mode, seek then display the file. At this point I must mention the one bug I have found so far, if you forget to enter the file extension to the file name when in Prozaps relative file mode (We all do it don't we) then your drives will hang up. Another feature is the system selection enabling you to specify the type of DOS eg: TRSDOS (includes Newdos,Vtos,TRSdos's .1 .2 .3), LDOS or UNKNOWN.

Entering R in the command mode takes you to the Relative File Sector mode, to access your file all you have to do is enter the file name (SEE PREVIOUS COMMENT) and Prozap will give a file map showing where, how many etc sectors the file has then hitting enter will take you to the display mode of the files first relative sector. Quick neat and easy. A sample of the display mode is shown.

```
D=00 00 1151613A 0100FC53 3555B7C4 2444CDB7    .Qa:...S5U..$D..
T=13 10 6011B064 213A63CD DE552ABA 64223660    `..d!:c..U*.d"6`
S=02 20 2A146322 3C603A17 63324260 CD46600E    *.c"<`:.c2B`.F`.
B=00 30 0A41215A 63CD3257 CD5557CD 4D60CDC8    .A!Zc.2W.UW.M`..
A=05 40 5F2813FE 062B10FE 1CCA0D55 FE1DCA0D    _(...+.....U....
     50 55CDA260 20E8AF77 DD3404CD 6B5710D8    U..` ...w.4..kW..
     60 21055422 FD54CDDB 553A3357 B720272A    !.T".T..U:3W. '*
     70 DA647CB5 20202ABC 643AB864 B720012B    .d|.  *.d:.d. .+
     80 7CA53C2B 11FDCBEA CE22DA64 CDCE5FFD    |.<+.....".d.._.
     90 CBEA8EC2 335241CD 35602163 63CD3257    ....3RA.5`!cc.2W
     A0 CD5557CD 4D607EFE 062004DD CB00C6CD    .UW.M`~.. ......
     B0 CE5FDDCB 00862805 CDA26020 E9DD3404    ....._(... `...4.
     C0 CD6B5710 DBCD3560 412A4C65 CD2C572A    .kW...5`A*Le.,W*
     D0 5265E5CD 5557CD4D 60CDC85F 2003AF18    Re..UW.M`.._ ....
     E0 0CFE062B 08CDA260 20EFE118 16BEE1C5    ...+...` ........
P___ F0 D50600ED 5B4C6520 121ABE13 23200C10    ....[Le .....# ..
```

The copy disk facility is neat and easy to use and better than most zap programs. Two facilities I really do like are the Find Byte/Word, much better than getting eye strain peering at the VDU looking for that elusive byte and the other is the ASCII modify where all you do is place the cursor over the ASCII character in the right hand column and type away. I used this facility to modify the short-hand commands in Compak to give me a permenant fix with commands that were more useful to me than those provided.

A single key stroke will give you a files hash code and the match facility will let you compare one sector with another displaying the differences. There are many useful features of this program that can not be found in any other single program and once you have the 'feel' of using Prozap it saves hours of work for the ardent disk zapper.

The manual is quite well written and not too bad to follow but do read the manual carefuly or, like me, you could make the odd mistake and get hot under the collar only to find it's you and not the program.

PROZAP'S COMMANDS
==========

```
In Command level.
   <Enter> Specify..Drive Track Sector.
     Recall Buffer.
     Copy all or part of disks.
     Load directory sector.
     Exit to DOS.
     Encipher pass word.
     Track identity check mode.
     Track/Sector usage.
     Select DOS type.
     Relative file sector mode.
     Read track into memory.
     Enter Debug.

In Display level.
     Hex modify
     ASCII modify.
     Encipher password.
     Display hash code.
     Display same track from drive n.
     Jump to byte nn.
     Display Track/Sector usage.
     Load buffer from memory
     Match mode
     Select sec   numbering limits.
     Output sector.
     Print sector to line printer.
```

```
      Relative file sector mode.
      Save sector to memory.
      Go to new sector.
      Enter Debug.
      Find byte xx.
      Find word xxxx.
      Zero bytes.
   <Clear key> Return to command level.
```

From the above you can see that PROZAP is a very versatile program with a heck of a lot of facilities. Thank you Nigel Dibben and Molimerx for the best 'zap' program I have used to date.

Ken. Grey.

ADDENDUM TO PROZAP REVIEW.
::::::::::::::::::::::::::
Since I reviewed Prozap I have been in touch with Molimerx and after carrying out further tests I can assure readers that the drive "hang-up" I have referred to in my review seems to have been an isolated case and that a return to Prozap will take place after a short delay if you forget to enter the file extension. The drives will continue to rotate without the drive lights on for a few seconds before the program returns to give you a DOS error 18 "Program not found". My thanks to Molimerx for their help over this problem.
Ken Grey.

RENAME/BAS

```
10 CLEAR200:@LIST
20  =1:IFPEEK(17396)=70THENP1=31744ELSEP1=17408
30 P=P1+((O-1)*16):IFPEEK(P+15)=0THEN70
40 IFPEEK(P)<32ORPEEK(P)>122THEN90
50 FORN=PTOP+10:PRINTCHR$(PEEK(N));:NEXTN
60 PRINTPEEK(P+14)*256+PEEK(P+13);PEEK(P+12)*256+PEEK(P+11)
70 O=O+1
80 GOTO30
90 O$=" ":INPUT"Enter old name";O$:IFO$=" ":END
100 Z$=O$:GOSUB250:O$=Z$
110 O=1
120 P=P1+((O-1)*16):IFPEEK(P+15)=0THEN160
130 IFPEEK(P)<32ORPEEK(P)>122THENPRINTO$;"is not in the Directory":GOTO90
140 FORN=PTOP+10:IFPEEK(N)<>ASC(MID$(O$,N-P+1,1))THEN160
150 NEXTN:GOTO170
160 O=O+1:GOTO120
170 INPUT"Enter new name";W$
180 Z$=W$:GOSUB250:W$=Z$
190 FORN=PTOP+10
200 POKEN,ASC(MID$(Z$,N-P+1,1))
21  NEXTN
220 ZX$=""
230 INPUT"Repeat";ZX$:IFZX$="YES"THEN20
240 INPUT"Write";ZX$:IFZX$="NO"THENENDELSE340
250 M=LEN(Z$)
260 IFM=11THEN280
270 FORN=M+1TO11:Z$=Z$+" ":NEXTN
280 FORN=1TO11:IFMID$(Z$,N,1)="/"THEN300
290 NEXTN:RETURN
300 X$=LEFT$(Z$,N-1):Y$=MID$(Z$,N+1,3)
310 IFN=9THEN320ELSEFORI=NTO8:X$=X$+" ":NEXTI
320 Z$=X$+Y$
330 RETURN
340 PRINT"The file called DIR is now being updated":@SAVE"DIR",3,17408:@LIST:END
```

Dave Holman

ATTACK FORCE.

This is an unusual space type game. When you start the game you are in a grid of white graphic blocks and you have to chase small alien ships arround the 'board'. Flag ships materialize out of nowhere and soon outnumber you. It is a very frustrating game and is too random to make it a game of skill. Yet the sound and graphics are (like all Big 5 games) very good. Probably as frustrating as the Rubik cube but more fun.

ROBOT ATTACK

This is the game that talks to you. It is a little disconcerting when you first play this game to have the computer announce the name of the game in an American accent and then proceed to tell you that you are "player one". The game takes place in a randomly generated maze and you work your way arround the maze shooting alien robots, after a number of robots have been 'zapped' they start firing back at you and the game takes on the appearance of the gun fight at the OK Corral. When all your 'lives' are exhausted you are told in no uncertain terms by that American voice that the game is over and before you type in your name the 'voice' annouces "great score player one". This is an excellent game requiring lots of skill and is great fun, certainly one of the best that Big Five produce.

Well I hope the brief reviews of the above games have whetted your appetite and after having played most of the arcade games going I can say that all the above are worth having a go at.

Ken. Grey

****

FOR SALE
========
Microline 80 printer -$230 or ono.
Printer cable (keyboard to printer) - $30
($250 the pair)
N.ROBINSON, THE RESIDENCY, NORTHWICK PARK HOSPITAL, WATFORD RD, HARROW.TEL 01 864 5311 EX 2588

****

PROBLEM-SOLVING WITH THE TRS-80

I AM A CHEMISTRY STUDENT, AND THIS ARTICLE DESCRIBES A PROGRAM THAT I WROTE TO SOLVE A PROBLEM THAT AROSE IN ONE OF MY EXPERIMENTS.

THE EXPERIMENT IN QUESTION WAS ENTITLED "ATOMIC SPECTROSCOPY". IF THIS SOUNDS OFF-PUTTING, I SHALL TRY TO EXPLAIN SIMPLY. IN THE LAB I HAD A SODIUM LAMP WHICH IS BASICALLY THE SAME AS ANY ORANGE STREET LAMP. THE LIGHT FROM THIS WENT INTO A "SPECTROMETER", JUST A BLACK BOX WITH A FEW KNOBS AND DIALS ON THE SIDE, WHICH ONLY LETS THROUGH LIGHT OF ONE WAVELENGTH AT A TIME. YOU CAN SET IT TO ONE WAVELENGTH, AND THEN START ITS MOTOR, WHICH CONTINUOUSLY ALTERS THE WAVELENGTH OF LIGHT THAT IT LETS THROUGH, RECORDING THE AMOUNT OF LIGHT OF THIS WAVELENGTH ON A STRIP OF GRAPH PAPER WITH A PEN RECORDER.

ON THIS SHEET OF PAPER, THE TRACE SHOWS SEVERAL DISTINCT PEAKS, WHICH MEANS A LOT OF LIGHT IS GIVEN OUT AT JUST A FEW SPECIFIC WAVELENGTHS. THE REASON FOR THIS IS AS FOLLOWS: LIKE EVERYTHING ELSE, SODIUM IS MADE OUT OF ATOMS; EACH ATOM CONSISTS OF A NUCLEUS SURROUNDED BY A CLOUD OF ELECTRONS, EACH ELECTRON BEING AT A SPECIFIC "ENERGY LEVEL". IN THE SODIUM LAMP, ELECTRICITY IS PASSED THROUGH SODIUM VAPOUR. THIS "EXCITES" SOME OF THE ELECTRONS, AND THEY JUMP TO A HIGHER ENERGY LEVEL. WHEN THEY RETURN TO THEIR OLD ENERGY LEVEL, THEY MUST LOSE THIS EXTRA ENERGY, WHICH THEY DO BY EMITTING A "PHOTON", A SORT OF LIGHT PARTICLE (THE SAME THING HAPPENS IN "FLAME TESTS", WHICH MOST PEOPLE MUST HAVE DONE AT SCHOOL; WHEN YOU PUT SOME SALT IN A BUNSEN BURNER FLAME, YOU GET THE SAME ORANGE COLOUR AS THE STREET LAMPS)

THE FREQUENCY OF THE LIGHT PRODUCED IS PROPORTIONAL TO THE ENERGY OF EACH PHOTON (THE ENERGY LOST BY THE ATOM) AND IS GIVEN BY:-

```
V=R(1/(NA-DELTA A)**2 - 1/(NB-DELTA B)**2)
```

R IS A CONSTANT, CALLED THE RYDBERG CONSTANT (OF SODIUM, IN THIS CASE). EACH HALF OF THE EXPRESSION IN THE BRACKETS IS PROPORTIONAL TO THE ENERGY OF THE UPPER AND LOWER ENERGY LEVELS, RESPECTIVELY, THAT THE ELECTRON MOVED BETWEEN (THIS JUMPING BETWEEN ENERGY LEVELS IS CALLED A TRANSITION). NA AND NB ARE CALLED THE "QUANTUM DEFECTS" OF THE ENERGY LEVELS A AND B; THESE ARE THERE BECAUSE THE ENERGY OF AN ENERGY LEVEL IS AFFECTED BY ALL THE OTHER ELECTRONS IN THE ATOM; THEY ARE THERE FOR ALL ATOMS WITH MORE THAN ONE ELECTRON. THE PURPOSE OF THE EXPERIMENT IS TO FIND THEM.

THERE ARE NOT MANY PEAKS ON THE GRAPH, AND THERE ARE THREE MAIN GROUPS, CORRESPONDING TO THREE "SERIES" OF TRANSITIONS, DESCRIBED BY THREE EQUATIONS LIKE THE ONE ABOVE. IN THE FIRST, YOU HAVE DELTA D, WHICH IS VERY CLOSE TO ZERO AND CAN HENCE BE IGNORED, AND DELTA P. BY "PLUGGING IN" THE FREQUENCIES OF TRANSITONS (IN RECIPROCAL CENTIMETRES, GIVEN BY:

```
V=10E7/WAVELENGTH
```

YOU CAN WORK OUT THE VALUE OF THE OTHER ONE (DELTA P) BY A METHOD CALLED "LEAST SQUARES". IN THE SAME WAY, YOU PLUG THIS DELTA P VALUE INTO THE EQUATION OF THE SECOND SERIES, TO GET THE SECOND ONE, DELTA S. BUT YOU HAVE A THIRD SERIES, WITH BOTH DELTA S AND DELTA P IN ITS EQUATION. YOU HAVE TO SEE IF THE FREQUENCIES YOU GET BY PLUGGING IN THE DELTA S AND P VALUES AGREE WITH THE ONES YOU ACTUALLY GET ON THE GRAPH. IF YOU DON'T, THEN YOU ARE SUPPOSED TO DO THE FOLLOWING: TAKE THE DELTA P VALUE TO DETERMINE FOUR NEW DELTA S VALUES; THEN TAKE THE MEAN AS THE NEW DELTA S, AND USE THIS TO FIND A NEW DELTA P IN THE SAME WAY; THEN SEE IF THE FREQUENCIES THEY GIVE AGREE WITH THE OBSERVED ONES AND IF NOT, REPEAT THE PROCESS. THIS IS WHAT THE FOLLOWING PROGRAM DOES.

NEVILLE SMITH 0908-568960

```
10 ' THIS PROGRAM FINDS CONSISTENT VALUES OF DELTA P & DELTA S
20 '
30 ' DIMENSION ARRAYS
40 DIM V(4),V1(4),V2(4),P(4),S(4)
45 'R IS THE RYDBERG CONSTANT FOR SODIUM
47 R=109792.73
50 '
60 'SET ARRAY V(I) TO CONTAIN THE OBSERVED FREQUENCIES
70 'OF THE S-SERIES TRANSITIONS IN RECIPROCAL CMS.
80 '(CORRECT TO 5 SIG.FIG.)
90 V(1)=8701.7
100 V(2)=16234.0
110 V(3)=19380.0
120 V(4)=21053.0
130 '
133 'MAKE THE V2(I)'S LARGE
135 FOR I=1 TO 4:V2(I)=1E38:NEXT I
140 'SET S,P TO THE VALUES OF DELTA S & P OBTAINED BEFOREHAND
150 '(BOTH TO 4 SIG.FIG.)
160 S=1.374
170 P=.8829
180 '
210 INPUT"TYPE IN ERROR LIMIT";L
220 '
230 'ZERO C, WHICH COUNTS THE NO. OF TIMES A NEW SET OF S
240 'AND P VALUES ARE FOUND
250 C=0
260 '
270 '
280 '
290 'THIS ROUTINE TESTS IF THE PRESENT SET OF DELTA P & S
300 'VALUES CAN BE CONSIDERED ACCURATE ENOUGH TO ACCEPT
310 'THEM AS ANSWERS TO THE PROBLEM
320 '
330 'T IS THE NO. OF APPROXIMATIONS TO THE OBSERVED S-SERIES
340 'FREQUENCIES OUT OF THE FOUR PRODUCED EACH TIME, WHICH
350 'CAN BE CONSIDERED GOOD ENOUGH
360 T=0
365 LPRINT"ITERATION NO. ";C+1
370 'GO THROUGH THIS LOOP 4 TIMES, EACH TIME GENERATING AN
380 'APPROXIMATION AND TESTING IT
390 FOR I=1 TO 4
400 'FIND THE APPROXIMATION, V1(I), TO THE ITH OBSERVED
410 'FREQUENCY
415 'NOTE THAT THE QUANTUM NO. NB IS GIVEN BY I+3
417 NB=I+3
420 V1(I)=R*(1/(  ))[2-1/(NB-S)[2)
430 'FIND E, THE ERROR IN THIS COMPARED TO THE OBSERVED
```

```
440 'VALUE, V(I)
450 E=ABS(V(I)-V1(I))
455 LPRINT"E(";I;")=";E
460 'IS IT SMALL ENOUGH TO MAKE V1(I) AN ACCEPTABLE
470 'APPROXIMATION?
480 IF E>L THEN 500
490 'T, THE NO. OF ACCEPTABLE VALUES, GOES UP BY 1
495 T=T+1
500 'IF THE ERROR THIS TIME IS BIGGER THAN THE
510 'ERROR OBTAINED LAST TIME ROUND THEN YOUR NEW
520 'SET OF DELTA S & P VALUES ARE LESS ACCURATE
530 'THAN THE LAST SET, SO STOP THE PROGRAM
540 IF E<V2(I) THEN GOTO 560
550 LPRINT"THE APPROXIMATIONS ARE DIVERGING":END
560 V2(I)=E:NEXT I
570 '
580 'WERE ALL ERRORS ACCEPTABLY SMALL? IF SO, GO TO
590 'PRINTOUT ROUTINE, THEN END PROGRAM
600 IF T=4 THEN 1000
610 '
620 'END OF TEST ROUTINE
630 '
640 '
650 '
660 'THIS ROUTINE FINDS A NEW SET OF DELTA S & P VALUES
670 '
680 'ZERO M, USED AS A TOTAL OF VALUES FOR FINDING THEIR MEAN
690 M=0
700 'NO. OF NEW SETS OF DELTA S & P VALUES GOES UP BY 1
710 C=C+1
720 'USE THE PRESENT DELTA P TO FIND NEW DELTA S
730 FOR I=1 TO 4
740 'FIND THE ITH NEW DELTA S, S(I), GIVEN THE OBSERVED
750 'ITH TRANSITION FREQUENCY, V(I)
753 NB=I+3 'SINCE I=1 TO 4, NB=4 TO 7
760 S(I)=NB-1/SQR(1/(3-P)[2-V(I)/R)
770 'ADD IT TO THE TOTAL, M
780 M=M+S(I)
785 NEXT I
790 'NEW DELTA S VALUE, S, IS MEAN OF THE S(I) VALUES
800 S=M/4
820 'USE THIS NEW DELTA S VALUE TO FIND P, THE NEW
830 'DELTA P VALUE
833 'ZERO M
835 M=0
840 FOR I=1 TO 4
850 'FIND THE ITH NEW DELTA P, P(I), GIVEN THE OBSERVED
860 'FREQUENCY, V(I)
865 NB=I+3 'SINCE I=1 TO 4, NB=4 TO 7
870 P(I)=3-1/SQR(V(I)/R+1/(NB-S)[2)
880 'ADD THIS P(I) TO THE TOTAL, M
890 M=M+P(I)
900 NEXT I
910 'THE NEW DELTA P VALUE IS THE MEAN OF THE P(I) VALUES
920 P=M/4
930 '
940 'TEST THESE NEW DELTA S & P VALUES FOR ACCEPTABILITY
950 GOTO 360
990 'THIS ROUTINE PRINTS OUT CORRECT ANSWERS
1000 LPRINT"CONSISTENT VALUES HAVE BEEN OBTAINED"
1010 LPRINT"DELTA S=";S;";DELTA P=";P
1020 PRINT
1030 LPRINT"NO. OF NEW SETS OF DELTA S & P VALUES FOUND=";C
1040 '
1050 'END OF PROGRAM
1060 END
6000 SAVE"RYDBERG9
6001 END
```

```
ITERATION NO. 1
E( 1 )= 127.441
E( 2 )= 88.8428
E( 3 )= 14.7695
E( 4 )= 25.998
ITERATION NO. 2
E( 1 )= 38.3516
E( 2 )= 30.8486
E( 3 )= 8.91016
E( 4 )= 16.4941
CONSISTENT VALUES HAVE BEEN OBTAINED
DELTA S= 1.35953 ; DELTA P= .882543
NO. OF NEW SETS OF DELTA S & P VALUES FOUND= 1
```

Orchestra-80 and the Video Genie

Quite a few people know that I am a computer music 'buff' from my lectures at Milton Keynes workshops and that I have a four voice music synthesis system called 'Orchestra-80'.This system consists of a digital/analogue converter which plugs onto the keyboard extension bus or the parallel printer port on the expansion interface and some very sophsticated software for producing the four music voices.Orchestra -80 produces four voices in mono sound which are designated to sound like a trumpet,oboe,clarinet & pipe-organ and was designed by Jon Bokelman and is distributed by Software Affair in Santa Clara,California.

Orchestra-80 is designed to work specifically on a Model I and software for tape and disk operation is provided.After purchasing this system from the 'States on Barclaycard it was easily set up and running on Brian Pain's system.
Some months after acquiring the above I decided to go into the computer market myself and after losing a good offer on a 16K system I decided a Video Genie was the best alternative.I subseauently purchased a "VG" from Alan Cave of Cavern Electronics in Milton Keynes and realised that I could not operate my Orchestra-80 on the "VG" due to the 50-way bus extender.After asking around as to the availability of a 50/40 way converter I was told that Lowes' had one on the market for around £30 and then Ken Robinson said that he thought Eric Hartley had made one of these converters.Eric was then contacted regarding this and he said that he would make me a converter for my purposes which I duly received a few days before Christmas at a cost of £17.Eric's converter consists of a 50-way female connector linked to a 40-way female connector which will fit onto a Tandy expansion interface.An extra which I needed to run the 'Orchestra-80' was a male connector board which Eric also built for me.

On receiving this converter I was eager to 'get to keyboard and compose' as they say but on linking all pieces to the 'VG' it was found that some signals were getting through to the amplifier but were not the correct output.Eric suggested in the instructions which he supplied that I might need the signals 'Mux,Cas,In & Out' brought from the CPU board to the expansion connector on the back of the 'VG'(for details of VG/Tandy expansion connector signals see Ken Robinsons' article in a recent newsletter).Being downright diabolical when it comes to soldering I took my 'VG' to Alan Cave for the necessary work and after he had done this I am happy to say that 'Orchestra-8 now works perfectly well on my 'VG'.

Software Affair have now brought out an updated 'Orchestra-80' with stereo output called 'Orchestra-85' which I am considering purchasing in the near future meaning that I shall be able to sell my 'Orchestra-80' and an advert will appear when this occurs.My thanks to Eric Hartley,Ken Robinson & Alan Cave in getting 'Orchestra-80' running on a Video Genie.

Clive Keech
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P.S. If any one would like a complete review of Orchestra-80 I will write one for a future newsletter.(Please contact me)

Some More on Assemblers.

It seems that no two people will agree on an assembler as everyone expects a different job from them. I have just switched from using an EDTASM based assembler (EDTASM +) to using the ZEN assembler. Zen has some minor features which give it a real advantage over both Macro-80 and EDTASM.

Zen allows labels to be of almost any length, rather than the usual six character labels. On a short program this may not seem a great advantage but on a longish program it can make the code much more readable.

To show what I mean I enclose an excerpt of a program I have just finished. The program is to big to use with EDTASM
and I had to use Zen for it. You will see that the long label names make understanding the program much simpler, even without comments as in this example.

For those who are curious the source code is from a new program for copying and repairing disks of all types,varieties and breeds whether normally copyable or NOT !!!

The Zen source file size is rather smaller than that of
the other Assemblers I have not really found this a very great advantage as Disk Zen is able to assemble very large source files direct from disk without loading the whole lot into memory.

John Newgas

NEWDOS 80 version 2 & Double Density

These are some quick thoughts after first use of NEWDOS 80 version 2. As double density is one of the most recent innovations for the Model 1, I would like to suggest that the User Group could be used as a forum to swap actual field experience.

My own system consists of one Micropolis 77 track system and two 35 track drives. With the CK option I can not obtain more than 35 tracks on the 35 track drives but 80 tracks on the 77. My own system uses the AEROCOMP board but I have also used a system with both the early and latest PERCOM boards.

From my own use I have gleaned the following:-

1) The earlier PERCOM doubler boards are not reliable neither are the DBLDOS patches.

2) Limited use was made of DOSPLUS but the experience was disappointing. With the same double density board (The latest PERCOM board), many data errors occurred with DOSPLUS but were not repeated with NEWDOS80 version 2.

3) No data errors have been encountered with the AEROCOMP board even at NEWDOS80's sensitive setting. I have tried NEWDOS80 with the latest PERCOM board and there were some problems. As the discs were created on my system, I am not sure whether this indicates a design weakness in the latest PERCOM board or whether double density discs can not be switched between different doubler systems - thoughts please ?

How compatible

NEWDOS80's BASIC present no problems but patches are required and supplied for Pencil, Scripsit and Visicalc.

The Mini-Dos feature activated by the DFG keys provides a useful enhancement to these packages in that a limited range of DOS facilities are made available e.g. inspect disc directory from Scripsit.

However neither Visicalc nor Pencil will provide their internal directory displays and the DFG feature in Pencil only operates during disc I/O. However the worst problem is that Pencil suffers from DOS error 33 on file saves. I have just written to Apparat as patches must be available ? and any help in the meantime would be much appreciated.

The disc gains far outweigh these problems in that disc

space can be significantly increased using the standard 35 track drives with double density and this should be doubly (Sorry!) attractive as 35 track drives should be available at very reasonable prices on the second hand market.

Summary of disc space (in granules)

Tracks	SD	DD
35	67	123
80	157	285

NEWDOS 80 is noticeably faster than TRSDOS in all disc operations so there is a speed as well as space gain. If you are considering Model 3 then as things stand a second hand NEWDOS 80 model 1 running double density may well be a cheaper alternative and if you already have a model 1 then no contest!

I have also had a brief look at the overlay facilities now present within NEWDOS80's BASIC. These facilities allow large programs to be broken down into smaller modules which can then be merged from disc as and when required. The implementation is excellent and the overlay delay is almost unnoticeable. I have just finished work on a Model 2 system where this feature alone would have been extremely welcome.

After only a relatively low amount of use, there is little doubt that NEWDOS80 tranforms the model 1 into a machine that can in many areas exceed both the Model 3 and Model 2. However if you can afford the price the Model 2 remains startling in terms of both its speed and disc capacity. However, there are now a lot of new systems which are beginning to make the TRS-80 range look both dated and expensive!. It is time for TANDY to produce a 16 bit model 4 with multi-user & high resolution graphics at the same price as their Model 2. Such is progress.

Derrick Rowe

CERTIFY/BAS

```
10 CLS:DEFINTA-S,U-Z:PRINT@23,"Tape is Formatting"
20 FORQ=1TO3
30 @NEW:@LIST
40 Y=100*(PEEK(15633)-48)+10*(PEEK(15634)-48)+PEEK(15635)-48
50 POKE17423,3:FORZ=0TO10:POKE(Z+17408),32:NEXTZ
60 CLS:PRINT@23,"Tape Format":PRINT@273,"There are "Y" sectors
70 FORX=0TOY-1:@GET,X:PRINT@343,"Sector ";X+1:NEXTX
80 FORX=0TOY-1:@GET,X:PRINT@407,"Sector ";X+1:NEXTX
90 POKE17423,0:PRINT@465,"Format No.";Q;"completed"
100 NEXTQ
110 @SAVE"DIR",3,17408
120 K=0:@LIST
130 J=INP(240):IFJ=127THEN140ELSEK=K+1:GOTO130
140 CLS:T(I)=K/Y:I=I+1:IFI=10THEN150ELSEGOTO120
150 FORR=0TO9:TT=T(R)+TT:PRINT"Index Number";R+1;"is";T(R):NEXT:PRINT:PRINT"Aver
age speed index is";TT/10
```

Dave Holman

NOTES FOR BEGINNERS (PART 2)

UPPER AND LOWER CASE

THE MODEL I, UNMODIFIED, TYPES ONLY CAPITAL LETTERS. SHIFT LETTERS APPEAR AS CAPITALS BUT ARE REMEBERED BY THE LOWER CASE ASCII CODE. THEY ARE INTERPRETED AS CAPITAL LETTERS EXCEPT

------ WHEN THEY ARE WITHIN STRINGS (IN QUOTES)

USE THE UNSHIFTED CHARACTER INSIDE THE QUOTES SO WHERE COMPARISON IS MADE WITH INPUT IT IS ESSENTIAL TO

```
N       PRINT"TYPE  Y  FOR YES
N+10    INPUT"TYPE  N  FOR NO ";A$
N+20    IFA$<>"Y"ANDA$<>"n"THENPRINT"PLEASE TYPE
         Y  OR  N  NOT  ,";A$:GOTO N
```

IF YOU HAD TYPED SHIFT2 SHIFTN SHIFT2 THEN THE MACHINE WOULD REMEMBER LOWER CASE N. tYPING CAPITAL N WOULD RESULT IN

```
PLEASE TYPE  Y  OR  N, NOT N
TYPE  Y  FOR YES
TYPE  N  FOR NO ?
```

THIS CAN BE BAFFLING AT FIRST SIGHT

LOOPS

A LOOP OF THE FORM FORI=ATOB:NEXTI ENDS WITH I=B+1 WITH NEWDOS+. SO IF YOU WISH TOUSE THE VALUE OF I AGAIN IN THE PROGRAM YOU NEED TO ADD i=I-1. BETTER STILL USE B

I MUST HAVE A VARIABLE NAME WITHOUT A SUBSCRIPT
A AND B MUST NOT BE DOUBLE PRECISION

NEXT ALWAYS REFERS TO THE LAST ENCOUNTERED FOR... IN THE PROGRAM. THE VARIABLE AFTER THE NEXT IS REDUNDANT AS FAR AS THE MACHINE IS CONCERNED BUT SHOULD BE INCLUDED TO HELP CHECKING THAT YOUR LOOPS ARE PROPERLY NESTED. GIVEN ENOUGH MEMORY IT HELPS TO INDENT EACH ONE A LITTLE MORE THAN THE LAST:

```
100     FORQ1=ATOB                'FIRST LOOP STARTS
110         FORQ2=CTOD            'SECOND LOOP STARTS
120                 FORQ3=ETOF    'THIRD LOOP STARTS
                    .......
                    .......
190                 NEXTQ3        'THIRD LOOP ENDS
200         NEXTQ2                'SECOND LOOP ENDS
210     NEXTQ1                    'FIRST LOOP ENDS
```

JUMPING OUT OF A LOOP WILL CAUSE TROUBLE UNLESS YOU TERMINATE THE LOOPS BEFORE DOING SO. THUS IN THE EXAMPLE ABOVE:

```
150                 IF CONDITION THEN Q3=F:NEXT
160                 Q2=D:NEXT:Q1=B:NEXT:GOTO ....
```

EACH NEXT WILL RETURN THE PROGRAM TO THE CORRESPONDING FOR..., FIND THAT THE FINAL VALUE HAS BEEN REACHED,

```
                BY MAKING ALL TEMPORARY LINES INSET
                        AND MARKED '<<<<<<<<<
                BY CATALOGUING TEMPORARY LINES IN LINE 1

          1 CLS:PRINT"TEMPORARY LINES 99 101 ...."
         10 ON ERROR GO TO 1000
         20 GOTO90
         30 'GOTO LINES ENDING IN 9 FOR ORIGINS OF THIS
                                                  GOSUB
         40 PRINT" A$ B$ ........";A$;" ";B$
            .....
            .....
         90 REM INPUT"TYPE YOUR NAME";N$
         91 A$="GEORGE"'<<<<<<<
         99 GOSUB30'<<<<<
        100 REM INPUT "TYPE YOUR HOUSE NAME OR NUMBER";B$
        101 B$="DULCE DOMUM"
        109 GOSUB 30
APOSTROPHE CAN BE USED INSTEAD OF REM BUT MAY NOT SHOW
UP WELL ENOUGH IN THIS PRINT. LOOK AT '<<<<< TO SEE.

ELEGANT STRUCTURE ALSO HELPS. I AM STILL SEEKING A GOOD
BOOK ON THIS.   ANY IDEAS PLEASE ?

ONE PRINCIPLE IS THAT THE PROGRAM SHOULD BE LOGICAL
AND THE FORMAT SUCH AS IT CAN BE READ THROUGH EASILY.
GOTO COMPLICATES THIS AND SHOULD ONLY BE USED FOR
MULTIPLE BRANCHING AS AFTER A MENU, OR FOR SHORT LEAPS
WITHIN THE PROGRAM.
GOSUB IS CONSIDERED PREFERABLE SINCE THE PROGRAM RETURNS
TO THE LINE CONTAINING GOSUB.

GOTO AND GOSUB BOTH HUNT FOR THE LINE NUMBER STARTING
FROM THE PROGRAM START. RUNNING TIME CAN THUS BE SAVED
BY PUTTING GOSUBS AT THE START OF THE PROGRAM. A
(PERMISSIBLE) GO TO THEN TAKES THE MAIN PROGRAM PAST
THEM AS IN LINE 20 ABOVE.

eQUALS SIGN
===========
NOTICE THE DIFFERENT MEANING FROM CONVENTIONAL SUMS.
IN COMPUTING THE VARIABLE ON THE LEFT TAKES THE VALUE
DETERMINED BY THE CALCULATION TO THE RIGHT OF THE SIGN.
SO IT CAN BE USED FOR COUNTING, OR ACCUMULATING TOTALS
          N  COUNT=COUNT+1
          N    A  = A + B

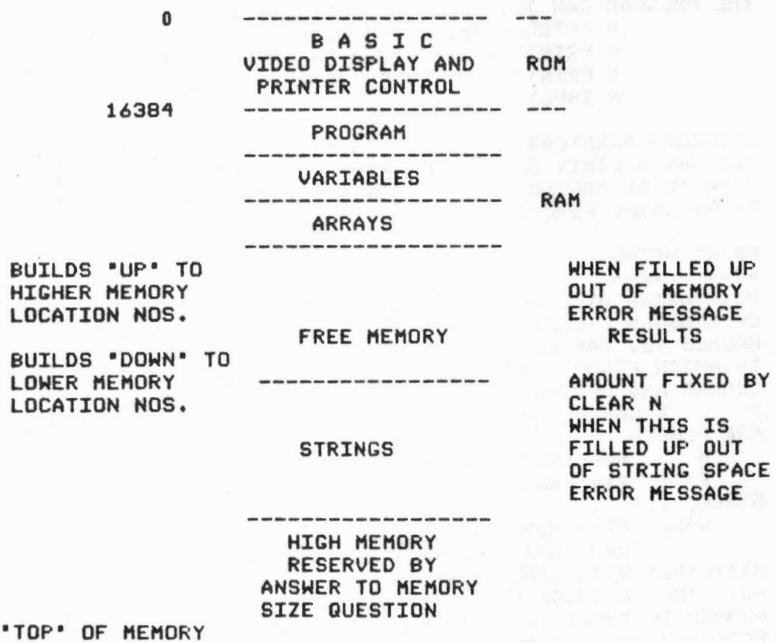
ZERO
====
ZERO BEST WRITTEN AS 0 TO DISTINGUISH IT FROM LETTER O
IS PERMISSIBLE AS THE FIRST LINE NUMBER (THOUGH SELDOM
SO USED), THE FIRST SUBSCRIPT IN AN ARRAY AND AS A TAB
NUMBER.
ZERO IS NOT ACCEPTABLE AS THE VARIABLE IN AN ON X GO TO
FUNCTION WHERE IT GENERATES A SYNTAX ERROR MESSAGE.
```

NOR CAN IT BE USED AS THE FIRST PHYSICAL RECORD IN A DISC FILE, THE FIRST OF WHICH IS 1. SO IS THE FIRST LINE NUMBER FOR THE TOP OF PAGE FUNCTION LPRINTCHR$(11) WHICH MAY BE SEEN BY PRINT PEEK(16425).

MEMORY STRUCTURE
================
STRINGS ARE SAID TO BE STORED AT "TOP OF MEMORY", SPACE FOR MACHINE LANGUAGE PROGRAMS IN "HIGH MEMORY" AND PROGRAMS TO BUILD UP FROM THE BOTTOM". NONE OF THE BOOKS FINDS IT NECESSARY TO EXPLAIN THAT BUILDING "UP" IS SHOWN DIAGRAMMATICALLY AS GOING DOWN THE PAGE.

MEMORY LOCATIONS NUMBERED FROM 0 TO 16384 IN THE READ ONLY MEORY (ROM) AND MAY BE DETERMINED BY ?PEEK(NUMBER) BUT CANNOT BE CHANGED BY POKEING.
FROM 16385 ONWARDS, ACCORDING TO MEMORY SIZE OF THE RANDOM ACCESS MEMORY (RAM), THE NUMBERS RUN UP TO A TOTAL EQUAL TO THE 16k IN ROM + THE K IN THE RAM. WHERE K HAS, NOT ITS USUAL MEANING OF 1000, BUT 2^10 = 1024

VALUES IN RAM MAY BE INSPECTED BY ?PEEk(NUMBER) AND CHANGED BY POKE NUMBER, VALUE. NOTE THE BRACKETS AFTER PEEK BUT NONE AFTER POKE.



RETURN THE PROGRAM TO THE INSTRUCTION FOLLOWING THE RESPECTIVE NEXT AND SO ON

STACKS

STACKS ARE PLACES IN HIGH MEMORY WHICH CAN BE CONSIDERED AS PILES OF REFERENCES TO THE PLACES WHERE, FOR EXAMPLE FOR...NEXT LOOPS START. EACH SUCCESSIVE FOR... ADDS ANOTHER NUMBER TO THE TOP OF THE STACK. THEY ARE TAKEN OFF AGAIN WHEN THE FOR..NEXT LOOP IS COMPLETE. HENCE THE NEEDS FOR NESTING LOOPS AND THE CONFUSION IF YOU FAIL TO DO SO.

PRINT & LPRINT

PRINT MOVES THE CURSOR TO THE NEXT LINE BUT LPRINT AND LPRINT"" DO NOTHING. uSE LPRINT" " LPRINT DOWN ARROW OR LPRINT CHR$(10) OR CHR$(13)

IF THE PROGRAM REACHES AN LPRINT WITH THE PRINTER SWITCHED OFF THEN THE PROGRAM WILL HANG UP. WHENEVER IT DOES TRY SWITCHING ON THE PRINTER. FINGER TROUBLE OR KEYBOARD BOUNCE COULD HAVE MADE A LIST INTO LLIST OR PRINT INTO LPRINT

THE PROGRAM CAN TEST FOR THE PRINTERS BEING ON

```
          N IFPEEK(14312)<>63THENCLS:PRINTCHR$(23)
          N PRINTTAB(4)"SWITCH ON PRINTER":PRINT
          N PRINTTAB(4)"PRESS <ENTER> TO CONTINUE
          N INPUT Z$:CLS
```

ALTHOUGH PRINTERS ACCEPT UP TO 132 CHARACTERS PER LINE TAB HAS A LIMIT OF 63. SO PRINT POSITIONS BEYOND TAB(63) HAVE TO BE PADDED OVER WITH BLANKS, STRING$(X," ") OR PRINT USING FUNCTIONS

PRINT USING

PRINTUSING WILL REPEAT ANY COLLECTION OF LETTERS, NUMBERS OR SYMBOLS EXCEPT " ! £ % AND COMMAS IF ADJACENT TO £ . HASHES (£) CAN BE USED TO SPECIFY THE NUMBER OF SPACES IN WHICH FIGURES ARE PLACED WITH RIGHT HAND JUSTIFICATION COMMAS AND DECIMAL POINTS (SEE MANUAL FOR EXAMPLES).
% % CAN BE USED TO DEFINE SPACE INTO WHICH STRINGS ARE PLACED

```
    N     A$="SMITH":B=123:C$="HIGH"
    N+10  A$="NAME %        %.nUMBER £££ ,%       %
STREET..."
    N+20  PRINTUSINGY$;A$,B,C$
          NAME SMITH. NUMBER 123 , HIGH STREET
```

SIMILARLY WITH LPRINTUSING
NOTE THAT A HOUSE NUMBER ENDING WITH A LETTER SUFFIX TO NUMBER IF INPUT TO A NUMERIC VARIABLE WILL GENERATE A REDO MESSAGE. SO BETTER TO INPUT SUCH DATA AS A STRING.

WHEREAS A STATEMENT WITHOUT PUNCUTATION OF THE FORM
N PRINTTAB(5)A$TAB(25)BTAB35(C$)
IS ACCEPTABLE EACH PRINT USING STATEMENT MUST BE AT
THE END OF A LINE OR TERMINATED BY :
OTHERWISE THE NEXT INSTRUCTION IS MISUNDERSTOOD AS
PART OF THE PRINTUSING INSTRUCTION WHICH CANNOT BE
BE IMPLEMENTED AND GENERATES AN ERROR MESSAGE.

BREAK
=====
BREAK WILL ORDINARILY STOP A PROGRAM WHEN RUNNING. BUT
SOME OPERATORS WILL PRESS IT BY MISTAKE. IT CAN BE
DISABLED BY DIRECT ENTRY, OR INCLUSION AS A PROGRAM LINE
POKE16396,23 'BREAK DISABLE
POKE16396,22 'BREAK ENABLE
BUT THAT LEAVES YOU UNABLE TO INTERRUPT THE PROGRAM. AN
ALTERNATIVE IS TO DISABLE BREAK BUT LEAVE SHIFT BREAK
IN WORKING ORDER, HOPING THATNO OPERATOR WILL ACCCIDENTALLY
PRESS BOTH AT ONCE
POKE
POKE

BREAK ALSO ESCAPES FROM AUTOMATIC LINE NUMBERING WHEN
USING BASIC COMMAND AUTO WHICH PRESENTS THE NEXT LINE
NUMBER WHEN ENTER IS PRESSED AND A WARNING * IF THE
LINE ALREADY EXISTS. TO SAVE OVERWRITING PRESS BREAK

TRON
====
TRON PRINTS THE LINE NUMBER AS THE PROGRAM PASSES THROUGH
BUT IF THE PROGRAM BRANCHES BY A GOSUB THE SCREEN WILL
DISPLAY THE NUMBER OF THE LINE(S) IN THE GOSUB ROUTINE.
BUT IT WILL NOT PRINT AGAIN THE NUMBER OF THE ORIGINAL
PROGRAM LINE TO WHICH THE GOSUB RETURNS. SO WHEN USING
TRON TO DEBUG A PROGRAM REMMEBR THAT THE ERROR MIGHT BE IN
THE LATER PORTION OF A MULTIPLE LINE STATEMENT

DEBUGGING PROGRAMS
==================
CAN BE HELPED
BY USING TRON
HASTENED BY NOT CORRECTING SYNTAX ERRORS AT
ONCE (SEE SYNTAX ERRORS ABOVE)
BY USING ON ERROR GO TO (SEE SYNTAX ERRORS)
CAN BE LOCATED BY
USING REGULAR PROGRAM NUMBERS IN STEPS
OF 10
BY MAKING INPUT STATEMENTS INTO REM
OR ' STATEMENTS TEMPORARILY
AND THEN SETTING TEST VALUES
IN LINES ENDING WITH 1
BY INCLUDING A TEMPORARY GOSUB TO
PRINT THE NAMES OF ALL THE
VARIABLES AND VALUES IN USE
USING LINES ENDING WITH 9

32K 49151
64K 65535 ----------

AS A PROGRAM RUNS, MORE VARIABLES ARE DEFINED AND STRING FUNCTIONS PERFORMED SO IS MORE OF THE FREE MEMORY USED UP UNTIL THE OUT OF MEMORY ERROR MESSAGE APPEARS. TYPE ?FRE(A$) WHERE A$ IS A DUMMY STRING OF NO SIGNIFICANCE. THE RESPONSE IS THE AMOUNT OF FREE STRING SPACE. IF YOU HAVE CLEARED MORE THAN NECESSARY THEN CHANGE TO A SMALLER AMOUNT. OTHERWISE YOU HAVE VARIOUS OPTIONS:

1. TO SEPARATE THE PROGRAM INTO TWO OR MORE PARTS. MAKE SURE THAT THE WHOLE HAS BEEN SAVED OR CSAVED FIRST. LOAD AND DELETE ONE PORTION. RUN RENUM U TO CHECK THAT YOU HAVE LEFT NO REFERENCES TO DELETED LINES. SAVE OR CSAVE THAT PART WITH A NEW FILENAME. LOAD THE ORIGINAL PROGRAM. DELETE THE PARTS NOT NEEDED FROM THAT. REMEMBER IN BOTH PARTS TO SAVE THE INITIALSING ROUTINES LIKE CLEAR DEF DIM AND STRINGS USED IN PRINT USING. SAVE OR CSAVE THE SECOND PROGRAM WITH ITS NEW NAME. MAKE BACK UP COPIES OF EACH.

2.DELETE ALL SPARE SPACES EXCEPT WHERE ESSENTIAL TO SYNTAX. E.G. FIELD STATEMENTS FOR RANDOM ACCESS DISC FILES WITH FIELD NAME STARTING WITH C WHICH MUST BE SEPARATE BY A SPACE ELSE ASC WILL BE INTERPRETED AS AN ASCII FUNCTION AND MALFUNCTION FIELDING.

3. AMALGAMATE LINES INTO MULTILINE STATEMENTS. LEARN TO USE NESTED IF...THEN...ELSE INSTEAD OF SUCCEEDING IF... THEN LINES.

4.OMITTING REM OR ' STATEMENTS IS A LAST RESORT BUT MAY CREATE TIME WASTING DIFFICULTIES LATER WHEN YOU HAVE FORGOTTEN SOMETHING ANOTE COULD HAVE RECORDED.

5. REPLACE PRINT WHERE IT JUST MAKES A LINE BY USING THE DOWN ARROW.

6. LOOK IN THE MANUALS FOR OTHER SPACE SAVING IDEAS.

7. BUY MORE MEMORY. BUT I KEEP RUNNING OUT WITH 48K.

GARBAGE COLLECTION
==========

USED STRINGS PILE UP IN THE STRING STORAGE AREA AND OCCUPY SPACE. FRE(A$) FORCES A TIDYING UP BEFORE COUNTING THE AMOUNT FREE. SO AN OCCASIONAL X=FRE(A$) HIDDEN IN THE PROGRAMS AT A PLACE WHERE A WAIT IS EXPECTED ANYHOW WILL KEEP THE OVERHEAD SPACE NEEDED FOR STRINGS TO A MINIMUM.

SIMILARLY WITH VARIABLES, ONCE USED IN A PROGRAM THEY USE UP SPACE IN FREE MEMORY. HENCE THE ADVICE TO USE VARIABLES OVER AND OVER AGAIN, THOUGH ONLY WHERE IT WILL NOT CAUSE CONFUSION.
THUS Q AND J ARE CONVENTIONALLY USED, TOGETHER WITH

```
Q0 TO Q9 AND J0 TO J9 FOR LOOP RUNNING

    I O U ARE BANNED TO PREVENT CONFUSION WITH I O V

INPUT
=====
INPUT GENERATES A ? IMMEDIATELY AFTER THE PROMPT STATEMENT
IT LOOK PRETTIER IF THE PROMPT ENDS WITH A SPACE TO
SEPARATE OFF THE ?
INPUT MUST ALWAYS BE IN A PROGRAM LINE. IT IS UNNECESSARY
AND SO FORBIDDEN IN DIRECT MODE.
INPUT TRIGGERS A CARRIAGE RETURN WHICH CANNOT BE STOPPED
BY ; BUT YOU CAN RETURN TO THE PREVIOUS LINE BY PRINT
CHR$(27)
TO PREVENT DISPLAYS WITH INPUT ON THE LAST LINE FROM
JUMPING UP WHEN YOU PRESS ENTER USE THE LAST LINE BUT
ONE FOR MESSSAGES LIKE THIS GOSUB:
        N       PRINT@913,"PRESS <ENTER> TO CONTINUE";
        N+10    Z$=0:INPUTZ$:PRINT@900,CHR$(30)
        N+20    RETURN
IN THE ABSENCE OF A DEFAULT VALUE THEN JUST PRESSING
<ENTER> PRESERVES THE PREVIOUS VALUE OF THE VARIABLE,
OF ZERO FOR Z$ IN LINE N+10 ABOVE.
WHERE THE VARIABLE NAME IS FOR ONE OF THE NUMERICAL KINDS
THEN THE TOTAL INPUT MUST BE FIGURES.
FAILURE TO DO SO WILL GENERATE A REDO?
WHERE NUMBERS AND LETTERS ARE TO BE INPUT USE A STRING
VARIABLE.
IF THE VARIABLE NAME IS FOR A STRING THEN LEADING BLANKS
ARE IGNORED. COMMAS ARE TAKEN AS DELIMITERS.IF THE NUMBER
OF VARIABLES TO BE INPUT DOES NOT MATCH THE NUMBER OF
PIECES OF DATA AS DELIMITED BY COMMAS, THEN THERE WILL
BE EITHER A  REDO?  OR  EXTRA IGNORED  MESSSAGE.
BUT LEADING BLANKS, COMMAS AND COLONS CAN BE CAPTURED
BY TYPING THE STRING INPUT WITHIN QUOTES THUS:
          N  INPUTA$,B$:PRINTA$;B$
 YOU TYPE          ABC,"    DEF"
              ABC    DEF
              READY

LINE INPUT (WITH DISC) OPERATES DIFFERENTLY
==========
IT PRINTS NO ?
THE VARIABLE MUST BE OF STRING FORM ENDING IN $
PRESSING <ENTER> ALONE CAPTURES AN EMPTY STRING
AND ERASES THE PREVIOUS STRING.
THE EXISTING VALUE, IF NEEDED, MUST BE CAPTURED
BEFORE LINE INPUT AND RESTORED AFTERWARDS IF
THE IMPUT STRING IS EMPTY:
       N     AA$=A$
       N+10 LINEINPUT"TYPE NEW NAME OR PRESS ENTER
            FOR NO CHANGE";A$
       N+20 IFA$=""THENA$=AA$

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```

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Dorset
Tel: (0258) 53737

BRIDGEND

Contact: Peter Chapman
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Bridgend
Mid. Glam.
(0656) 3484

COLCHESTER

Contact: Roy Smith
8 Mallard Close
Lawer-de-la-Hawe
Colchester
Essex

EDUCATIONAL SUB-GROUP

Contact: Dave Futcher
Beaconsfield First and
Middle School
Beaconsfield Road
Southall
Middx.
Tel: 01-574 3506 (School)
01-743 5310 (Home)

Haywards Heath, Sussex.
Mike Molloy
01-799-8844
6 The Copse,
Haywards Heath,
Sussex.
Till late Summer 1982

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Contact: John Christie
10 The Pramleys
Lonshope
Gloucester
GL17 0QP
(0452) 830141 (Evening)

HULL

Contact: John Lawrence
Tel: Hull 497150 (Day)
Hull 493856 (Evening)

ISLE-OF-WIGHT

Contact: M. Collins
3 Altofts Gardens
Ventnor
I.o.W
Tel: 85 2008

LEEDS

Contact: John Jowitt
39 King Edward Crescent
Horsforth
Leeds
Tel: (0532) 586314

LONDON (NORTH)

Contact: John Wellsman
292 Caledonian Road
London N1
Tel: 01-607 0157

LONDON (WEST)

Contact: John Carne
14 Lyncroft Gardens
Ealing W13 9PQ
Tel: 01-567 7873 (Home)
01-993 1462 (Work)

LONDON (SOUTH WEST)

Contact: Ron Everitt
2A Longdown Lane North
Ewell
Surrey
Tel: 01-394 2123

MEDICAL SUB-GROUP

Contact: Dr. Nick Robinson
The Residencies
Northwick Park Hospital
Watford Road
Harrow
Middx. HA1 3UJ

MERSEYSIDE MICROCOMPUTER GROUP

TRS-80/Video Genie Special Interest Group
Contact: Peter Tootill
Tel: (051) 9227260 (Work)
(051) 2209733 (Home)

MIDLANDS (EAST)

Contact: Brian Chiplin
33 Hurts Croft
Chilwell
Notts. NG9 5DE
Tel: (0602) 252015

NORTH WEST GROUP

Contact: Melvyn Franklin
40 Comlees
Westhoughton
Bolton BL5 3EG
Tel: (0942) 812843

NUNEATON

Contact: Fred Challoner
40 Whoberly Avenue
Coventry CV5 8BP

THE WEST LONDON GROUP NOW MEETS AT THE CENTRAL COMMON ROOM, THE RESIDENCIES, NORTHWICK PARK HOSPITAL, WATFORD RD, HARROW.
DETAILS FROM :JOHN CARNE 567 7873
NICK ROBINSON 864 5311 EX 2[illegible]
GEOFF SMITH 560 0754
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FOR MORE INFORMATION ON USING MAILBOX-80 OR FORUM-80 COMPUTER BULLETIN BOARDS, SEND S.A.E TO.
FREDERICK BROWN, 421 ENDIKE LANE, HULL. HU6-8AG

>*******<

READING THE JANUARY ISSUE OF THE AMERICAN COMPUTER MAGAZINES, COMMUNICATIONS WITH SMALL COMPUTERS ARE NOW GROWING AS FAST AS THE COMPUTER INDUSTRY ITSELF.
HOBBYISTS HAVE BEEN RUNNING COMPUTER BULLETIN BOARDS FOR ABOUT 5 YEARS NOW, OF COURSE, THERE WERE THE "PROFESSIONAL" PROGRAMMERS' WHO SAID THAT SUCH SOFTWARE WAS IMPOSSIBLE ON "TOYS" LIKE THE TRS-80, DESPITE,(OR BECAUSE OF), SUCH CLAIMS BY THEY, WHO SUPPOSEDLY KNOW, SOME AMAZING MICROCOMPUTER SOFTWARE HAS BEEN WRITTEN. SOFTWARE THAT IS MAKING MANY LARGE COMPANIES IN THE UNITED STATES BUY MICROCOMPUTERS, TO ENABLE THEM TO RUN THEIR OWN BULLETIN BOARDS OR COMMUNICATION SYSTEMS. (MORE ABOUT THIS SUBJECT NEXT MONTH)
ONLINE COMPUTER COMMUNICATIONS IN THE U.K. IS BEING LEFT AT THE POST, MAINLY BECAUSE OF LACK OF INFORMATION IN THE BRITISH COMPUTER PRESS. OR MAYBE, BECAUSE THE "PET" IS NOT SUITABLE FOR THIS HIGH TECHNOLOGY. ITS ABOUT TIME THEY BOUGHT THEIR OWN MICROCOMPUTER AND FOUND OUT WHAT IS GOING ON OUTSIDE THEIR LITTLE KINGDOM. AFTER SUBMITTING MANY ARTICLES, THE ONLY RESPONSE IS FROM THEIR ADVERTISING DEPARTMENTS.

>********<

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INNOVATIVE TRS 80-GENIE SOFTWARE

from the professionals



The introduction of a brand new word processor is a major event and AJEDIT is without doubt a major program. There are, however, quite a few Word Processors around and most of them are extremely good ones - why, therefore, another? The question is even more pertinent when it is known that we specifically commissioned the writing of it from an author of the status of Denville Longhurst of Enhanced Basic fame. The answer is that user feedback shows that a large number of customers do not need or want word processor programs which require a quantity of training before use. Scripsit, for instance, is an excellent program, but is complex to use; it even comes with a training course on tape. If one operator is dedicated to using the word processor then it makes sense to have her trained, and the more complex the program (so long as the complexity is accompanied by more and bigger functions) the better.

AJEDIT has been written for the user who needs a word processor intermittently, say three or four times a week. Its prime design criteria was ease of use - and just as importantly - ease of recollection of its commands. Take, for instance, the text editing commands - they are as close to the Basic Edit commands as possible, so that the user will remember them: To insert type I, to delete D, to take out three letters type 3D and so on.

Furthermore, AJEDIT has benefited from being written after a number of other word processors. The deficiencies in its predecessors are corrected in AJEDIT. For instance, any control characters can be outputted so that full advantage can be taken of the features of the particular printer being used. Disk directory access is available from within AJEDIT as is the killing of files on the disk. The FREE command and a number of other DOS commands can be carried out from within the program with a return to AJEDIT - with its text intact.

AJEDIT contains close to one hundred commands covering most word processor requirements. Dedicated printer commands for the Epson MX series and the Centronics 737 are included - again for ease of use of these two popular printers.

One of the big features of AJEDIT is the ability to "mail-merge". The facility is available whereby two special files are created, one containing names and addresses and a salutation. the other a standard letter or form. AJEDIT will call the address and salutation from one file and the letter from the other and thereby compile personalised letters. The salutation may be repeated in the body of the letter.

AJEDIT needs 48K and one disk minimum and is suitable for the TRS-80 Models I and III and the Video Genie Models I and II.

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National TRS-80 Users Group

Newsletter

VOLUME 3 ISSUE 8 FEBRUARY 1982

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INFORMATION ON THE GROUP

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

Details of the Group accounts and the constitution of the Group are obtainable from the Secretary.

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

Workshops are arranged from time to time in various parts of the country.

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

The Group maintains two software libraries (Model I and Model II) which are free to members. Library lists are obtainable from the Secretary (price £1). The medical and educational sub-groups maintain their own libraries.

A membership list is available from the Secretary (price £1).

Back numbers of the Newsletter are available.

Please send all contributions for the Newsletter to the Editor.

Chairman and Newsletter Editor:-

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

Secretary and Newsletter Publisher:-

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

EDITORIAL

The A.G.M. resulted in me and Brian beins re-elected as Chairman and Secretary of the Group, respectively, so here we go with yet another packed issue.

Could members please ensure that contributions for the Newsletter are not folded, as it can cause difficulties in the paste-up and printins stases of production. Just place the sheets in an A4 envelope. I would, of course, prefer everythins in machine-readable form - disk or cassette. We will include a note in every issue containins suidelines for contributors; please try to conform to these suidelines as it makes my job very much easier.

Leon Heller

ACC SYMPOSIUM

A symposium entitled 'Your Computer and the Telephone' will be staged by the Amateur Computer Club (ACC) at the ALCC Computer Fair on Saturday 17 April at 09.15 to 14.45 at the Rubber Institute, North London Polytechnic.

Topics to be covered are:-

1) Fundamentals of data communications
2) Basic modem desisn
3) Prestel - a user's view
4) Prestel telesoftware
5) Prestel - editins as an IP (Information Provider)
6) Bulletin Boards, e.s. Forum-80 and mailbox

Cost: £5.00 to ACC members - pre-registration
£6.00 to non-ACC members - pre-registration
£7.00 on the day (space permittins) - ACC members
£7.50 on the day (" ") - non-ACC members

Pre-registration also includes entry to the ALCC Fair.

Further details and application forms from:-

Peter Whittle,
49 Bartlemas Road,
Oxford,
Tel: (0865) 721180 evenings
(0865) 40373 daytime.

Please make cheques, POs, payable to ACC

MEMBERS' LETTERS

From Bob Hastings

News from South Cumbria of a major scheme involving TRS-80s, that has been in existence now for nine months. At the Barrow Teachers' Centre, eight TRS-80s, a printer and a floppy disk unit linked by a network system have been installed. The facilities are used by a local secondary school during school hors, and for training purposes in the evening. In addition, four other local schools have followed this example and purchased TRS-80 machines for their own use.

Could anyone with details of software or useful information etc. please contact me.

Bob Hastings,
St. Bernards R.C. School,
Rating Lane,
Barrow-n-Furness,
Cumbria LA13 9LE.

From Paul Tombling

Each month the Newsletter contains items on modifications to the TRS-80. While I have a little knowledge of programming I have no knowledge of electronics. Perhaps it would be possible to do a "back to basics" guide to carrying out the modifications.

Paul Tombling,
c/o Supply Squadron,
R.A.F. Abingdon,
Oxon.

A Tandy Bristol Users Group (T.BUG) has been formed. We meet on the first Thursday of every month at about 7.00 pm at the Colston Centre Tandy store, Bristol.

New members are welcome to come and see us, or give me a ring on Bristol 512283 (Home) or 693871 Ext. 180 (Work).

Members use all models, although we do have a high percentage of Model II users and business users.

We have a new magazine lending library.

A normal evening consists of a "lecture" or a talk through of a program followed by an informal chat. (And for those interested, a more informal chat at the Ship Inn later.) Additionally there is a second room where splinter groups

can talk or use the umpteen Model IIIs. Coffee is also available at a nominal charge.

While I remember, I have had a request to ask Leo Knaggs to give us a talk on Superzap, but I have not been able to contact him yet. So, Leo, if you read this before I find you and you are interested, please contact me.

We are generally looking for guest speakers, so if you have an interestong subject would you contact me and see if we can come to some arrangement. Expenses will be paid. If you live some distance away, but do occasionally travel to Bristol, we would still like to hear from you as the group may be willing to change the date of a meeting.

Roger Bampkin,

19 Wood Street,
Easton,
Bristol BS5 6JA.

PROBLEM SECTION

Is it possible to access the underlining and overlining of the Microline-80 printer through Disk Scripsit? If so, how?

Jeffrey Goldberg
Tel: 01-458 3025

My particular interest is expanding my machine to 48K with disks as economically as possible. If I may I would like to ask a few questions.

Do new chips just push in?

Are the 4116 200ns chips standard RAM chips?

Is the Holmes expansion board plus "Sprinter" a viable alternative to the Tandy expansion interface?

If so, where can I get them and how much?

Paul Tombling,
c/o Supply Squadron
R.A.F. Abingdon,
Oxon.

(* If you are upgrading from 4K to 16K, the chips just plug in, some jumpers need to be modified, however. Adding chips to the expansion interface is merely a matter of plugging them in - no jumpers!

Virtually any 4116 devices should be satisfactory. The TRS-80 has a relatively slow clock.

The Holmes board will only give you more memory. It does not include a disk controller, serial interface, printer port etc.

Laurie Shields (see January issue) imports the Holmes board. LFH *)

SOFTWARE REVIEW - SUPERPIMX

At some time or other most beginners want to use their computer to save files of names, telephone numbers or perhaps it is details of record collections etc. There are many suitable programs ranging from the free ones published in various magazines right up to those costing well over one hundred pounds. The problem is to know what you are getting for your money. What suits one person may be useless to another. I am no expert on the matter but I have tried out several and have been surprise at the differences.

A program that is suitable for business use could be waste of money for the average hobbyist and vice versa. The big difference is often the amount of information or the number of files. It is rather like using a JCB,it is excellent for digging the foundations for a house and even better for a row of houses but less than ideal for weeding the garden.

It is often easier to find out what is wrong with a filing system than to work out the correct structure in the first place. Therefore a File handler that can allow fields or columns to be added or deleted is useful as is the ability to change the field name. Some programs are very slow and this limits their usefulness.

Another problem is that the more facilities that are incorporated into a program the less room there will be for records. Some of this is got round by using modules which are called into use as required. This is fine but can be a bind with cassettes.

It is generally considered that you get what you pay for but this does not always hold true. I would recommend the SuperPimx from the Computer Information Exchange. This started out in a book called Personal Information Management System and generally shortened to PIMS. This was our first attemp at a 'Data Base' and took many long hours to enter. At the end of the day we had a rather poor system that was far too slow for most requirements.

Because the program was freely available and relatively cheap it attracted a lot of followers and a lot of modifications appeared. The present program is so superior to the original that the only resemblance is the name and that has been changed. The original publishers dropped the book and objected to people using their name and thus was born SuperPimx.

One of the unique things about the program is that it can be used on cassettes and discs. If that was not enough it can be put on the Exatron Stringy floppy and is cmpatable with the TC-8 or B17 high speed loaders. It must be value at about ten pounds + shipping. I purchased mine via Access and got it airmail in two weeks for about fifteen pounds.

There is a book costing a further five pounds to go with the program because of the problems of getting the original book. It should also be remembered that the present program is so far removed from the original program that the old book was a souce of confusion rather than a help. We did not get the new book to start with and managed quite well. It is not the greatest manual but its worth getting as it is quite interesting.

A novel feature of the program is that when the disc version sorts files it times itself. I had put in about sixty records with ten fields when I got it to sort alphabetiacally. The screen displayed the state of the sort and at the end it claimed to have taken four seconds. the longest sort I have found was held up by the garbage collection and took over one minute but this was exceptionally long.

Another unusual feature it the way it can convert uppercase into lowercase. Each field can be turned from Uppercase to print lowercase letters with capitals as necessary Mr A N Other and even Mr J McGregor. This is helpful with an unconverted video

As it stands there is not much room for many records on a 16k machine but it is possible to split the program into two parts and this greatly increases its capacity. A useful feature is the ablity to produce sub files and to merge files. These overcome some of the problems caused by only being able to sort by one field. This makes it more useful than some very expensive programs sold by Tandy.

Derek Trayler

ADVERTISEMENT

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I am now able to construct special purpose interfaces to order, using wire-wrap techniques on standard Vero D.I.P. boards. The boards will connect to the TRS-80 bus (keyboard or expansion interface) via a short length of ribbon cable. Several interfaces could be placed on one board.
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etc.

I am also willing to develop suitable software for these devices.

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

APL80 from The Software Exchange

APL is an important language. In many ways it is very different to more normal high level languages such as BASIC, FORTRAN, COBOL, PASCAL etc. APL originated from a need felt by mathematicians to have a more flexible and extended system of describing and manipulating their concepts. It became a computer language almost as an after-thought.

The initial appearance is therefore rather daunting with a very comprehensive range of maths functions. These are in fact very straight-forward and you also have the ability to define new ones in a very simple fashion.

At first sight its most impressive ability is the way it deals with not only single numbers, but vectors (arrays in BASIC) and arrays (multi-dimensional arrays). You can give a variable name to an array and add, subtract, multiply etc. that array using either single numbers, e.g by adding 10% or using another array, e.g. adding this months sales figures to last months.

APL works in a command mode just like BASIC. Typing :- 4+4 will actually produce the answer 8. Typing 1 2 + 3 4 will give the answer 4 6. The speed of complex computations is amazing. The interactive command mode means great flexibility of data manipulation with the minimum of programming.

In mainframe implementations there is a powerful concept called workspace. This is a sort of electronic blackboard where you can put data, user defined functions and programs and have them all immediately available with the minimum of fuss. In micro implementations this concept is somewhat reduced, but you still have this extraordinary power of defining something interactively sticking it away and then calling it back in a program. In this way you can keep together all the bits and pieces for a particular job and save them all together on disk or tape with one save command.

There are very few control structures as such. You have to define your own. In this respect it is rather like assembly programming in that you build up a library of useful things which you can load into the particular workspace of the moment. The concept of local variables helps enormously. By defining a variable as local to a function or a program you don't have to bother if it is used elsewhere in the workspace.

APL in its original form uses strange Greek notation for its control characters. You can get these implemented on micros but it is expensive. The TRS-80 version uses the unused lower case and flags them with a graphics dot. It makes programs look funny but it works.

For the most part APL uses string data in the same way as numeric. So you can do a lot more to text with much fewer instructions than in BASIC. It has other nice things, like built in sorts, data reversal, data rotation, max & min, exponentiation, factorials, logs etc.

The TRS-80 version comes in two forms, tape & disk. The tape takes up 5k and the disk rather more. They both make extensive use of ROM subroutines and so are good value for RAM. The whole thing is run in interpreter mode so programs are not particularly fast, but when you see programs written in APL you can see how it can pack so much into so little. I have seen a multiple regression written in one line of program!

APL is sold by Microcomputer Applications of Caversham @ £10.50 for the tape version and £30.00 for the disk. I can thoroughly recommend it as an antidote to PASCAL.

The documentation is very poor and expects you to know APL. Newbear Computing are selling off their book side and are offering 'Structured Programming in APL' by Geller & Friedman @5.77. This is a book written from University lecture notes and it shows. However the first section is a very good intro to APL and there is a comprehensive dictionary of APL operators at the back.

The examples they use are unimaginative, and worse still, too complex. It is bad enough sorting out the coding without having to puzzle out the algorithm first. However its saving grace is a program for NIM complete with a routine which allows the machine to learn how to play the game better. I again recommend the book highly, but can only dream what David Lien might have done with the same opportunity.

Joe Edwards

MAKE YOUR OWN DOUBLE DENSITY DOS

DOUBLE DENSITY is becoming more popular on the Model 1. For those who want to directly access it in machine language programs with their own disk input and output I have found that

it is switched on by loading OFFH into the command register address. To reset single density use OFEH. To use this you must write your own input,output and formatting routines. I have found that it is not possible to simply patch most single density disk routines for double density ; they usually have to be rewritten completely.

By the way both these letters are being written with Lazy-Writer. This is yet another word proccessor, but is unusual in having commands which make sense such as I for insert or D for delete etc. For those who haven't enough brain cells to remember all of Scr*ps*t's funny lot this is the perfect answer. It even has a help comman

John Newgas

Zen does assemble directly into memory and allow you to test a program with breakpoints etc. I must admit I do miss using macro's with Zen. However for those few who want that facility I have been writing programs with a word processor and using that to expand partial macros.

Many thanks Laurie, I think I will stay with Zen until I get a large Main Frame IBM.

John Newgas.

```
1 PRINTCHR$(28)CHR$(31)"
            ENTER ANY NUMBER FROM 1 TO 6 FOR SOUND ROUTINE
 ":GOTO28
2 SAVE"SOUND/ALAN REDHOUSE:1
28 M$="DUMMY STRING FOR MACHINE CODE"
  :I=VARPTR(M$):J=PEEK(I+1)+256*PEEK(I+2)
  :FORK=JTOJ+26
      :READX:POKEK,X
      :DATA 205,127,10,77,68,62,1,105,211,255,45,32,253,60
       ,105,211,255,45,32,253,13,16,238,175,211,255,201
  :NEXTK
29 'POKE 16526,PEEK(I+1):POKE 16527,PEEK(I+2) '***** CASSETTE
30 DEFUSR0=PEEK(I+1)+256*PEEK(I+2):POKE 14308,0 '***** DISC
50 IN$=INKEY$:IFIN$=""THEN50ELSE 5000
    ON1+INSTR("123456",IN$)GOSUB ,100,200,300,400,500,600
   :GOTO50
100 FORI=1TO50:L=USR(11111-I):NEXT:RETURN
200 FORI=2060TO2096:L=USR(I):NEXT:RETURN
300 FORI=1TO10-L=USR(3E3+RND(200)):NEXT:RETURN
400 FORI=1TO10STEP1/4:L=USR(3E3+ABS(150-3*I)):NEXT:RETURN
500 FORI=1TO10STEP1:L=USR(99):NEXT:RETURN
600 FORI=1TO99STEP.3:L=USR(999):NEXT:RETURN
```

5000 RETURN

John Rutherford

FOR SALE

Infinite BASIC

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Both disk versions. Original disks and documentation. Half Hardings list price.

Ariela Pomerance.

TRS-80 EDUCATIONAL

USERS GROUP

Newsletter Five February 1982

With no newsletter in January, we are back at bi-monthly again, and now at our fifth edition.

Plenty of news from across the country this time. Keep it coming in so that all TRS-80 Users in Education know what is happening. Contributions to Dave Futcher, Beaconsfield First and Middle School, Beaconsfield Road, Southall, Middlesex.

ROUTINES FOR LINEPRINTING GRAPHICS

There has been a number of requests recently for the lineprinting of graphics. Peter Green of Bristol sent me a routine he has used time and again. He says it works without snags.

```
 999 IF INKEY$ = ""THEN CLS:GOTO 10 ELSE GOSUB 1000:GOTO999
1000 E=1:FORF=15360 to 16383:LPRINT CHR$ (PEEK(F));:IF E=64 THEN LPRINT" ":E=0
1010 E=E+1:NEXT F
1020 RETURN
```

As you can see it assumes that you have a line 10 in your program. Otherwise in 999 GOTO which ever is the first line of the program. It has a use too for text, because it peeks the screen directly to the printer.

Remember, you have to press space bar during the graphic sequence to peek the screen to printer.

EXTERNAL EXAMINATION ENTRY PACKAGE

I've just heard, (but not seen) about a nearly completed external examination package which I am told is very full and useful for Secondary schools. It is disc based.

If you are interested contact

David Rhodes,
Dowerpot High School,
Stockport.

TIMETABLING

News is also coming in from Stockport that the Education Service is developing a timetabling package for the TRS-80.

It will be free to schools in the Stockport Metropolitan Borough and approximately £30 to schools outside the LEA. Again if you are interested contact Mr. R. West, Education Advisor, Town Hall, Stockport, Cheshire.

UTILITIES

The EUG Users Group has recently begun to put together a tape of Utility programs, that have an educational use.

- Lower case drivers in basic
- £ sign ULCBAS patch
- Big capitals and numerals
- Graphics from keyboard

Drop me a line for copy or send me contributions for further utility tapes.

PRINT TO LPRINT

Can we have a final solution to this common problem facing EUG members. What is the Poke to use to convert PRINT TO LPRINT. We have tried at beginning of program

POKE 16414, 141
POKE 16415, 5

and to restore the situation POKE 16414, 88
POKE 16415, 5

but it is unreliable!!

BARROW COMPUTER CURRICULUM GROUP

Bob Hastings, Chairman of this group, has written to us about this major development in South Cumbria involving a networked system of 8 TRS-80 at Barrow Teachers Centre. We wish them well.

Contact Bob at

St. Bernard's R.C. School,
Rating Lane,
Barrow-in-Furness,
Cumbria LA 13 9LE.

STOCKPORT TRS-80 EUG

Steve Lewis and his Stockport group continue to meet and provide the National EUG with plenty of software for Secondary schools.

Contact Steve at

Cheadle Hulme High School,
Cheadle Hulme,
Cheshire.

OLD ROM PROBLEMS

So the users will have the ROM which says on Power Up MEMORY SIZE sometimes you get READ & DATA problems.

To rid yourself of this problem add as an early line to your program
POKE 16553, 255

IS THERE A FUTURE FOR THE TRS-80 IN SECONDARY EDUCATION?

At a recent meeting in Canterbury of the Association for Science Education I investigated what provision publishers and manufacturers had made/were intending to make for the TRS-80. The findings are summarised below:

Thomas Nelson Ltd. - 'Nelcal' - series of programs for RML 380Z and possibly for Apple and Pet. No provision for the TRS-80.

Five-Ways Software (based at King Edwards' School, Fiveways and supported under the Government MEP) - some excellent software published with more to come but only for the 380Z and Apple. When I asked why programs had not been written for the Tandy I was told that of the various companies requested for the loan of machines to develop software only RML and Apple responded positively!

Longman - have taken over from Edward Arnold the publication of Schools Council software. Programs were available and more are being developed for the 380Z and the BBC machine. The reason given for the lack of provision for the TRS-80 was the absence of a market! The evidence quoted was the sale of only two copies of the Tandy version of the Schools Council Economics Program published by Edward Arnold.

Unilab - are developing a computer interface unit - for 650Z based machines only (banking on the BBC machine!)

Oertling - (manufacturers of electronic balances) - new versions of some of their models include provision for link-up to computers. Tandy are included but the cost of the connector was estimated at £150 or so above that for other machines!

WPA (electrical equipment) - have produced an interface via the RS 232 serial input port - so at last Tandy is included!

Griffin and George (general scientific suppliers) - have had a Digital Interface and an Analogue Interface Unit (at £79 and £108 respectively excluding VAT or charge for connectors) available for the TRS-80 for some time.

Overall then a depressing picture!

COVENTRY TEACHERS AND TANDY

It seems that Coventry may well be in the process of getting their TRS-80 Educational Users organized too!

Contact

Miss J. Chapman,
346 Holyhead Road,
Coundon,
Coventry CV 58 LH.

CESIL FOR THE TRS-80

I understand that Vernon Bryant has been working on a translation of CESIL to run on the TRS-80. He has nearly completed the task. The version will actually translate CESIL instructions into BASIC and back again.

A version still in development is in the EUG library.

380Z AVON TAPES

Secondary school users will know of the 380Z Avon Tapes. Vernon Bryant in Bristol has been hard at work on translations for the TRS-80, including graphics. When the copyright situation is clear we are hoping to see them in the TRS-80 Users Library.

TRS-80 NETWORK SYSTEMS

Quite a few members of the Users Group have network systems in their schools. Some of them want to make more contact with others with networks.

Please write detailing your systems and useage to me so I can complete a list.

WALSALL MICRO-TEAM SOFTWARE CATALOGUE

Not to be missed by any educational user is the issue of the Walsall LEA software catalogue. It lists a vast range of material for Primary, Secondary and Special Schools. Programs are very reasonably priced at £3.50, and from the sample I've used for 6 months, I know them to be of the highest standard. The catalogue gave a brief but fair description of each program.

Well worth sending for from

Nick Dodds

DISABLE YOUR BREAK KEY

One of the most useful Pokes I know and use in Educational programs is POKE 16396, 16S which disables the break key, and allows shift break to function. POKE 16396, 233 resets.

Dave Futcher

SOME TIPS FOR BEGINNERS

Trying to tell other people which problems to avoid is difficult. We all know that our evenings are too short. I do not believe that any article will stop us fanatics to go to bed totally exhausted after a fruitless night having crashed the same program again and again. Anyway haven't our best lessons been at those times? A great deal of the Users Group's practical little tips have come from those desperate nightowls.

So, what about tips? Well the major one is don't get desperate. Because for each problem solved, ten new ones will appear. I know a lot more than 18 months ago when I first started, but I especially know how much more I could know. But enough introduction.

My main principles are easy : read and read again the newsletter regularly. Each time I learn new things. Because a previous problem is solved, I understand the next one. So stop going on about the Newsletter being too sophisticated. One day, you will be glad that somebody, at some stage wrote it down.

Further I keep a couple of files with very distinct information. They contain litterature and information from all sources. As such I have a file with articles only about hardware (advice, modifications, suggestions). Another one with programs such as zaps, patches, tips on programming, etc..... But my two most important ones are called 'Memory locations' and 'Subroutines'. I shall go into more details about the last two.

The Memory location file contains every little tip I have come across in any magazine, newsletter, discussion etc. related to particular functions of memory of the TRS-80. It is the largest guide I have come across and if not complete certainly has a lot there. It also contains some more detailed information as how to disable the break key , listings, printer, etc.....As I am in the proces of transferring my handwritten notes into Scripsit, I hope to have finished this work before the next Newsletter and send a copy. But, and there is a big 'but', here again I find myself a beginner.....this guide was relatively complete so long I used cassettes. Now that I recently acquired disks, I have to start all over again : locations are different or are used for other purposes. Anyway, this goes out of the scope of this article.

My second file 'Subroutines' is in fact a compilation of any bit of programming that is somewhat more than 2 or 3 PEEK/POKE's (as needed to disable or enable a certain function) and is not a full program pursuing a combination of functions. Any type of language from Basic, Pascal to

For Sale: Brand new Tandy Disk Drive 0 with manual/cable etc.
Contact Francis Glenister on 061-445-7191 or write to
13 Pridmouth Road, Withington, Manchester M20 .

M/C are represented. Sometimes, it contains bits of a larger program but which performs one specific function (is not any larger program a clever combination of specific functions to arrive at a solution ?)

Just to give a few examples : a basic routine of packed strings to create a blank screen in less than 1 sec, tips to reserve memory from within a program (so that you do not have to answer the question MEM SIZE ?) or tips, often from the newsletter or 80 US, such as retrieving a program once 'NEW' typed in, change PRINT to LPRINT, how to peek into memory above address 32767, etc...

So far I have only mentioned a few tips which did help me very much in my dark nights. A book that I really used a lot as reference is Tandy's BASIC REFERENCE MANUAL. If not the best book on the market I have always found it easy to use with a good and practical index. Now I would not like to pretend that the same ideas will be the best for everybody. I therefore leave any further suggestions to others and concentrate on a few practical examples. I will also do my best to keep my promise and publish a list of memory locations for next issue. As last little remark I would like to stress that the examples given do not pretend to replace good commercially available programs but are only a demonstration of what can be done with very elementary techniques.

I often used and still use the following routine to examine any part of memory :

```
10 INPUT S,E    'S=start address      E= end address
    20 FORX=STOE:A=PEEK(X):PRINTX;B  'Print address & its
dec value 30 FOR Z=1TO100:NEXTZ:NEXTX  'time delay and
repeat line 20
```

Now this really shows you every part of memory. It allows you to check or change (by poking) any RAM location. You can also have the dec. value changed to its ASCII equivalent etc. If you have no other program loaded, then you can find your basic program starting at address 17128. It also let you see and understand why every new line number uses 5 bytes : the first and the second byte (LSB, MSB) point to the address where the next line starts, the next two bytes (again LSB, MSB) represent your line number (so line 50 would have the values 50 and 0 in the respectives bytes while line 50000 would be identified by values 80 and 195 (MSB = 50000 / 256 = 195 left 80 so LSB = 80 or LSB = 50000 - (MSB*256). The fifth byte goes at the end of your line and equals zero. This really means the end of your basic line. As such poking a zero in any other place will totally confuse your CPU. It will not recognize that idea of yours. The same happens if you poke three zero's the one after the other as this is the code for the end of your program i.e. the computer assumes that after 3

zero's there are no more program lines. I have used this in a program where I used the first part of my program afterwards again but did not need the second part. By altering the 1st two bytes at the end to zero, the computer ignored the rest of my program. Restoring the bytes to there original values immediately would reverse your action.

All these values are in HEX of course. Through combination of this program and examining memory I made some very simple, very easy programs, which are probably no world record in cleverness or speed, but which imitate work done by some commercial programs. They do not aim to replace them but can in a limited way help you. There main objective is, as they where to me, to understand what can be done with peek and poke besides the most advertised side of graphics. For the latest I refer you to the december article by Steve Holloway p 30.

The program that follows will couple any line at the and of the previous one. However it is limited to that. You type the line number in and the computer removes the line and hooks it on to the previous one. So it is up to you to check if therewill be any problem doing so (one problem may be that you have a goto somewhere in your program referring to this line. A 'UL' or 'undefined line' error will occur). I am shure that ameriolation to the program could be made. However I have personally not the intention to do so for the following reasons

1. There are far better programs available in m/c. Any improvement on the existing would still be extremely slow in execution.

2. As a beginner myself I developed and used them. So they should be understandable to other beginners.

3. I leave the pleasure to anyone else to try and make some inprovement as matter of exercise.

```
50000 INPUT"LINE NO. = ";Z:W=256
50010 A=PEEK(16548)+PEEK(16549)*W
50020 B=PEEK(16633)+PEEK(16634)*W:B=B-2
50030 C=PEEK(A)+PEEK(A+1)*W
50040 IFC>=BTHEN50120
50050 IFPEEK(C+3)=INT(Z/W)THEN50060ELSEA=C:GOTO50030
50060
Y=INT(Z/W):X=Z-Y*W:IFPEEK(C+2)=XANDPEEK(C+3)=YTHEN50080
50070 A=C:GOTO50030
50080 POKEA,PEEK(C):POKEA+1,PEEK(C+1):POKEC-1,58
50090 D=PEEK(C)+PEEK(C+1)*W:D=D-C-6
50100 FORN=0TOD:POKEC,PEEK(C+4):C=C+1:NEXT
50110 FORN=0TO3:POKEC+N,32:NEXT:GOTO50000
50120 PRINT"NO SUCH LINE PRESENT":GOTO50000
```

Some information : this program can be present at the time you start building your own basic program. Type run 50000 or start your program with 5 goto 50000 and each time you 'RUN' the program will be executed. You can delete line 5 and lines 50000 - 50120 once your program is finished.

Line 50010 looks for the start of your program while 50020 finds the end. In line 50030, C contains the start address of the next line. 50050 to 50070 look for the linenumber you wanted to couple.Lines 50080 - 50110 are the main program : Once your specific line found, the start address is poked in the previous line, a '!' is inserted between the two lines and all addresses are moved up four places. This leaves you with a gap of 4 blancs at the end of the line. I used to manually edit those (that's why I put them at the end of the line !). If you have spare time you can try and alter this side. Line 50120 tells you that your request was impossible.

This brings me to my conclusion : I learned a lot by trying to understand and change programs or part therof, made by others. Don't try to run before you can walk. But understanding particular programs may allow you to solve many problems.

If anybody sees major faults in my example, please let the newsletter know. I do not guarantee that my programs won't give you any crashes, but they have all been used, sometimes in a limited way, for the purpose of which I designed them. However we can all learn from our mistakes and comments would be welcome.

Dr. Serge Six,
Reading.

THE BIG FIVE REVIEWED

The Big Five Software Co. produce some of the best 'arcade' games for the TRS80 & Video Genie and I would like to present a brief review of the Big Five games I have.

GALAXY INVASION.

Probably one of the best known of the games.It makes Space Invaders look like Noddy in Toyland. The sound effects are superb and the graphics are excellent. The game has a similar format to Invaders with the nasty aliens trying to kill you as you sit at the bottom of the screen, and apart from bombs these nasties swoop down at you from all angles. Big Fives bad guy the alien flagship has the power to zap you with a nasty type lazer beam and if you can achieve a score over 200,000 then there is a constant "flag ship alert". All in all a game to be recommended, but be warned once you start playing this one you will ve little time for anything else.

COSMIC FIGHTER.

Rather like Galaxy you sit at the bottom of the screen blasting away at the Aliens and when you have seen off the first wave you have to dock with a huge mother ship to refuel otherwise you 'die' rather noisily. If one of the bad guys reaches the bottom of the screen you 'move up one notch' so giving you less time to kill off the next wave. Of course the nasty flag ship is appearing at the most inconvenient of times. A tough but a lot of fun game, wait until your score goes over 100,000 that sorts the men from the boys.

METEOR MISSION II

On the planets surface are 6 astronauts waitng rescue, waving their arms about and shouting for help. You have to undock your space shuttle from the mother ship and descend to the planet's surface to rescue them. On the way down you have to contend with asteroids and meteors and then land on a suitable landing pad, pick up your astronaut then return to the mother ship, meeting more asteroids and an occasional very nasty meteor shower on the way. Every time you land you 'eat up' part of your landing pad making each succeeding decent more difficult. This is an excellent game with very nice graphics and good sound.

NOTES for BEGINNERS

If you find you need to tap any particular key with force, it is time the contact is cleaned with an Electronic Contact Cleaner.(e.g. Tandy 64-9026). But how ? I have never found the advice to prize off the key cap with a screwdriver very helpful, and would suggest the following:-

Obtain a reel of plastic adhesive-backed insulating tape 3/4" wide, the tape being somewhat stiff and not too prone to curl. Cut off a piece 3" long, and feed one end carefully down the side of the key in question as far as it will go. Stroke this firmly with a thin piece of plastic (some garden plant labels are excellent for this) so that the tape adheres. Bend over the tape, and do the same with the other side of the key cap. Insert a pencil into the loop formed and lift. If the tape pulls off without lifting of the key cap, it is possible that the sides of the key are dusty and the adherence is poor. If so, cut off a new length of tape and this time make sure you have stroked the sides adequately. I have never known a second try not to succeed in pulling off the key cap. Spray the contact area exposed, and re-spray after pressing it up and down with a pencil.

The TAB command only takes you out to 64 and you may wish to print beyond this on your printer. The simplest way is to use STRING$(X,32). Thus:
PRINT TAB(63) F$ STRING$(S,32) G$
will print G$ starting at S spaces beyond the end of F$. This is a very simple way of extending TAB where you have a few items. However, if you are printing out a succession of lines and are using variables , say, F$(P) etc, which vary in length, the absolute location of G$ will wander.

In that case, you can find an absolute location by subtracting the length of F$(P) from the separation required, using LEN((F$(P))). The new STRING function becomes:
STRING$((X-(LEN((F$(P))))),32).

Note that X is now the number of spaces after the beginning of F$ where G$ will be printed. This is a case where the 'define a function' facility in DISK BASIC (page 7-11) can be very useful if you need to use this several times in your program. All that is needed is:
DEFFN A$(X,P)=STRING$((X-(LEN((F$(P))))),32)
From now on, FNA$(X,P) can now be used in place of the STRING function. This can of course be made more general by using a function (string or numeric) in place of P in FNA$(X,P).

Incidentally, it should be possible to alter the TAB subroutines in BASIC to extend the TAB beyond 64. I wonder if someone has done this ? My efforts in that direction have failed so far.

Bill Cowhig, 21 Priory Road SALE M33 2BS (061 973 3604).

ISS.

ISS stands for Instant Sort Search and while it doesnt quite live up to its title it is indeed extremely fast. It consists of three separape modules each of which occupies the same area of memory so that ,in use, the programme occupies less than 2.5K.

The modules are ISS1,2 & 3. ISS1 is used to construct the data files and add,modify and delete records in the files.ISS2 does the sorting and selecting. ISS3 is mainly to allow changes in the structure of files already created and in use.

Starting with ISS1 the user sets up the file structure according to his/her requirements. Up to 9 columns are allowed ,which may be letter,numeric or mixed. The total number of characters per record is limited to one screen line(i.e. 64)including mandatory spaces between columns.The only non alphanumeric characters accepted are . and space and neither are allowed in a letter column .There is no provision for hyphens, ? or brackets.Once set up this part of the file structuring cannot be changed (although the number and size of columns can) so careful thought is needed at this stage .It is trying to find,after you've entered a hundred records or so,that you need a space between two words in a column that you'd defined as alphabetic. There are also limitations to the way a 'mixed 'column can be used as the first two characters must be pre defined together as alpha or numeric, which means that any existing classification systems that use a single letter prefix with numbers cant be transferred to ISS 'as is'.

ISS2 will sort either a whole file,or only part of it,selected,excluded or resorted by initial,category or range.Any column can be chosen to sort by and all following columns will be sorted automatically.Totals and averages can also be produced for arithmetic columns.Tha display can be paged rapidly either way and the print option produces a JKL type printout. The sort speed is impressive-my file of 350 ful line records of format "RE234T nnnn Lung Carcinom Squamous " was sorted in 4 seconds.Inevitably

the programme's compactness and speed result in some limitations and one is that only the first letter of a column can be selected for sorting so it is not always possible to print out the wanted records without some unwanted ones that start with the same letter. Obviously if the records are short enough one can get over this by including one or two 'category' columns but if you already have problems fitting into the mne line restriction this isnt really practicable

ISS3 became available some weeks after 1 and 2 and goes some way to overcoming the inflexibility of a file structure created with ISS1. Columns can be added and extended (if there is space), reduced or deleted. One can also see how many records are in a file, and how many more can be added so that it is possible to work out an optimum file structure with just a few dummy records. Files can also be re-named and by using this together with the "select" function in ISS2 a whole block of records can be moved to a new file (they still need to be individually deleted from the old file though!). Unfortunately this can only be done once for each new file - there is no provision for moving a second block of data into the same file.

The programme is selfprompting almost impossible to crash, and the instructions are easily understood even by those of us who do not speak computeress. If your data will fit comfortably into 64 characters including spaces any extra columns you may need for exact selection then you should be delighted with ISS.

However, if you think that ISS's limitations are enough to make it less than fully satisfactory for your particular application what are the alternatives?
I used ISS for our catalogue of teaching slides and at the same time was using the SRTV module from Infinite Basic for the very similar application of indexing our routine diagnostic cases. Now both these applications have been converted to run with Newdos 80.2, which has an excellent (once the documentation has been penetrated) sort. Because Infinite Basic's modules are simply called from a basic programme it was very easy to convert our diagnostic index to run with Newdos 80.2's CMD"0" Conversion from ISS was not! It took advice from more knowledgeable group members and quite a bit of time, but, for us, was well worth the effort. We now have the flexibility needed for that particular application, with very little loss of speed. The table shows comparative sort speeds for the same file of 350 records similar to the previous example.

ISS	INFINITE BASIC	NEWDOS 80.2
350 records in 3-4 seconds	14 seconds	5-8 seconds
File unchanged (presumably sorts pointers only)	File unchanged	File is sorted
Stand alone programme	Module has to be constructed.	Sort is part of DOS
Less than 64 character records	Records up to 255 characters	
Non standard file format	Standard basic file format	
Data movement between files limited	Easy transfer of data between files	
Files cannot be used by other programmes	Files can be used by other programmes	

Can't be modified by user (unless you are a machine code expert)

Are used with normal Basic programmes, which are easily changed to users exact requirements

No programming knowledge needed

Someone needs to write the Basic programmes and maintain them.

Ariela Pomerance

RELATIVE CALLS TO ASSEMBLY LANGUAGE SUBROUTINES

It is considered good practice to write programs in logically related sections or 'modules'. If modules have general application or are used several times in a program it is convenient to implement them as subroutines. However, using subroutines in assembly language programs makes the code non-relocatable because the CALL instruction contains the absolute address of the subroutine. Relocatable code is particularly useful for utility routines because the code can then be placed at any convenient location in RAM. Relocatable code is essential for routines that are stored in strings for use in BASIC programs.

The Level II ROM contains a short routine which allows relative calls to assembly language subroutines. The routine consists of the two instructions:

```
000B/   POP HL
000C/   JP (HL)
```

In an article in November's 80-Microcomputing Roger Pare calls this routine GETPC (Get Program Counter) which describes it exactly. After a CALL GETPC the HL registers contain the address of the instruction following the CALL statement. This address can be used to set up the return from a subroutine entered using a Jump Relative instruction. (A 'Technical Forum' article in the October 1981 issue of Byte discusses relocatable Z80 programs.)

```
GETPC EQU 11
;
;--------MAIN PROGRAM--------
        -
        -
        CALL GETPC
        JR SUBRT          ;(the jump can be conditional)
        (return here)
        -
        -
        CALL GETPC
        JR SUBRT
        (return here)
        -
        -
;
;--------SUBROUTINE---------
SUBRT:  INC HL            ;SET UP
        INC HL            ;  ADDRESS FOR
        PUSH HL           ;     THE RETURN.
        -
        (body of the subroutine)
        -
```

```
        RET                 ;RETURN.
```

As the same three instructions are required at the beginning of every relative-called subroutine in the program they are best coded as a macro.

There are two restrictions imposed by this technique:

1. The subroutine must be within the -128 to +127 byte range of a relative JUMP. Some of the subroutines can be placed at the beginning of the source code and some at the end.
2. The HL registers cannot be used to pass arguments into the subroutine unless the auxiliary register set is used.

John Couch.

LDOS CMDFILE vs. SPACEV/CMD - a postscript.

Since I wrote about patching the level II keyboard routine to enable SPACEV and the like to be run from DOS in the July newsletter (Vol 3 £1) several people have pointed out that LDOS CMDFILE wont put SPACEV onto disk properly in the first place. (The VTOS CREATE utility seems to work OK).

The problem is that CMDFILE does not automatically relocate code which normally loads below 4200H : it first asks for confirmation that this code is to be relocated. (Normally the only code not to be relocated would be that which was directly loaded to the video memory between 3C00H & 3FFFH. The memory between 4000H & 41FFH is used to store system pointers which are for the most part different under DOS to those which a program loading under level II would expect). This in itself should not cause a problem provided that the option to relocate the code is taken. However CMDFILE appears to contain a bug which results in the code below 4200H not being re- located at the specified relocation address. I cant quite work out exactly where this code does relocate in relation to the specified address as a general rule, but it is very likely to corrupt cor- rectly relocated code and thus crash the system when run.

The solution is to relocate all code above 3FFFH and none below it. Provided the relocating appendage is specified any new system pointers specified by the program which load between 4000H & 41FFH will be installed when the program is run.

To modify CMDFILE so this is allowed, type :-

```
PATCH CMDFILE/CMD.RRW3 (X'54B7'=FF 3F,X'5E86'=30)
```

{To subsequently remove the patch, type :-

```
PATCH CMDFILE/CMD.RRW3 CPL (YANK)
```

}

Since I dont have a tape version of SPACEV I havent been able to test the patched CMDFILE on this particular program ... would some- one like to tell me if it works? The following instructions should work:-

```
     (Qn refers to the query no. in the LDOS CMDFILE
instructions)
     Ldos Ready          ===>      CMDFILE
     Q1                  ===>      N
     Q2                  ===>      T
                         ===>      <enter>
     Q2                  ===>      <enter>
     Q3                  ===>      8000
{restrict offset to 4000 if applicable.}
     Q4                  ===>      Y
     Q5                  ===>      Y
     Q6                  ===>      Y
     Q8                  ===>      D
                         ===>      SPACEV/CMD
     Q9                  ===>      E
```

Then type SPACEV to see if it works!

Al Redhouse
The Villa
East Cottingwith
York
YO4 4TL

Tel : Melbourne (07593) 502

RUNNING AFTER A CLOAD

In the January 1981 Newsletter John Newgas asked, "Can anyone tell me how to make a program run automatically after a CLOAD". The following answer arose from an article in the November 1981 issue of 80-Microcomputing in which Roger Pape described how the CLOAD command takes a 'DOS exit' after the program has loaded but before the READY prompt is displayed. A DOS exit is a call into RAM (location 16821 in this case) where a disc based system finds a jump instruction and a tape system finds a return instruction.

The trick is to replace the return instruction at 16821 with a jump to a routine which will run the program.

```
GETPC EQU 11              ;GET PROGRAM COUNTER.
CLOAD EQU 185             ;CLOAD TOKEN.
RUN   EQU 142             ;RUN TOKEN.
EXEC  EQU 7514            ;EXECUTE A BASIC COMMAND
;
DO    MACRO £TOKEN
        LD HL,16870       ;ADDRESS OF INPUT BUFFER.
        LD (HL),£TOKEN    ;PUT A TOKEN THERE
        INC HL            ;  FOLLOWED BY
        LD (HL),0         ;     A ZERO.
        DEC HL            ;BACK UP
        DEC HL            ;  THE POINTER.
        JP EXEC           ;EXECUTE THE COMMAND.
        ENDM
```

```
        LD A,195          ;PUT A 'JP' IN
        LD (16821),A      ;  THE DOS EXIT
        LD DE,L20-L10     ;    FOLLOWED BY THE
        CALL GETPC        ;      ADDRESS OF THE
L10:    ADD HL,DE         ;        INSTRUCTION AFTER
        LD (16822),HL     ;          'DO CLOAD'.
        DO CLOAD
L20:    POP HL            ;BALANCE THE STACK.
        LD A,201          ;RESTORE THE 'RET' INSTRUCTION
        LD (16821),A      ;  IN THE DOS EXIT.
        DO RUN
;
        END
```

Note that the 'DO' macro is the routine presented by Alun Evens in the June 1981 Newsletter. It works for the CLOAD token as well as the RUN token.

The following program stores the machine code routine in a string variable and then demonstrates how BASIC programs can be 'chained':

```
10 CLEAR 100:DEFINT I-N

15 '
20 'Set up the machine code routine.
25 CHAIN$=""
30 FOR I=1 TO 47:READ MCODE:CHAIN$=CHAIN$+CHR$(MCODE):NEXT
35 DATA 62,195,50,181,65,17,17,0,205,11,0,25,34,182,65,33
40 DATA 230,65,54,185,35,54,0,43,43,195,90,29,225,62,201,50
45 DATA 181,65,33,230,65,54,142,35,54,0,43,43,195,90,29
50 PTR=VARPTR(CHAIN$)  'Set up entry address for USR
55 POKE 16526,PEEK(PTR+1):POKE 16527,PEEK(PTR+2)
60 '
65 'Demonstrate program chaining.
70 CLS
75 PRINT "This program demonstrates how one BASIC program"
80 PRINT "can CLOAD and then automatically RUN another."
85 PRINT
90 PRINT "LOAD CASSETTE PLAYER - PRESS ANY KEY"
95 IF INKEY$="" GOTO 95  'Wait for a key
100 I=USR(0)  'CLOAD & RUN
```

John Couch.

A SIMPLE SOUND BOX

I recently bought for £7.49 a Tandy mini-amplifier, officially called the 200mW Amplifier-Speaker, Cat.No. 277-1008A. I wanted it as an interface to my Video Genie for a Microdeal light pen (of which more on some other occasion, perhaps).

Soon I was diverted from my light pen experiments by the happy thought that the mini-amp could be used as an output device just as well as an input interface. If you want to try it, proceed as follows.

Plug the channel 2 cassette lead into the keyboard unit as usual, and insert the microphone jack plug into the input socket of the mini-amp. The other two jacks can be left dangling.

Now you are in a position to eavesdrop on the ruminations of your computer - the merry twittering as a long LIST scrolls by, and the friendly beep in response to each key as you INPUT or EDIT. Though there is no proper output on port 255, to which your mini-amp is connected, it seems to make something of any stray micro-volts nearby if you turn the volume control high.

Next step is to get some controlled sound out of the device. Turn the volume down and try PRINT#-2,A. The result should be a penetrating screech , as Basic tries to write a tape header block on the non-existent channel 2 cassette. However, you have now effectively selected channel 2 for output until further notice, and you can experiment with the sound effects produced by various combinations of OUT 255,4: OUT 255,5: OUT 255,6 within FOR-NEXT loops.

For a range of accurate musical notes your Basic will need a little assistance from short machine language USR routines. Essentially these will use OUT(255),A followed by a carefully timed delay, to produce the right frequencies. The value in A can be 4, 5 or 6. The output value 5 produces a positive signal at port 255. The value 6 gives a negative signal, and 4 a zero signal. So this sort of sequence

```
LD      A,5
OUT     (255),A
        delay
LD      A,6
OUT     (255),A
        delay
        repeat
```

will evidently output something like a square wave. Any way, the sound is quite pleasing.

The greater the delay, of course, the fewer cycles of the loop will be made per second, ie the lower will be the frequency.

So far I would reckon to be able to get a usable range from about 110 cps to 1760 cps representing four octaves, with middle A at 440 cps. My Genie will now automatically run through scales of various intervals for me, and I can play a recognisable tune on the keyboard. I need to refine this keyboard routine, and develop a routine to store complete tunes in DATA statements for playback on request.

No doubt all of this could be done on a TRS-80 just as on my Video Genie. One final warning about the mini-amp. It has no tell-tale lamp, so it's easy to forget to switch it off at the same time as the computer. Can't be good for the life of its battery.

John Gale
16 Wrensfield, Hemel Hempstead, Herts HP1 1RN 0442-53643

MORE ON DOUBLE DENSITY ON THE MODEL I

Aerocomp board

Following my previous notes I can still report excellent reliability with the Aerocomp board running under NEWDOS80 Version 2.

I am using the following software with no problems except that disc I/O appears faster and I can access DOS features through the NEWDOS DFG command.

Pencil
Scripsit
Visicalc
Hexspell spelling check

I would like to acknowledge the invaluable assistance of Laurie Shields who put me on the track for some patches which overcame some problems in using the above software. In addition Laurie has patched my version of Scripsit so that it will now use my TRS232 printer box. (RS 232 through the cassette lead).

I must admit to being impressed by the disc I/O speed of Scripsit. With long text it is so much faster than Pencil that at first I suspected that it was not saving the text - another NEWDOS patch required I thought! Laurie explains the difference as being due to 256 character as opposed to single byte transfer. I am left in no doubt that Scripsit is a must for handling large amounts of text.

Percom's Doubler

In my last review I mentioned doubts about Percom's latest version. The earlier doubler is certainly very suspect. I have used the latest board on another system and there is a marked reluctance to boot up on double density discs - cured only by switching off. Other users, can you comment so that a reasonable sample can be obtained?

Reliability

My own system has been used fairly extensively - I had to copy across from my single density discs! During this time I have had but one parity error and as my budget is tight I am still using my original discs which I must admit do vary in quality!

My largest disaster was when I did a CBF (Copy by file) onto my system disc. I did not use the CFWO (Check file with operator) option and my source disc had a standard

NEWDOS system - Imagine my surprise when I lost my system!

I was also faced with an interesting choice in configuring my system as I had one 77 track drives and because of tight budgets two 35 track drives. I resist disc switching during backup so that my 77 track drive became drive 0 and quite usefully holds all my utilities plus 80 granules of free space! As the previous tale illustrates it is important to backup all discs. 77 to 35 will not go and this lead me into Superzap and copy by disc sector. This allows me to copy my system disc onto two 35 track drives and using DO (CHAIN) this can be made automatic except that I am short of 10 tracks. However, the all important directory tracks are copied and as I keep copies of my utilities as well and bearing in mind 80 free granules then this procedure is a convenient compromise.

Derrick Rowe

REPLACEMENT INVERTERS FOR THE RS-232 BOARD

The inverter on my RS-232 board recently failed. I have been in touch with the manufacturer:-

ASTEC,
16 Albury Close,
Reading RG3 1BD.
Phone Reading 53067

These inverters are available at £4.16 each. They will in fact handle 100ma on each side which is pretty handy. I think it more likely that I shorted mine rather than overloaded it. Its a useful source of +/-12 which may easily be run out along spare lines on the RS232 cable.

They tell me that they supply RS Components with a larger version which should be found in their catalogue.

Andrew Donald

HOW TO WRITE A CROSS-ASSEMBLER IN A COUPLE OF HOURS!

Some time ago I mentioned that I was thinking of using that superlative piece of software (sorry about that, Laurie), Macro-80, to develop a 'quick and dirty' cross-assembler. I have at last got round to doing just that, with a cross-assembler for the National INS8060 (formerly the SC/MP) taking just a couple of hours.

The whole thing was implemented by defining macros for each of the 8060 assembler instructions. To avoid any re-definition of the Z80/8080 instructions (Macro-80 does not like this) all instructions are prefixed by an '@'. If you prefer to use the standard National mnemonics, just write a simple BASIC pre-processor to append them before assembly. To keep things simple, some instructions and operand are also modified from the official National format. For instance, ST LOC(P1) becomes @ST LOC,P1. The comma is needed anyway as part of the parameter-passing procedures used by Macro-80.

A couple of example macro definitions should indicate how to go about things:-

```
@XPAH   MACRO   X
        DB      0C4H
        DB      X
        ENDM

@JNZR   MACRO   X
        DB      9CH
        DB      (X-$)-1
        ENDM

@DLD    MACRO   X,Y
        DB      0B8H+Y
        DB      (X-$)-1
        ENDM
```

Note the use of the additional R to indicate relative addressing in the case of the @JNZR definition. I am using -X and -A for indexed and auto indexed addressing. Again, this makes things much easier.

The full list of macros is much too long to include here. If anyone would like a copy of them in the form of a Scripsit file, please send me a disk.

To assemble your program, merely write it following the macros in the usual way, assemble and link. That is all there is to it!

Using this technique, in conjunction with my EPROM programmer and programming software, greatly enhances the usefulness of my Model I. I shall be developing similar macros for the Intel 8086/8088 and Texas Instruments 9995.

Leon Heller

GUIDELINES FOR CONTRIBUTORS

1. Send material in machine-readable form (Scripsit or Pencil disk/cassette) if possible.

2. Ensure your ribbon is in reasonable condition if using a printer.

3. Printer output should be on A4 paper if possible.

4. If you send in handwritten material, write legibly.

5. Do not fold the sheets when posting them. Use a large envelope and keep them flat.

Leon Heller

NOTES FOR BEGINNERS - PART 3

PROGRAM LINE LENGTH

ORDINARILY A PROGRAM LINE CAN BE UP TO 255 CHARACTERS. STRAIGHTFORWARD TYPING IS NOT PERMITTED BEYOND THAT. BUT IF YOU EDIT A LINE BEYOND THAT LENGTH IT MAY BE ACCEPTED BUT AT THE EXPENSE OF OVERWRITING SOME OR ALL OF THE SUCCEEDING LINES.
A 255 CHARACTER LINE CAN BE SAVED, BUT NOT IN ASCII MODE USING SAVE OR CSAVE "FILENAME",A IF IT HAS MORE THAN ABOUT 248 (CHECK) CHARACTERS. WHEN YOU TRY TO LOAD YOU WILL THEN GET A DIRECT STATEMENT IN FILE ERROR MESSAGE. AND HAVE TO RESORT TO SUPERZAP TO SORT OUT THE DISC.

CHR$(23)

THIS INSTRUCTION SHOULD GENERATE DOUBLE SIZED LETTERS PLACED AT ALTERNATE TAB LOCATIONS. IT WORKS IN TWO PARTS. DISC DRIVE MALFUNCTION CAN TRIGGER THE FIRST WITHOUT THE SECOND. THUS AN INCOMPREHENSIBLE LARGE TYPE MESSAGE MAY APPEAR LIKE PORMI SEIGTEDT O EUSE WHICH, BY CHECKING THE PROGRAM FOR A LINE IN WHICH THOSE LETTERS APPEAR AS THE ALTERNATE CHARACTERS IS FOUND TO BE:
PROGRAM IS SEEKING THE RECORD YOU REQUESTED.
TO CHECK THAT THIS IS SO PRESS BREAK:TYPE TRON <ENTER>:
TYPE CONT <ENTER> AND THE TRACE WILL APPEAR WITH ONLY ALTERNATE CHARACTERS.
THE CURE IS TO SERVICE THE DISC DRIVES.

DOS COMMAND CLOCK ONLY WORKS AFTER TIME HAS BEEN ENTERED.
MEMORY LOCATIONS 16449-16454 STORE THE TIME AND DATE VALUES AND CAN BE USED TO POKE THE TIME AND DATE VALUES WITHOUT HAVING TO RETURN TO DOS FOR CLOCK.

NEWDOS+ COMMAND COPY WILL BACK UP A COMPLETE DISC IF FILENAMES ARE OMITTED BUT THE DATE INCLUDED:

```
COPY :1 TO :2 11/24/81
```

ALSO WITH NEWDOS COMMANDS CAN BECALLED FROM BASIC BY THE USE OF CMD"DISC OPERATION COMMAND" AND RETURN TO BASIC AFTERWARDS WITHOUT LOSS OF THE RESIDENT PROGRAM. PROVIDED THERE IS ENOUGH FREE MEMORY AVAILABLE. IF THERE IS NOT THEN AN OUT OF MEMORY MESSAGE IS DISPLAYED AND THE NEWDOS PROGRAM CANNOT BE RUN. SO SAVE IT. TYPE NEW AND RUN THE CMD" " PROGRAM. RELOAD THE SAVED PROGRAM.

HANG UPS

SOMETIMES THE COMPUTER STOPS WORKING. THIS MAY BE BECAUSE:
1. YOU HAVE GONE INTO A LOOP. PRESS BREAK. TYPE TRON:

CONT <ENTER>. A REPEATED SEQUENCE OF NUMBERS WILL REVEAL THE LOOP.

2. THE PROGRAM SAID LPRINT OR LLIST BUT THE PRINTER WAS SWITCHED OFF.
3. UNREQUESTED RETURN TO DOS READY.
   S T O P A N D T H I N K
   IF A DOS WITH AUTO ON IS IN USE REPLACE WITH A DOS DISC WITHOUT. TYPE BASIC *. SAVE OR CSAVE. CLEAN ALL CONNECTIONS.
   CLEAN ALL CONNEXIONS
4. INEXPLICABLE CAUSE. NO KEY HAS ANY EFFECT, NOR THE SUGGESTIONS ABOVE.
   START ALL OVER AGAIN AND TRY TO REPEAT THE CONDITION. THERE IS SOMETHING I DO IN THE BOTTOM LEFT HAND CORNER OF THE KEYBOARD WHICH CAUSES A HANG UP, THE CAUSE OF WHICH I CANNOT REPEAT. ANY IDEAS ?

   WHICH IS WHY I ADVOCATE SAVING THE PROGRAM EVERY FIFTEEN MINUTES SO THAT ONLY THAT LENGTH OF WORK IS EVER LOST.

NEWDOS+ RENUM

THIS INVALUABLE RENUMBERING FUNCTION BOTH RENUMBERS AND CHANGES LINE NUMBERS IN GOTO AND GOSUB STATEMENTS. IT DOES NOT CHANGE THEM IN REM STATEMENTS, IN STRINGS OR WHERE , IS USED INSTEAD OF THEN IN IF.....THEN STATEMENT. SO REFERENCES TO LINES IN THOSE LOCATIONS NEED TO BE CHANGED INDIVIDUALLY. THIS CAN BE HELPED BY LABELLING E.G.

```
N  PRINT"TEMPRORARY LINE 1009"'<***>
```

SEARCHING THE RENUMBERED PROGRAM FOR <***> WILL ENSURE ALL ARE EDITED.

STRING$(N,"X") & STRING$(N,M)

STRING$ WILL PRINT N TIMES THE CHARACTER IN QUOTES. OR THE CHARACTER CORRESPONDING TO THE ASCII CODE GIVEN. THUS PRINT STRING$(63,127) RULES OFF THE SCREEN, IF YOU CAN REMEMBER THAT 127 IS THE ASCII CODE FOR - . BUT STRING$(63,"-") DOES THE SAME, SAVES THE EFFORT OF LOOKING UP THE CODE AND MAKES CHECKING EASIER.

CHRISTOPHER J PERRATON,
178A WOODROW,
MELKSHAM,
WILTS.

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BITS AND PIECES

In Practical Computing for October a small routine was given which enabled cassette data files to be written and read (PRINT£ and INPUT£ functions), with an increased speed. A factor of 2 was claimed. It works by writing only 8 bytes as the data item leader rather than the 256 specified by the ROM.

I was recently asked to have a look at the routine since it did not appear to work. I found that the routine was written for the old ROMs and should work as stated for those. To enable it to operate with new ROMs it is necessary to change the value of 150 appearing in line 30 to 121.

It seems a handy routine for anyone using tape based data files. If we have any cassette based ROM zappers in the group they might be interested to learn that exactly the same effect may be achieved by changing the FF at address 0288H to 07.

On the subject of ROM zapping, I am aware that a number of people have now replaced the ROMs with EPROMs. If your system has a pound sign whilst in Basic, then this may be used in place of the floating $ in the Print Using function by changing 24 to 60 at each of the following addresses.
102C,10EC,2D2E,2D3D.
This is a function which we in Britain have almost abandoned simply because we don't use dollars (yet). It really is worthwhile if you are able to make the changes.

I was also asked about the method used for switching single to double density on disc operations.
The switch may be found on the boot sector of any double density disc. (Track 0, Sector 0).
I won't reproduce a routine here for copyright reasons and they do vary from DOS to DOS, but essentially it is just the output of FF to the command register (37EC) to switch in the 1791 (double density). And an output of FE will bring in the 1771 (single density). It's that simple.
Do keep in mind that the sector I/O routines have to be rewritten to be compatible with the different timings from both systems.

If the chap who was complaining to me, at Milton Keynes, about Ultramon's propensity to spew out screeds of printing will drop me a line, I may be able to provide a solution.

Finally, if anyone has a copy of Byte for Sept. 1980, I would be grateful for a copy of the article entitled Khachiyan's Algorithm, Part 2.
I have access to two libraries which keep Byte and that copy has disappeared from both.

Andrew Donald
6 St. Georges Road
Ilford
Essex. IG1 3PQ.

MODEL 16

In my last note I was expressing concern over the lack of innovation by Tandy. Had they caught the big company disease? The 16-bit multi-user Model 16 promises to provide a clear market lead over the Apple/Pet/IBM machines. In this market segment, it is the only machine designed for multi user and appears to have the necessary support in terms of processor, memory and backing store and after all this the price appears similar to the existing Model 2. If it works, and the Model 2, although not exciting, certainly does work as a reliable business system,then the upwards growth path is very exciting. Tandy appear to be on the threshold of providing an office network and unlike the established market they are doing this at realistic (apologies) prices. In this respect their link with Datapoint could be very significant.

Derrick Rowe

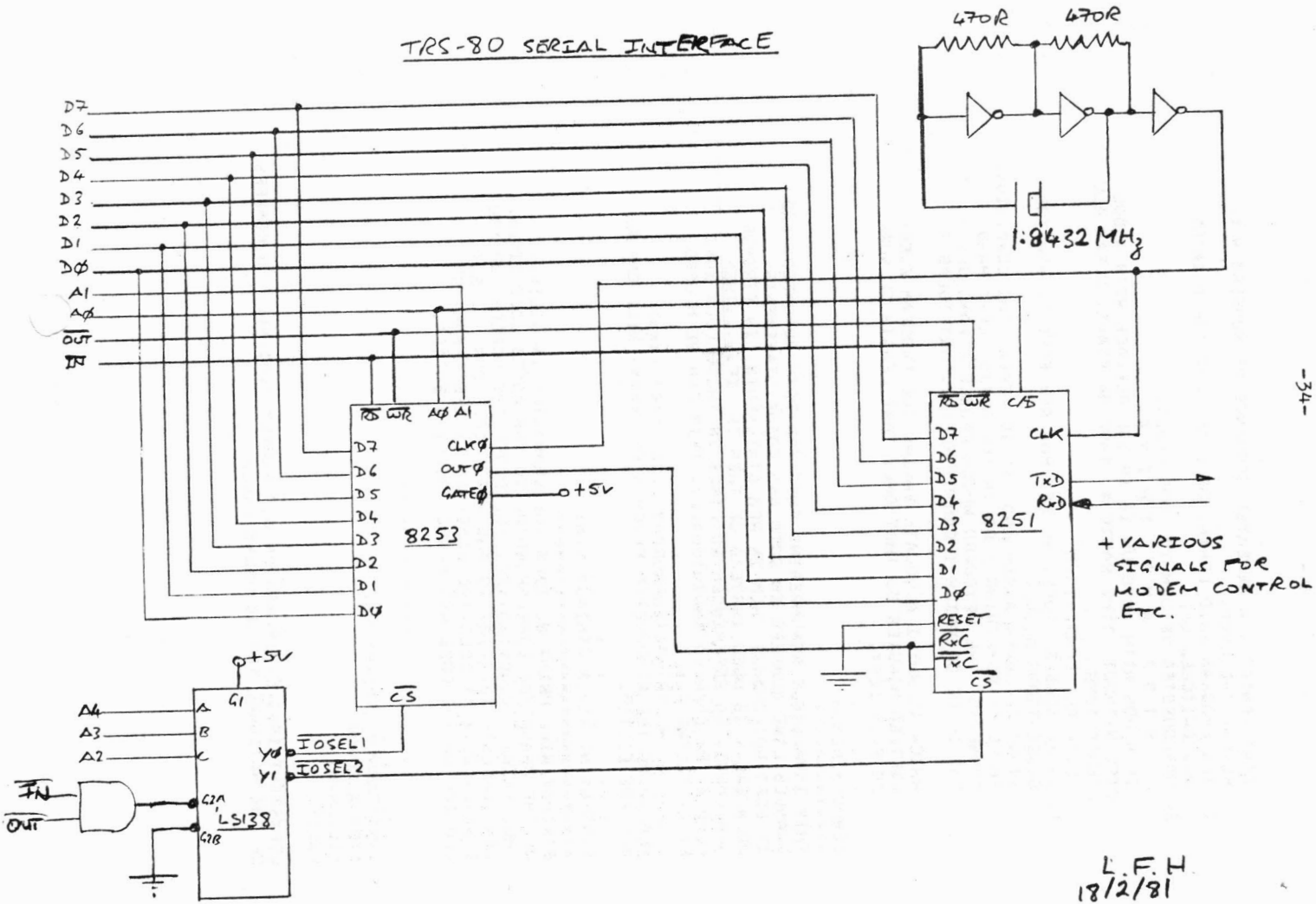
AN 'ALL-SINGING, ALL-DANCING' SERIAL INTERFACE

Although the Tandy serial interface works reasonably well, apart from some connector problems and a voltage converter module that occasionally gives up the ghost, it is a rather crude design. The accompanying circuit diagram outlines a sophisticated serial interface that can be built for around £20. An Intel 8253 programmable timer/counter, driven by a crystal oscillator, can be programmed to divide down the crystal frequency to deliver an appropriate clock signal for the desired baud rate to the Intel 8251A USART device. The 74LS138 is used to provide some address decoding for the internal registers in the 8251A and 8253 chips. I have not included the RS-232 level conversion circuitry.

I have not yet tried this circuit out on my TRS-80, but it is working satisfactorily on my 8088 16-bit system. You will have to write your own software for terminal emulation, of course. As a bonus, the 8251A USART will support IBM bi-sync, if you can lay your hands on an IBM system!

Leon Heller

TRS-80 SERIAL INTERFACE



L.F.H
18/2/81

PIXEL SCROLLING

Enclosed is a short machine code program to scroll pixels.I have used it to gr-. aphically plot out the results of the integration of a second order differential equation,showing damping of a classical simple harmonic oscillator.The Basic program to do this was culled from a Fortran listing and takes about 4kB of memory.If anyone is interested in further details contact me ,and I will be glad to give more info.

Alan Malvern
The Oaks
Broomhall Lane
Sunningdale
Berks
SL5 0DG
tel: Ascot 26202

```
        ORG   XXXXH; anywhere suitable
        LD B,40H;to treat the first line
        LD HL,3C00H; start of video
LOOP:   LD A,(HL)
        BIT 7,A;is this a graphics character
        JR NZ,L5
        RES 5,A;if not graphics,then should be a space
        JR L6
L5:     RES 7,A; strip off bit7 if graphics
        SRA A;scroll up by a right shift
        SRA A;two times
L6:     SET 7,A;reset bit 7
        LD (HL),A;put on video
        INC HL;next byte
        DJNZ LOOP;first line complete
        LD IX,3C40H;start of second line
        EXX
        LD B,15; only 15 lines left to treat
L4:     EXX
        LD B,40H;loop along the line
L3:     LD D,(ix-40H);line above
        LD A,(IX+0);current byte
        BIT 7,A;graphics character?
        JR NZ,L7
        RES 5,A:if no,then space (20H)
        JR L2
L7:     RES 7,A;if yes,strip off bit 7
        SRA A
        JR NC,L1;bit 0 not set
        SET 4,D;previous line
L1:     SRA A
        JR NC,L2;2nd. bit set?
        SET 5,D;previous line set
L2:     SET 7,A
        LD (IX+0),A;put on video
        LD (IX-40H),D;previous line
        INC IX;next byte
        DJNZ L3; loop along the line
        EXX
        DJNZ L4;line to line loop
        RET
        END
```

14 RATHBONE PLACE, LONDON W1P 1DE
TELEPHONE: 01-631 1433

Having recently been appointed Programs Editor of Personal Computer World, my first job is seeking out original programs for all sorts of micros, not only in Basic but also in Pascal (as you are possibly aware we do not publish Machine Code as the listings are too long. Assembler is covered in PCW Sub Set).

It is for this reason that I write to you. Although we do get a fair number of programs from our readers, a lot of them are full of bugs and still more are games or applications that turn up over and over again. I'm sure that among your members you must have at least a few talented programmers who would like to have software published- naturally we pay for it at good rates- and in view of this, I'd like to hear from them.

I'd be grateful if you could mention to your members that I am looking for as much good amateur software as I can get on behalf of PCW and that we also have a paid referee register going for those (who know what they're at) who would like to check programs and provide listings from cassettes and disks. Anyone interested is more than welcome to write to me at the above address.

Thanking you for your attention,

Yours Sincerely,

Maggie Burton
PROGRAMS EDITOR.

Report on the lower case conversion (supplied by Eric Hartley 0254 - 84286)

I received my conversion kit from Mr. Hartley via an advert in the TRS 80 users group newsletter at #15. Apprehensive, obviously as I'd never opened up the keyboard. And what a mess inside? The conversion consists basically of prising out an 18 pin chip and pushing in a matchbox box size fibre board in it's place then soldering one wire.
The next piece was more difficult, which involved prising out another chip (which is not soldered but socketed) and laying another chip ontop and soldering the overlaying tags to one another. Two more wires are soldered and two printed circut tracks are cut with a blade. And thats it.
The instructions are precise and the diagram of chips is sufficient for a layman (as myself) to follow with ease. Needless to say it worked instantly. For #15 it's sheer value and a damn site better than the Tandy Mod at #30.
I had to ring Mr. Hartley direct because of a query in operation and his manner was unusually pleasant, not something that I'm used to in todays world.
I would [illegible]y to anybody that is nervous about hardware that the conv[illegible]ion took around 30 minutes. A lower case driver on cassette was supplied free.

To assist any newcomer, a couple of hints. Firstly the chips are numbered 1 - 8 down the left side top to bottom and 9 - 16 bottom to top on the right side. Number 1 Pin has a dimple in the plastic above it for identification. Secondly a tiny soldering iron should be used (bought out of the saved cash from the Tandy Mod.) and after each Pin is soldered allow to cool or blow on the joint before soldering the next pin. This prevents overheating the chip. And lastly shift 0 is used to obtain lower case and back again but when tape scripsit is loaded shift @ should be used. this is the query I called Mr. Hartley about.
If this letter sounds like an advertisement all well and good as I am more than pleased with the outcome.

GEORGE SMITH

Sidcup. Kent.

Slow - Slower - Fast

Following Al Redhouse's article in the last newsletter I decided to instal his synchronous speed up mod and with Al's help over the telephone it now works. He has however asked me to write a note for the next newsletter about it.

Following problems associated with pin identification (Speed-up cock up Volume 1,Issue 10 ?) I finally achieved two speeds - slow and slower. The slow speed being the normal TRS-80 speed and the slower speed being some 50% slower. Not really what I had hoped for!

Acting on Al's advice, I rearranged the connections to Z56 as follows
Wire from pin 11 of Z56 to pin 2 of new chip replaced by a
wire from pin 12 of Z56 to pin 2 of new chip.
An addition link was then put in from pin 1 of Z56 to pin 14 of Z56.

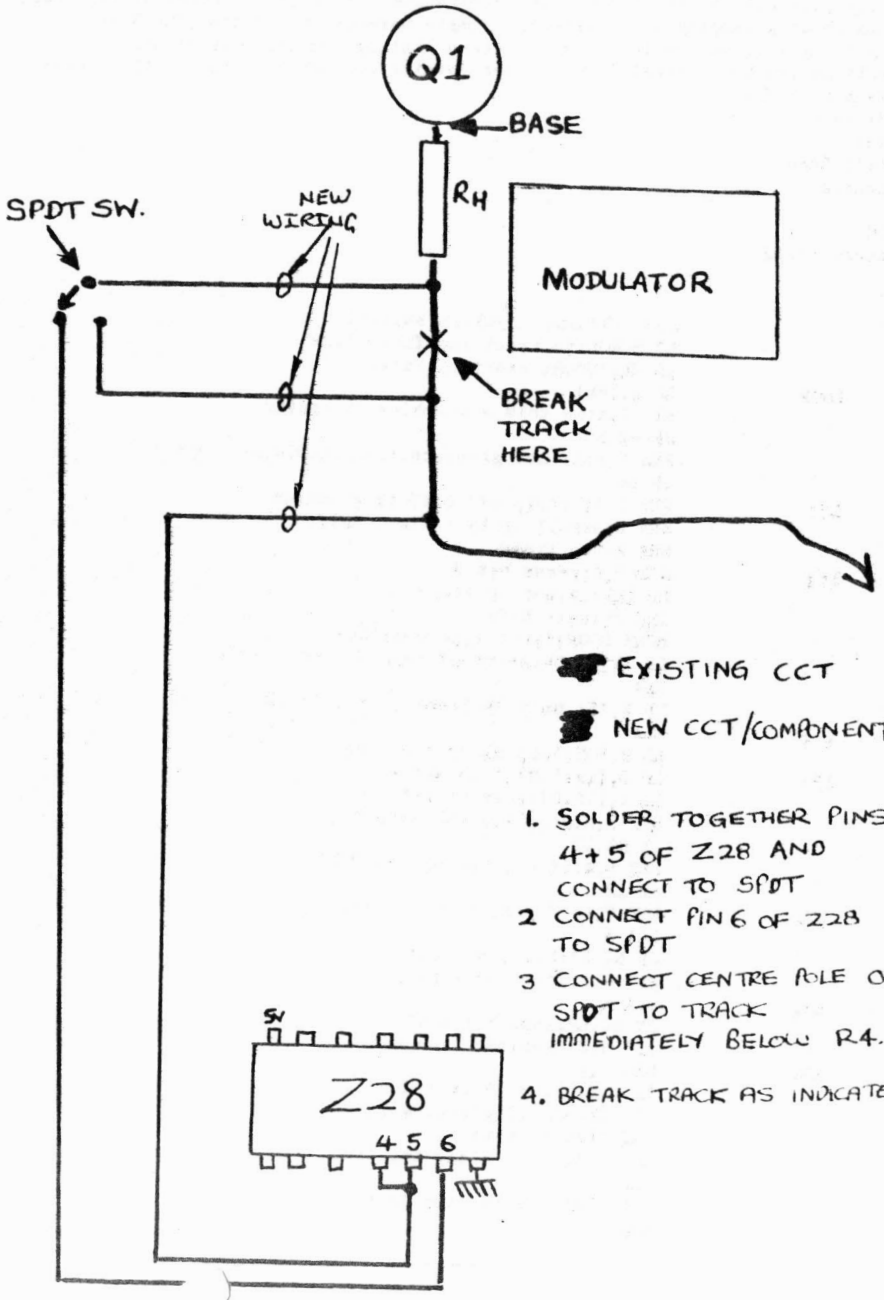
Following this modification I had the desired two speeds, slow and fast, with trouble free changeover between the two even while a program is running. I have not encountered the high memory problem refered to in Al's article but this may be because I have my 48k in the keyboard using a Holmes IM2 expansion board.

I have found that my Floppy tape will certify tapes written at high speed but has to make more than one pass to read the data. When @NEWing tapes at the high speed the Floppy tape device omits the preliminary steady erasure pass. If required this can be generated by entering OUT 240,5 before @NEW. As the tape is being used at flux densities above the factory certification it is probably inadvisable to store vital data or programs at this speed.

Whilst digging around inside the keyboard, I also fitted Eric Hartley's lower case mod which has nice full descenders. This kit was quick and easy to fit with a minimum of soldering required. It has a pounds sign which can normally be accessed with <SHIFT @> or CHR$(96). Can anyone tell me how to get at it in Scripsit ?

John Taylor,
19 Woolstrop Way,
Quedgeley,
Gloucester - 412071

INVERSE VIDEO FOR THE GENIE



Richard Osbourne

HARDWARE REVIEW - ERIC HARTLEY'S LOWER-CASE MODIFICATION

At the recent Birmingham workshop, Eric gave me one of his lower-case mod. kits to review for the Newsletter.

The kit comprises a small circuit board on which is mounted an EPROM, programmed with all the standard characters, but with true lower-case descenders, and a comma that looks normal. All you have to do is remove the existing character generator, and plug Eric's circuit board into the same socket.

Eric also supplies a 2102 RAM to provide the additional bit of video RAM for the lower-case. It has to be "piggy-backed" onto one of the existing RAMs, and a couple of wires attached. A couple of track cuts have to be made. Provided you have one of the new ROM keyboards the whole job should not take more than about 20 minutes, as the existing character generator is in a socket and merely has to be replaced by Eric's unit. If like me you have one of the early keyboards with the character generator soldered in, it will take somewhat longer. I removed the chip using desoldering braid, which took about 30 minutes. I should have just chopped it out with side cutters and removed the pins individually. When the chip was out I soldered in some Molex Soldercon pins provided by Eric, and plugged in his new character generator. Since I already had the Electric Pencil type lower-case mod., I did not have to mount the additional 2102 RAM. A couple of track cuts and the thing was finished. As I expected, it worked immediately I re-assembled the keyboard unit.

The kit comes with a couple of pages of very comprehensive instructions, and anyone who is at all handy with a soldering iron should have no trouble in fitting it.

A similar kit is also available for the Genie, and should be a vast improvement on the rather poor lower-case modification provided by Lowe. Even if you have the new Tandy lower-case character generator, Eric's kit could be of use, as Tandy achieve their lower-case by shifting up the whole character in the character cell.

At £15 I can thoroughly recommend this kit, which is obtainable from:-

Eric Hartley,
91 Quebec Road,
Blackburn BB2 7DP.
Tel: (0254) 64286

Leon Heller

MILTON KEYNES WORKSHOP EQUIPMENT REVIEW

NAME: Ken Robinson
MAIN SYSTEM: 32k Video Genie, Boots TV., Aculab Floppy Tape (TRS-80 version)
MODS: Piggy-back RAM, Lower-case mod (Tandy compatible), Homebrew V.G. - TRS-80 bus converter, Home fitted V.U. meter for cassette loading, Sound box, LIght pen, External Hex keypad, Joystick.

NAME: John Abe
MAIN SYSTEM: 16k LevII Model 1 TRS-80, Green monitor, Tandy cassette.

NAME: Stuart Farnsworth
MAIN SYSTEM: 48k Model 1 TRS-80, Green monitor, Tandy Expansion interface with twisted Pair mod & buffered cable
DISCS: Single Shugart drive, 35 track, single density

NAME: John Christie
MAIN SYSTEM: 48k Model 1 TRS-80, B/W monitor, Tandy cassette, Tandy expansion interface
DISCS: Dual drive (TEAC?)
PRINTER: IBM Golfball with Aculab interface
MODS: Microware High Res. Graphics & Lower case board, Sound box built into monitor

NAME: Mike Gibbons
MAIN SYSTEM: 48k Model 1 TRS-80, B/W monitor, Tandy Cassette, Tandy expansion interface with twisted Pair mod & buffered cable. "Spare" 16k LevII model 1 TRS-80, Sony TV.
DISCS: 2 Shugart SA400 drives, 35 track, single density
PRINTER: Black Box

NAME: Dave Blaker-Hedges
MAIN SYSTEM: 48k Model 1 TRS-80, B/W monitor with Tandy Anti-glare filter, Tandy cassette, Tandy expansion interface
DISCS: 2 Drives
PRINTER: Microline 80
MODS: Home made carrying case

NAME: Tony Evetts
MAIN SYSTEM: 16k LevII Model 1 TRS-80, Waltham TV., Philips N2233 cassette

NAME: Melvin Palmer
MAIN SYSTEM: 32k Model 1 TRS-80, Bush TV., Tandy cassette,

Tandy expansion interface
DISCS: For Christmas
PRINTER: Tandy Quick Printer
MODS: Sound box

NAME: Frank Hope
MAIN SYSTEM: 48k Model 1 TRS-80 with Tandy Lower-case, Hitachi TV., Ferguson Cassette, Tandy expansion interface
DISCS: 1 Shugart drive, 35 track, single density
PRINTER: Epson MX80F/T

NAME: Dave Webster
MAIN SYSTEM: 32k Video Genie, Bush TV., Aculab Floppy Tape
MODS: Piggy-back RAM, sound box & assorted other mods

NAME: Keith Blount
MAIN SYSTEM: 16k LevII Model 1 TRS-80, Green monitor, Tandy cassette, Aculab Floppy Tape

NAME: Derek Clarkson
MAIN SYSTEM: 16k Video Genie, ICL Monitor
MODS: Sound box, Driver circuit for monitor

NAME: John Taylor
MAIN SYSTEM: 48k LevII Model 1 TRS-80, ITT TV., Tandy Cassette, Aculab Floppy Tape
PRINTER: Trendcom
MODS: Holmes In-Keyboard memory expansion

NAME: Graham Wickens
MAIN SYSTEM: 16k Video Genie, Tandy B/W monitor, Aculab Floppy Tape

NAME: Tony Sheil
MAIN SYSTEM: 48k Model 1 TRS-80 with Tandy Lower-case, Ultra TV., Tandy expansion interface
DISCS: 2 Shugart drives, 35 track, single density, double sided
PRINTER: Microline 82A

NAME: Serge Six
MAIN SYSTEM: 48k Model 1 TRS-80 with Tandy Lower-case, Green monitor, Tandy Cassette, Tandy expansion interface
DISCS: 1 Micropolis drive, 35 track, single density

NAME: Keith Plumb
MAIN SYSTEM: 32k Video Genie, ITT TV., Aculab Floppy Tape
MODS: Piggy-back RAM., Chromasonics sound generator, Monitor program resident in on-board EPROM, Lower-case, External keypad (numeric & arrow keys)

NAME: Dave Shawyer
MAIN SYSTEM: 48k Video Genie, OPC Green monitor, Aculab Floppy Tape
MODS: Piggy-back RAM., Chromasinics sound generator, Lower-case, External keypad (numeric & arrow keys)

NAME: The Clay Family
MAIN SYSTEM: 48k Model 1 TRS-80, B/W Monitor, Tandy expansion interface with twisted pair mod & buffered cabl
DISCS: 3 Shugart drives, 35 track, single densit
PRINTER: Microline 80

NAME: Dusty Miller
MAIN SYSTEM: 16k LevII model 1 TRS-80, B/W monitor, Tandy Cassette (CTR-41), Aculab Floppy Tape
PRINTER: ICL TermiPrinter (At home)
MODS: Pencil Lower-case mod, sound box

NAME: John Bedford
MAIN SYSTEM: 48k Model 1 TRS-80, B/W monitor, Tandy Cassette, Tandy expansion interface
DISCS: 1 Micropolis drive, 35 track, single density
PRINTER: Microline 80

NAME: Clive Wright
MAIN SYSTEM: 48k Model 1 TRS-80 with Tandy Lower-case, B/W monitor, Tandy expansion interface
DISCS: 2 TEAC drives, 40 track, single density
PRINTER: Centronics 737

NAME: Leo Knaggs
MAIN SYSTEM: 48k Model 1 TRS-80, B/W monitor, Tandy expansion interface with twisted pair mod & buffered cable
DISCS: 3 drives
MODS: Various
PRINTER Centronics 779

NAME: Colin Ashford
MAIN SYSTEM: Model 2 TRS-80
DISCS: 1 8" drive (integral)
PRINTER: Qume Sprint 5 Daisy Wheel terminal

NAME: Dave Hobbs
MAIN SYSTEM: 48k Model 1 TRS-80, Alba TV converted to monitor, Tandy expansion interface
DISCS: 2 drives
PRINTER: Epson
MODS: Blandford box, various mods

NAME: Ian Marr
MAIN SYSTEM: 16k LevII Model 1 TRS-80, Bush TV., Ferguson Cassette
PRINTER: Epson 70 with Microware interface (at home)
MODS: Pencil Lower-case

NAME: Pat Shepherd
MAIN SYSTEM: 16k LevII Model 1 TRS-80, Green monitor, Tandy Cassette

NAME: John Carne
MAIN SYSTEM: 48k Model 3 TRS-80
DISCS: 2 drives

NAME: The Engerman Family
MAIN SYSTEM: 16k LevII Model 1 TRS-80, Green monitor, Tandy Cassette, Aculab Floppy Tape
MODS: Sound box

NAME Jason Phillps
MAIN SYSTEM 48k Video Genie, EG100 monitor, Hitachi cassette (2nd cassette). Genie Expansion interface
DISCS Single drive, 35 track, single density
PRINTER Epson MX. Tractor feed
MODS Sound box

NAME John Heald
MAIN SYSTEM 16k Video Genie, OPC monitor
MODS Sound box

NAME Mike Gordon-Saker
MAIN SYSTEM 48k Model 1 TRS-80, B/W monitor, Tandy cassette, Tandy expansion interface with RS232
DISCS 2 Tandy Drives, 35 track, single density
PRINTER Trendcom
MODS Sound box

NAME Bob Kellaway
MAIN SYSTEM 48k Model 1 TRS-80, B/W monitor with green filter fitted internally. Ferguson cassette, Tandy expansion interface
DISCS Single drive
MODS Home fitted numeric keypad, Sound box in monitor

NAME Joseph Fox
MAIN SYSTEM 48k Model 1 TRS-80 with Tandy Lower-Case, Green monitor, Tandy Expansion Interface with Percom data separator
ISCS 1 Micropolis drive, 40 track, single density
MODS Modified Atari Joystick

NAME Bob James
MAIN SYSTEM 48k MOdel 1 TRS-80, B/W monitor, Tandy cassette, Tandy expansion interface
DISCS 1 Shugart SA400 drive, 35 track, single density
MODS Being mounted in stripped-down VDU case

NAME Pete Drew
MAIN SYSTEM 32k Video Genie, B/W monitor, Alba Cassette (2nd cassette
DISCS Single drive (no interface yet)
MODS Piggy-back RAM, Lower-Case, sound box

NAME John Craig
MAIN SYSTEM 48k Model 1 TRS-80, Green monitor, Tandy expansion interface
DISCS 1 TEAC drive, 40 track, single density
MODS Lower-case

NAME Andrew Creak
MAIN SYSTEM 48k Model 1 TRS-80, Prinz TV , Tandy expansion interface
DISCS 2 drives, 35 track, single density
PRINTER Microline 82A

NAME Bob Moore
MAIN SYSTEM 16k LevII Model 1 TRS-80, Green mo[illegible]or, Ferguson cassette, Aculab Floppy Tape
MODS Sound bo[illegible]

NAME: David Maidment
MAIN SYSTEM: 48k Video Genie, B/W monitor, Video Genie expansion interface
DISCS: 1 Tandem drive, 35 track, Single Density
MODS: Lower-case, Sound box, System mounted in stripped-down VDU case

NAME: Victor Saleh
MAIN SYSTEM: 48k Model 1 TRS-80, B/W monitor, Tandy expansion interface with RS232
DISCS: 3 drives
MODS: Many and varied

NAME: Jeff Henshall
MAIN SYSTEM: 48k Model 1 TRS-80, Green monitor, Tandy expansion interface with twisted pair mod & buffered cable
DISCS: Single Micropolis drive, 35 track, Single density

LOCAL GROUPS

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Merseyside L43 0US
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Rainham
Kent
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Contact: Ted Gladstone
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March 2 Demo of Inw 128k Team System
" 18 Demo of the new BBC micro
" 30 Educational Software
April 22 Z80 simulation
May 4 Databases using commercial progra
" 20 Computer games
June 1 Program Generators
17 Simple hardware modifications
July 6 More BASIC techniques
15 Printers

For furhter details contact
Ron Everitt, 2a Longdown Lane North,
Ewell, Surrey.

REPORTS ON THE WORKSHOPS HELD AT MILTON KEYNES AND BIRMINGHAM

MILTON KEYNES It must be emphasised that the above was a vehicle for the AGM, otherwise many members would not have attended due to the distances involved. As I received so many adverse comments on the beds and the food, the future weekend workshops have now been cancelled until better facilities can be found.

All lectures as listed in the programme ran, with the Saturday memorable with Clive Keech on Orch-80, Dos with Charles Davies and Laurie Shields chairing the experts' session going right through to nearly 10.00 pm !

For the first time two sessions also ran right through Sunday afternoon, Leon chairing a hardware addon session to nearly 5.00pm., and myself on business software with several members, each doing a short 15mins. chat on the current situation from a personal viewpoint. I must say the latter proved so enjoyable that Nigel Hyde was moved to suggest that we do a specific business users workshop with a similar format.

Other features:- Michael Clay's case for his Model one,
Victor Saleh's talking add-on imagine
SCRIPSIT being spoken by the TRS80,
Andrew Donald's external clock being read
by NEWDOS802.0.
Os House with the colour computer + disks,
Dusty Miller on Sunday Morning after sleeping
in his car!

For the record I enjoyed the workshop & regard all of them with great pleasure.

BIRMINGHAM 13FEB'82

This is to formally report that the above took place at the Birmingham Poly', with a disapointing turnout. Whenever this happens I can actually sit in on a session and just enjoy/this one being Laurie Shields lecturing to his notes on Assembler Part 1(part 2 is now in @ £1.49)

The afternoon was Leon doing a repeat on his hardware session with Eric Hartley & Dale Jeffries joining in, which proves that you can never tell who is going to turn up! Eric very kindly brought along the Beeb's micro, for anybody to try out. Where were you Birmingham?

Brian Pain

LOCAL GROUPS

BARROW-IN-FURNESS

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Tel: (0229) 34953 (Home)
(0229) 26214 (Work)

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(0656) 3484

COLCHESTER

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Contact: Dave Futcher
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Tel: 85 2008

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Tel: 01-607 0157

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Tel: 01-567 7873 (Home)
01-993 1462 (Work)

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Northwick Park Hospital
Watford Road
Harrow
Middx. HA1 3UJ

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203 West Street
Fareham
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INNOVATIVE
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from the professionals



....a new, simple to use, moderately priced word processor

The introduction of a brand new word processor is a major event and AJEDIT is without doubt a major program. There are, however, quite a few Word Processors around and most of them are extremely good ones - why, therefore, another? The question is even more pertinent when it is known that we specifically commissioned the writing of it from an author of the status of Danville Longhurst of Enhanced Basic fame. The answer is that user feedback shows that a large number of customers do not need or want word processor programs which require a quantity of training before use. Scripsit, for instance, is an excellent program, but is complex to use; it even comes with a training course on tape. If one operator is dedicated to using the word processor then it makes sense to have her trained, and the more complex the program (so long as the complexity is accompanied by more and bigger functions) the better.

AJEDIT has been written for the user who needs a word processor intermittently, say three or four times a week. Its prime design criteria was ease of use - and just as importantly - ease of recollection of its commands. Take, for instance, the text editing commands - they are as close to the Basic Edit commands as possible, so that the user will remember them: To insert type I, to delete D, to take out three letters type 3D and so on.

Furthermore, AJEDIT has benefited from being written after a number of other word processors. The deficiencies in its predecessors are corrected in AJEDIT. For instance, any control characters can be outputted so that full advantage can be taken of the features of the particular printer being used. Disk directory access is available from within AJEDIT as is the killing of files on the disk. The FREE command and a number of other DOS commands can be carried out from within the program with a return to AJEDIT - with its text intact.

AJEDIT contains close to one hundred commands covering most word processor requirements. Dedicated printer commands for the Epson MX series and the Centronics 737 are included - again for ease of use of these two popular printers.

One of the big features of AJEDIT is the ability to "mail-merge". The facility is available whereby two special files are created, one containing names and addresses and a salutation, the other a standard letter or form. AJEDIT will call the address and salutation from one file and the letter from the other and thereby compile personalised letters. The salutation may be repeated in the body of the letter.

AJEDIT needs 48K and one disk minimum and is suitable for the TRS-80 Models I and III and the Video Genie Models I and II.

AJEDIT £49.95
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THE CSL PHOTOPEN - a British made Lightpen for the Model I & III TRS80 and Genie. The CSL photopen is complete with a cassette of four Level Two Basic applications programs and full instructions and programming hints. We even include a 9v battery! The Photopen connects easily via the cassette recorder and requires absolutely no modifications to your system. Genie I owners can connect the Photopen to the second cassette port using an external cassette recorder or small amplifier. The programs supplied are Photopen Demonstration, Pen Amari, Dotto and Shape Matcher. Four hundred sold!

Price : £14.99 + 50p P&P

PENPACK ONE - a cassette of four additional programs for your Photopen which represent amazing value for money!
Geography Test - presents a graphics map of the British Isles and tests your knowledge of towns and cities.
Pen Gomoku - play the famous oriental game against your system.
Towers - solve this brain teasing puzzle with your Photopen.
Penpad - draw on your monitor screen with the Photopen.

Price : £2.50 + 20p P&P

THE TANDYSTIK CONTROLLER - at last a joystick controller for the Model I TRS80! The Tandystik is easily attached to the expansion connector of either the keyboard or expansion interface. Full instructions and a cassette of three Level Two Basic programs are included. The Tandystik is compatible with most of the Big Five arcade software including Meteor Mission II, Super Nova, Cosmic Fighter, Galaxy Invasion and Attack Force.

Price : £26.50 + 50p P&P

SOFTSTIK - a powerful machine code utility which enables your existing software to work with the Tandystik without any program amendments. Softstik will work with any Basic program which uses either INPUT or INKEY$ functions and any machine code software which uses the ROM resident keyboard scan.

Price - 16k version on cassette : £9.50 + 50p P&P
- 32/48K version on disk : £11.00 + 50p P&P

VISIFORM - do you use Visicalc on your Model I TRS80 or Genie? When developing complex models it is very difficult to keep track of your calculation rules which can only be read by positioning the cursor over each row column location. Visiform aids by producing a detailed hardcopy analysis of the model structure - labels, values, calculation rules - everything!

Price - on cassette : £13.50 + 50p P&P
- on disk : £15.00 + 50p P&P

MICROPATH - Critical Path Analysis is now available on the Model I and III TRS80 and Genie. For networks of up to 100 elements Micropath calculates earliest and latest start times, total and free float, project duration and the critical path. Networks may be easily edited and stored on either cassette or disk. Output can be directed to the screen or a printer. A minimum of 16K and Level Two Basic is required.

Price - on cassette : 13.50 + 50p P&P
- on disk : 15.00 + 50p P&P

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National TRS-80 Users Group

Newsletter

VOLUME 3 ISSUE 9 MARCH 1982

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INFORMATION ON THE GROUP

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

Details of the Group accounts and the constitution of the Group are obtainable from the Secretary.

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

Workshops are arranged from time to time in various parts of the country.

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

The Group maintains two software libraries (Model I and Model II) which are free to members. Library lists are obtainable from the Secretary (price £1). The medical and educational sub-groups maintain their own libraries.

A membership list is available from the Secretary (price £1).

Back numbers of the Newsletter are available.

Please send all contributions for the Newsletter to the Editor.

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EDITORIAL

You've done it again! I have had far too much material to include in this issue, so we are holding some contributions back for April.

Most of the comments I am getting about the Newsletter are highly complimentary, which I find very gratifying, although really the content of the Newsletter is nothing to do with me; I just make use of whatever you send in.

As decided at the A.G.M., Steve Bird is now looking after 80-NET, your own computerised bulletin board system. I see that both Apple and Commodore are at last getting round to providing similar facilities, well over a year after Frederick Brown set up the first Forum-80 in Europe. Frederick, incidentally, featured in an article in Computer Weekly recently, about his Forum-80 activities.

John Newgas and Nick Robinson are organising a London Workshop on Sunday 4 April. Please go along and help to make it a success if you live in the London area.

Leon Heller

GUIDELINES FOR CONTRIBUTORS

1. Send material in machine-readable form (Scripsit or Pencil disk/cassette) if possible.

2. Ensure your ribbon is in reasonable condition if using a printer.

3. Printer output should be on A4 paper if possible.

4. If you send in handwritten material, write legibly.

5. Do not fold the sheets when posting them. Use a large envelope and keep them flat.

Leon Heller

MEMBERS' LETTERS

From Laurie Shields

I don't know what it is that drives Leon to take every available opportunity to imply that Zen is something less than the best thing since sliced brown granary bread but rest assured that I shall respond on each occasion. His latest far-flung comment suggested that Mysosis had produced something better because it has more Rom and Dos calls. Since he is permanently locked into the mysterious adventureland of Ma...30 from whence no living software has been seen to emerge, I am amazed that he has the gall to comment on the relative merits of two software packages, one of which I know for a fact he has never used and his knowledge of the other comes only from reading the advertising blurb.

Be that as it may, using the unofficial (i.e. unsupported) Rom and Dos routines is not a sign of anything clever, just the reverse in fact, as it makes software less portable between similar but slightly different computers and/or operating systems. Which is why there is at least one TRS80 Model 1 user who sent his copy of EDAS back to Molimerx because it would not operate on his system and he is now a few pounds better off and a very satisfied Zen user.

I haven't used the Mysosis assembler to which Leon referred but just for starters try it's claims against this checklist for Zen:

[1] Does the one package you buy operate equally as well on both the Model 1 and Model 3 ?
[2] Does the one package you buy operate equally as well with TRSDOS, VTOS, LDOS, Newdos80, Dosplus, etc.?
(Just for the record, by now EDAS, MACRO80 and most of the others have fallen by the wayside)
[3] Is the editor supplied with the package as easy and as fast to use as Pencil or Scripsit and does it allow global replacement and block moves of text ?
[4] Can the assembler handle, if necessary, up to a megabyte of source ? Granted you might need 8 inch disks and a better Dos than 2.3 to store it.
[5] Can the assembler handle in excess of 7000 labels ?
[6] Can the assembler handle labels of any length ?
[7] Can you include unlimited breakpoints in your programs for use with the assembler's own de-bugger ?
[8] Does the editor/assembler support cassette I/O as well as disk ?
[9] Does the complete package cost less than fifty quid ?

Alternatively I could repeat what I thought were my last words on the subject some months ago, can the assembler re-create a working Scripsit on a 16K computer with just one single density 35 track disk ?

If there's any other assembler for the TRS80 still in the running with Zen after that then I'll start on the second page, but somehow I don't think that will be necessary.

Having just read Steve Alderton's letter I'm somewhat confused as to what I am supposed to be ashamed about. He gives the impression that he is quite content to struggle for ever and a day doing his machine code the hard way (ask anybody who's hand assembled what is their favourite hate?) until somebody produces a cassette based macro assembler for the Model3.

Well I suppose he could write to Microsoft and ask them to do one specially for him but somehow there might be a long wait before anything turns up and when it did I doubt very much if there would be much memory left in his 16K system. With the price limit on cassette software of £20 beyond which sales are neglible and rip-offs the order of the day, I think it extremely unlikely that any software house is going to put time and effort into producing a macro assembler for a very small market.

If anyone could convince me that Macros were a 'good thing' and produced more efficient, more bug-free easily maintained programs, then I might put them into Zen, but in the meantime I'm sending Steve a copy of Zen, yes the same cassette version works on both 1's and 3's as only the official published Rom routines are used. I shall wait with baited breath to see whether it is a cheque or the assembler that he returns.

The only other news from the wilds of Derbyshire is that with the next delivery of Holmes boards from the states, due at the end of Feb I've got some discount, so the price for adding 32K to your TRS80 keyboard, including chips and inserter tool is now £94.50.

(Leon and I are really the best of friends) Laurie. 0246-75568

Late News: Graham Beech of the NCC asked me to sort PILOT out on the Model3 as their Model1 version didn't operate after conversion. If there's anyone else trying to use PILOT on an M3 I've got it all fixed.

I've received a few calls of late from people who have suffered disasters with important information on disks being lost due to a number of causes. To all newcomers to disks I offer the following advice:

[1] The information on your disk is extemely vulnerable. To quote Leo 'it's just a magnetised ring of rust'.
[2] Before you do anything at all with your system make sure you have read and understand how to make backups.
[3] It's going to cost you a lot more in time, trouble and possibly cash to recover lost data than the price of a box of disks.
[4] Never put a disk into your computer unless you have a backup. If it's for backing-up always put a write-protect tab on first.
[5] Always switch everything on before inserting the disks and even more important always remove all disks before switching off.
[6] If in spite of that lot you get a clobbered disk DONT PANIC. There are ways of getting most if not all of it back.
[7] Remove the damaged disk, immediately put a write-protect tab on. If you have a good copying utility then make a copy.
[8] If you cannot repair the damage yourself, there are a number of people who can. Leo Knaggs in the south-west has probably more experience than most, I should think Nigel Dibben in Cheshire could sort virtually anything out, I've repaired quite a few over the last couple of years and there must be many others in the club who could help.
[9] Alternatively ring Brian and he'll put you onto whoever he thinks is nearest and most able to offer assistance.

Laurie Shields

(* I have just received a cheque for £900 in payment for part of a programming job for which I utilised Macro-80. The programming, which necessitated writing a cross-assembler for the T.I. 9995 processor, would not have been possible without the use of macros, in the time available. I suppose Laurie would have used ZEN to write a cross-assembler in Z-80 code; about a couple of months work (and the rest). The Z-80 code for this job has been greatly aided by the ability of Macro-80 to use relocatable object modules in a comprehensive sub-routine library that I created. Macros and linking-loaders do have their uses! LFH *)

From Dick Mackie

First things first, I enclose my cheque herewith for renewal of my membership, and a further amount to cover my first installment of back numbers. Having subscribed now since mid-1981, following your most enjoyable Glasgow Workshop then, I find the magazine a good mix of useful information and some beyond my ken, but with the passing of the months it is amazing how the penny begins to drop when scrolling backwards. Keep up the good work!

I note from your December issue that you have reinstated our Group in Edinburgh, in November we reverted to being a sub-script of Glasgow, not that we mind being linked with our cousins over there as we have the most cordial of relations with them, indeed we have been planning a mid-Scotland joint meeting for some time (in the mind at least). For the record though we are the Scottish TRS-80 Users' Group, based in Edinburgh but with members now spreading over a wide area, and with recent enquiries emanating from as far as Munich and Paris. The reason for choosing our national title originally was not that we had any pretentions of glory but we were hopeful that once we were established we could 'seed' groups elsewhere in these parts, without seeking to dominate them. Given our increasingly ambitious *Newsletter* we hope to be able to cover the non-local market with some sort of service, indeed there may be some mileage in trying a joint publishing venture with the Glasgow Group as the larger market (for contributors as well as distribution) might make the considerable effort more worthwhile. This is not something we have suggested to them yet, however.

There can clearly be a lot of benefit from such co-operative effort, as I have found by responding to Bob Sparling's letter to you some months ago which has resulted in us exchanging *Newsletters* without restriction on copyright. We have also made a similar arrangement with the TRS-80 and Video Genie Users' Group of Nottingham (to coin a phrase) through the good offices of Marc Leduc and David Nicholson-Cole and our thanks are due to all of these for their willing co-operation in arrangements which so far are considerably in our favour as the quality of their publications reflects their longer Group histories and larger (contributing) membership. Still on the brotherly love thing, I am pleased to see from your recent issues that you have pencilled in a Scottish Workshop for June 26th. and if it is not already tied up might I suggest a venue in the University of Edinburgh Staff Club, which is only up the road from the main station. I will make preliminary

enquiries anyway, but food, meeting rooms and if necessary beds are available there for not too heavy a charge.

Given that I haven't got round to the lower case conversion yet I do not, like the majority, work in Scripsit or Pencil but have taken myself into 'Word4Word' as the cheapest decent alternative around. (The 'Kansas' version I endured for a while and this had the advantage of being in Basic so was easily patched, but its disadvantages also derived from the same source). I am currently writing a full review of 'Word4Word' for our mag, comparing it wherever possible with the other contenders, and I will pass this to you for possible publication in due course, in the meantime can I assure any of your members who are looking for a medium cost WP that it is a very worthwhile buy. It is supplied by Premier Publications (12 Kingscote Road, Addiscombe, Croydon, Surrey. tel 01-656.6156) for £33.95 on cassette, 35.95 on Floppy and 37.95 on disk inclusive of VAT but short of aroud 70p for p&p. An EPROM version is apparently under development.

One great advantage is that it will highlight lower case without this being fitted using graphic blocks in 'entered' mode. The only disadvantage to the Scripsit fans is that it enters text in unformatted 'wraround', although it can be displayed using the <V> command, but this is in fact of great benefit as it gives full line and page wraround without the asking (c/f Wordstar etc). Almost all commands are by single letter, and you will appreciate the ease of learning when you should realise that the Manual covers (adequately) only four sides of A4 against somebody else's audio album. Other very powerful features are the selective or global replace commands, combined with the ability to include block graphics and control commands in the text. This I use to good effect by entering a series of dots and commas, and then replacing them globally with such as the equivalent of CHR$(191) - just like that! Another useful feature is the tabulation facility which lets your set columns - left (text) or right (figures) - and once originated you just allow the figures to flow in. Perhaps the most helpful of all is the 'substitute' facility which allows you to type personalised standard letters of the MailMerge type. Using this today along with the tab facility I set up a handsome page for a 'Dear John' letter concerning Early Retirement and Redundancy Payments containing no fewer than 17 substitutions, all of which are sequenced at the end very much like DATA statements. At only £4.00 more than the official Tandy 1/c mod, which you don't need, it is certainly worth a thought. I just thought I'd mention it as nobody else seems to have done so!

yours aye,

Dick Mackie

Dick Mackie
Group Secretary
Scottish TRS-80 Users Group

From David Washford

I recently installed a data separator in my system. Initially, there seem to be more problems with it than without it - for instance, the possibly more sensitive Newdos 80 will not format a disk although it copies OK. I hear that my genuine Tandy drives are not as obligitious as other makes, but I shall persevere, and probably write more next month.

The letter last month from Derrick Rowe was most interesting, and I would like to know more about double density on Model I.

Another letter of interest was that from Laurie Shields, and I, for one, am very grateful that a man who earns his living from software sales is generous enough to pass on these many tips and hints for the likes of me; however I would take issue with Laurie on what would appear to be his second favourite hobby horse (Zen being his first !). Laurie, somewhat naturally, gets upset at the idea of users obtaining 'rip-off' copies of software - and indeed, his last letter explained why. However, as in everything, there is at least one opposite point of view - here's mine ! I may be mistaken, but I believe that the law of copyright allows anyone to have a copy of copyright material provided that it is for their own personal use or research, and that copy will not be sold or used for material gain. With that view, I have no feeling of guilt in acquiring various software as it is offered.

Before you all (well, some of you) start crying 'shame,shame', let me add that since these offerings are notoriously poorly accompanied by any paperwork or follow-up, then I am not averse to subsequently BUYING my own legal copy of any software which my personal use and research has shown to be of value to me ! In this context I have just purchased my own Newdos 80 v2.0, even though it appears to be quite freely available.

(Having purchased both Edtasm and Tandy Disk Editor Assembler (admittedly, before I knew better), I cannot yet afford Zen. Who knows, perhaps someone will give me a rip-off copy just to test my integrity !)

I would like to pass on two tips in the hope of helping someone. Firstly, I have been creating a new suite of business programs each of which has to be able to random access the datafile. Since I believe that I am not the only one who has not yet mastered 'IGELS' then this may help. When I am happy with my first lot of LSETs and CVIs/CVSs then I use the screen editor to copy that block into another program which I save as AMEND/BAS,A. When constructing the later programs, it is easy to 'merge' AMEND/BAS and renumber the lines as needed. This saves a

lot of tedious keyboard work, and also ensures an accurate byte count !

My second 'tip' is to tell members just how good the weekend workshops are - at MK last month, I was like the proverbial child in a toyshop, not knowing who to listen to next ! The talks were invaluable - what a pity they interfered with so much practical work and play ! The weekend just was not long enough, and I am sorry, Leon, I didn't even have time to come and shake your interface ! A chance remark by Brian that, if so, might encourage a higher turnout in future, was that the Group arranges insurance cover for members equipment (computer-wise!) not only whilst at the venue but also during the journeys to and from.

May I please say a very sincere THANK YOU to all who made my weekend so enjoyable, and please don't cancel too many future events !

David Washford

From David Washford

Further to my previous letter, may I please add the following pertinent points.

Firstly the data separator. With the aid of a borrowed drive, I eventually pinpointed the Percom as being the cause of many problems (like being halfway through a 120 record program and announcing that drive 1 was not available !). I returned it to Hardings last Thursday, by post, and today, the following Monday, received their cheque. Whilst they assure me that this is the first ever returned, I must say that this immediate refund can only emphasise the excellent service claimed for AJH by many members in the past.

Secondly, on the subject of Newdos 80 2.0. I have now received the manual and am very impressed - you fellows who are still using an undocumented bootleg copy just can't possibly know what you are missing out on ! I don't claim to have mastered any of it yet, but by cribbing from the many program examples, I have created 'FF' files and IGELs - goodbye LSETs, MKI$s, CVIs forever ! My main preoccupation is a program which requires any number of a possible 52 items to updated to any of a possible 440 records on a daily basis, and under TRSDOS the conversion time alone was quite an embarrassment - so much so that the desired program was re-written to put only three items to each record. Now I can use the desired 52 data items at almost no extra time ! But remember, Laurie, if I hadn't STARTED with a rip-off, then I would never have forked out

nearly £100 to BUY the program !

Igels for 52 items take a couple of lines, and certainly don't need any errors. I repeat my comment about typing them out just once and then using MERGE to add them to each of the various programs which access the data. With Newdos 80 this is even better, since it is not usually necessary to renumber the the lines; rather like Data lines, they can be at the very end of a program.

David Washford,
1 Alexandra Road,
Bournemouth
BH6 5JA

HELP

I left my system on for around 3 hours , and returned to make some modifications to my program. On trying to save the alterations the message came up "DISK FULL"; on CMD"DIR the advice was "DEVICE NOT AVAILABLE". I rebooted into DOS READY, followed by "BASIC *", and I was advised "PROGRAM NOT FOUND". I powered down and wrote this note, followed by powering up again.

On powering up, the massage was "DEVICE NOT AVAILABLE"
A different disk NEWDOS+ was tried and this booted fine.
The Drive 1 was then redesignated D0, and this drive booted the original disk fine.(ND1.0)

In the original Drive-a MICROPOLIS- a chip SN74LS00M runs so hot it is untouchable. The comparable chip in drive 1 runs cool, and there have been one or two mods to the this drive zero, which I might add was bought s/h as a backup for the other two micropolis.

If anybody has a manual for these drives I would dearly like to borrow it for a weekend ! (I am sure you know the story !)

Brian Pain 0908-564271 or 0582-54111 9.00 - 9.30 before lectures.

For sale: Modtech modem originate only suitable for accessing all Forum80's by telephone. Hard wired for reliability and PCR81 RS232 interface which plugs into expansion port of model 1 keyboard (suitable with 16K systems). Also enables use of serial printers. Only 6 months old. Both for £150. Tel.Andrew Sefton on 07596 224 (Nr York)(evenings)

PROBLEM SECTION

Is it possible to get Pascal on the Tandy?

I've seen it advertised in BYTE, so it can be obtained in the States. I need to learn a language like ALGOL, FORTRAN, FORTH or Pascal to teach 'A' Level Computing. I know it is available for the Research machines 380Z.

The local Tandy shop couldn't help (dare I say: "not surprising").

Sylvia Hasler

(* Tandy sell a cassette-based Tiny Pascal that is ideal for learning the language. The price is under £20. I am surprised the local Tandy shop could not help, as I gave a seminar to Tandy personnel on Pascal a long time ago, and they are running courses for teachers using the aforementioned Tiny Pascal. UCSD Pascal (disk-based) is also available for around £150. Give me a ring if you would like more information. Algol 60 is available for the Model I (under CP/M) from RHA (Minisystems) Ltd., 83 Gidley Way, Horspath, Oxford, OX9 1TQ. FORTH and FORTRAN are also available, of course. LFH *)

Can you tell me the pointer in RAM which tells the computer how much memory there is? I have made up an interface to drive one of the G.I. programmable sound generator chips, and when I tried to either POKE the memory address, or, using an assembler, to load an address, I got an error. I believe that when you poke a memory address it is checked by PEEKing it, so I might have a problem there.

Nigel Legg.

(* Your problem with the PSG might be due to incorrect connection. You appear to be using memory mapping, whereas it is much easier, as a rule, to use I/O mapping for devices such as the PSG. The RAM pointer does not appear to be relevant to your problem. Has anyone got any ideas? LFH *)

Whilst we are sound on the software side of the Tandy RS-232 board, we are a little perplexed by a number of hardware items such as which baud-rate generator do they use? How do they handle carrier detect, data set ready, data terminal ready and other handshakes?

M. Keegan.

(* The Tandy RS-232 board uses a rather rare device, the BR2941L, for baud rate generation. I think there is an easy to obtain equivalent - can anyone help? All the handshake

signals are dealt with by input and output ports using tri-state buffers and latches respectively. LFH *)
Is it possible to change print modes within Scripsit, and to access special characters (eg French), using an Epson printer? Is a patch available for the cassette version, and is that what is in question in the Jan. 82 N.L., pp. 7,11,15? Is that the Harding patch, or is Laurie Shields selling something different, and if so, which is better for me?

For cheapest memory expansion I understand the Holmes board is the thing. But I wouldn't dare dot the installing myself. Is any shop in London selling and installing Holmes boards?

Tario Degon (?),
London House,
Mecklenburgh Square,
London WC1N 2AB,
Tel: 01-837 8888

(* Can anyone help with the printer and Scripsit problem? Your best course of action with the Holmes board would be to find someone in the London area with some hardware expertise, to give you a hand. LFH *)

Could anyone forward information/advise regarding improvement of the fuzzy display when using a TV?

A recent magazine mentioned a graphics board - Programma - has anyone got any futher details.

Is there any information/thoughts on mods. for colour?

A. Gale

(* You could try using a better modulator - one with more bandwidth. Otherwise you will have to get a proper monitor in place of the TV. A previous issue of the Newsletter had a review of the Programma board. LFH *)

EPROMS FOR SALE

2716 EPROMs (5V) brand new, guaranteed at £2.50 each, £9.25 for four, including postage, etc.

Others eg. 2732, available to order.

Tony Jones,
17 Cripstead Lane,
St. Cross,
Winchester SO23 9SF.

VISICALC REVIEW

By Rod Bullard

The Southern TRS-80 Club (Swindon)

My introduction was to begin reading the manual, being ever ready to begin actual using experience. The manual comprises 173 pages, containing 4 parts :-

Part 1 - The Introduction
Part 2 - Visicalc Tutorial (4 lessons)
Part 3 - Command Reference
Part 4 - Index

PART 1. This is merely to introduce you to the concept that VISICALC is only an electronic sheet & is directly comparable to a calculator + a pencil + a sheet of paper, only combined with the powerful memory, speed & screen facilities of the computer. How to use the manual & set up your equipment is also covered, but as regards the creation of storage diskettes I must differ with the manual. It clearly states that even multi-disk drive users must BACKUP the disk for file storage, but really one need only FORMAT.

PART 2. This begins the step by step tutorial in the use of VISICALC with the aid of 4 lessons. Each lesson admirably shows you what to do & type keystroke by keystroke, displaying the screen as it should appear. However, whilst acknowledging that as you practice through the lessons you gain familiarity & confidence, I considered the lessons to be a weakpoint as they tended to introduce the various facilities not only in a piecemeal manner but also in a combination of DATA functions & SCREEN functions. There always appeared to be the question of what were the other options not covered? & when they were then being covered what were the options previously covered? I would have thought the lessons would have been better for confidence & familiarity if they had concentrated on the separate aspects of SCREEN & DATA individually.

PART 3. This part is excellent giving the full explanation of what appears on the screen, a full command structure chart with the commands in alphabetical order supported with numerous examples of their application.

PART4. This is only a full index of the manual.

In summary I would consider that VISICALC is an extraordinary program & everybody must make the attempt to have first-hand experience of it, for then they will appreciate the complex applications that can be achieved with a computer. As regards VISICALC being owned by individuals I must express doubt, for one's personal budgetting need not be so complicated & as such could not warrant the expense of £70.

Upon completing reading the manual I found that another command was available that is not documented in the manual. This command is the /X following which one has three options.

1, > coord A GOTO command but the coordinate will be displayed in the upper left hand corner.
2, V num Splits the grid vertically
3, H num Splits the grid horizontally.

Lesson 1

This introduces you to the screen & its cursor. One is told that the sheet consists of divisions referred to by their co-ordinates - HORIZONTAL A to BK (63) & VERTICAL 1 to 254.

The cursor can be moved by using the arrow keys, & there is continuous movement available for these keys. A short cut is also available by using a GOTO command - this is only using the > key followed by the required co-ordinate. When this is being used instructions appear on the PROMPT & EDIT lines.

Writing on the sheet is then introduced both as LABELS & as VALUES. LABELS are only alpha characters unless a numeric character is preceded by a ". The computer always regards alpha characters as LABELS until told otherwise. The VALUES are only numeric characters or symbols, & are always so regarded by the computer until told otherwise. Thus to enter alpha formulas it is always essential to enter one of the mathematical symbols.

A short-cut entry of VALUES is demonstrated where the computer actually fills in the co-ordinates for you. This is achieved by first positioning the cursor on the entry position, then typing say a +, the cursor is then moved until it points to the "wanted position", by then typing say a - the "wanted position's" co-ordinates are inserted into the entry position & the cursor returns to the entry position. One now moves the cursor to another "wanted position" & inserts another mathematical symbol to continue or <enter> to finish.

In entering some of the data you are instructed upon the use of some valuable commands, namely:-

1. CLEAR KEY to backspace one digit at a time if entered in error.
2. BREAK KEY to remove total entry if in error.
3. /B command to remove total entry if in error if entered into the computer.
4. /C command to remove every entry on the sheet & reset the set up parameters.
5. /S command merely to save the data to file.

From this elementary lesson one is given a very limited appreciation of an overall system that could be used, although one is very aware of some problems that are to be subsequently solved. Such problems are duplicating similar data, alignments, shortage of screen space, as well as some of the missing options & unexplained screen information.

Lesson 2

This lesson really exposes much of VISICALC's power, & nearly all of the screen information is explained. One is first introduced how to LOAD a saved Visicalc file, a further extension of the already introduced /S command. In loading a file one can either load the file by its filename, but if one does not insert a filename VISICALC will find the first Visicalc file & indicate it on the edit line, if this is NOT the one merely press the -> key & VISICALC will locate another file, until finally the correct one is found & enter is pressed.

The /R command (REPLICATE) is then introduced & must be considered the most useful, being able to shortcut entries for both LABELS & VALUES. The role is to provide a method of

duplicating the entries required in one column to another or one row to another. In the case of LABELS this is always a direct copy, but in the case of VALUES before the copy is made the options of NO or RELATIVE change is offered for each co-ordinate in the entry. A RELATIVE change is used to modify the co-ordinates of the original column/row to be comparable for similar co-ordinates in the "copied" column/row. A mixture of no & relative change is possible.

The fact that the data on the sreen is not too presentable is noted, & the following commands are introduced in remedying the situation :-

1. /G a Global command in which the Format & Column options are reasonably covered. A global command affects the whole of the sheet.
   Format is used to select the data presentation in such forms as I integer, $ two decimal places, L left justified & R right justified. D, G & * are not explained, although G is easily known to be general.
   Column is used only to set your column widths, which at set-up are on 9. With this one can quickly compress the sheet & see more data although some data may be converted for demonstration only into scientific notation or even ->>>.
2. /T a Titles command used to fix the sheet from scrolling from a specified column or row such as the headings. The options are H horizontal, V vertical, B both & N neither.
3. /W a Window command to split the screen. The options are H horizontal, V vertical, 1 one screen, S synchronised & U unsynchronised. An idea of its use could be that a total column is in one window & is static with a smaller data is shown in the other window for working. As data is changed so the effect is shown in the total which would otherwise not be shown. The synchronised scrolling is to provide both windows as showing the same rows on a vertical scroll if a vertical window, & similarly for a horizontal window. To move from one window to the other the ; key is used.

In concluding the lesson a description on the memory reveals a further item of screen data, namely the MEMORY INDICATOR which is the amount of memory available & is shown in the top right-hand corner.

At the end of this lesson one has experienced the power of VISICALC both in entries & in calculating, (the ripple effect is quite impressive), & is certainly in a good position to use it in some proper applications.

Lesson 3

This lesson is probably the last one that most people would wish to fully understand. It introduces more commands, explains others more fully, introduces some "built-in functions" & prompts one into the style of writing the data to gain much of the flexibility of VISICALC. This is achieved by using an example on personal budgetting.

The commands covered are :-

1. /R a continuation of the replicate command where a single formula is replicated (relative) down a column, & then the entire column is replicated (relative) over a range of columns.
2. /- a routine to REPEAT a specified input so that whatever the size column that is used the entire space will be filled. e.g. the drawing of a line.
3. /F a local FORMAT command that enables you to overcome the Global format, for instance the numbers in integer (global) yet the %ages in $-two decimals (local). This can really make the screen presentable. When selecting the D option one is then Defaulting from the local format to that specified in the global format.
4. /I an INSERT command for either row or column, & inserts before the cursor. VISICALC automatically adjusts any variables that have been affected.
5. /D the DELETE command is similar to the insert command, athough by referring to the VISICALC command reference one finds the warnings that a delete permanently removes the information & that if an entry is removed that is used in other formulas then all such affected positions contain an error message.
6. /M a MOVE instruction that moves the designated row or column to the selected row or column adjusting all the formulas.
7. /G a continuation of the GLOBAL command concerning the sequence of calculating. The top-right corner of the screen will generally show the letter C for columns but this command can permit the change to rows, whereupon it will show the letter R. At last the data on the screen has been all explained!!

The built-in functions are :-

A. @SUM this is a very useful function as it permits a short-hand input for totalling or sub-totalling a row or column.

B. @NA this is used to inform the computer that the data for the entry is Not Available, & thus it can compute all such positions so affected as N.A.

C. @ERROR often this is created by the computer, especially after a DELETE when a deleted entry is used in other formulas.

The subject of calculating receives a great of emphasis. The order of calculating can either be by column or row depending upon the mode established under the /G O option. VISICALC will evaluate each line in sequence taking the values of the formulas as they stand at the time of the calculation. Incorrect values could thus be obtained if through bad planning of the project FORWARD or CIRCULAR REFERENCES were introduced. The manual devotes one whole page to this, giving examples.

One other point on calculating worthy of note is that the method of calculating conflicts with BASIC. Under BASIC 100+100/2 gives an answer of 150, yet under VISICALC a similar calculation would give 100. VISICALC in effect deals with each number as it encounters it (except for brackets) rather than the established system of priorities. This point is shown in lesson 4.

Lesson 4

The introduction to this lesson states that for business or private purposes you have already covered enough of VISICALC. (The priority of calculation?).

The details relating to Manual or Automatic calculation I considered important, for in performing the exercises it was frustrating that in the event of having several changes to make,the automatic recalculation recalculated the sheet upon each change. Under the /G command R option (recalculation) either manual or automatic recalculation can be selected. Then upon full entry of all changes the ! key is pressed & one recalculation is performed. VISICALC does not indicate what recalculation mode it is in, but the existence or absence of the recalculating ripple is enough evidence.

Built-in functions covered in this lesson include @AVERAGE, @MIN, @MAX & @COUNT (totals the number of non-blank entries in a range - uses this in the @AVERAGE).

The subject of getting VISICALC to create graphs is also covered, & is essentially using the FORMAT command & selecting the * option. This option converts the values to integers & represents the value of the integer by the appropriate number of *'s.

N.B. The only commands not covered are :-

1. /P the PRINT command. This is mentioned in lesson 3 but refers you to the COMMAND REFERENCE in PART 3 for details. The options include 'printing' to DISK, PRINTER & RS232, & permits selection of appropriate rectangles.
2. /V the COPYRIGHT notice.

Rod Bullard,
Southern TRS-80 Club (Swindon).

SPEEDY and BELTER. Distributed by MOLIMERX LTD

SPEEDY is supplied on tape and comprises the two programs named above. They are both System tapes and since versions for 16K, 32K, and 48K are provided, the necessary addresses for protecting memory are given. Although not given as a separate program, both SPEEDY and BELTER create a short machine language LOADER program.

Both of these programs are intended to be used to speed up the saving and loading of BASIC programs. SPEEDY gives the option of 750, 1000, 1250, 1500, 1750 and 2000 baud rates, whilst Belter is dedicated to a baud rate of 1500. Since TRS80 machines can vary in tolerance as to the speed that they will accept, it is necessary to use the time honoured method of Suction and Vision to determine which baud rate is suitable for your machine. My best was 1500 which is three times as fast as normal and could represent quite a saving in time over a period. It should be pointed out that when the option given to write the loader to the program is used, then it will not be necessary to load SPEEDY each time the program is required to be run. This program is certainly worth trying.

Laurie King.
Asst. Editor. Southern TRS-80 Club

APPOINTMENTS PROGRAM

In a previous issue there was a request for a program to allow appointments to be stored and displayed with simple cursor type entries and deletions.

I noticed a suggestion in 80 US which has proved very succesful for this type of use. If the dates and appointments a typed in to Scriptsit with a layout like a normal business calender it is possible to search and find a name, day or time using the Global Find command.

By using the end of file command it is possible to add notes for the meeting or records afterwards. These are standard Scriptsit files and can be as long as necesary.

The Global Find command allows a search for any occurance of a String ie Name, Day, Date, Demonstration, Service, Lunch, or Conference. A big advantage is that if the search command does not pick up the requested item, because of a typing error, it is possible to carry out a visual search of the whole file.

I keep a one week blank layout on disc and add weeks by chaining. As the weeks pass I can remove them with the block delete.

The onlything I cannot do is to sort the appointments into Alphabetical order. I have seen a program to do it with Visical via the DIF file. Does anyone know how it can be achieved with Scripsit files?

Derek Trayler

SPEED UP YOUR LOOPS

Below is a short programme which for the magazine which demonstrates the sequential testing and fall-through of the FOR-NEXT-ELSE loops. These can be used for effect to eliminate programme lines thus making all programs run much faster AND eliminates the very slow commands GOTO/GOSUB.

```
10 CLS
20 PRINT" X = ";
21 II$ = INKEY$ : IF II$="" THEN 21 ELSE
   X=VAL(II$) : PRINTX,"Y = ";
22 II$=INKEY$ :IF II$<>"" THEN Y=VAL(II$) : PRINTY,;
   ELSE22
30   IFX=1 AND Y=1 THEN PRINT"Both = 1" ELSE
     IFX=0 AND Y=1 THEN PRINT"X=0 Y=1" ELSE
     IFX=0 AND Y=0 THEN PRINT"Both = 0" ELSE
     IFX=1 AND Y=0 THEN PRINT"X=1 Y=0" ELSE
     IFX=Y THEN PRINT"X = Y" ELSE
     IFX>Y THEN PRINT"X > Y" ELSE
     IFX<Y THEN PRINT"X < Y" ELSE
40 GOTO20
```

John Rutherford

TRS-80 MODEL 16

Taken from the Financial Times
by Rod Bullard

==========

"With the Model 16, Tandy will enter the small business computer market & compete with giants such as IBM."

==========

The above statement appears in an article by L. Kehoe in the Financial Times 25/1/82, regarding the unveiling by Tandy of its 16 bit microprocessor system with immense data storage capacity, & it will sell in the U.S. for $4999.

Based on the Motorola 68000 chip it will enable the system to handle bigger, more complex computer tasks & be able to support up to 3 simultaneous users.

The system comes with 128K internal memory, which is expandable to 512K, & an 8" Disk with 1.25 megabyte capacity, again expandable even in hard disk storage. For an additional $699 a dumb-terminal, an extension unit of screen & keyboard, can be added to allow another user. (up to to such units can be added).

The problem of a shortage of user-software has been turned to very good advantage in that a Z80 microprocessor has been included, which will allow the programs for the Model 11 to be utilised. An upgrade kit for the Model 11 is offered, being a plugging in of a circuit boar carrying the 68000 microprocessor.

To conclude the article, the leaders in the personal computer market by installed base are :-

Tandy	$385m
Apple	290
Commodore	140

(The entire article was written on an Apple & transmitted to the FT in London via a modem & software, which linked the micro into the paper's telex system)

Rod Bullard,
Southern TRS-80 Club

"WHERE DO I BEGIN ?"

$$$$$$$$$$$$$$$$$$$$

Those of us who have had our computers for some time perhaps forget that we were once newcomers to the hobby and we tend to 'talk above the heads' of beginners. I can vividly remember the day I first switched on my Video Genie and I asked myself "What do I do now ?" I was (and am) very fortunate that my other hobby is Amateur Radio and I have two very good friends who own the same system as myself, so help was not far away on that 'great' day. If anything could be done wrong then somehow I managed to do it. A cross-eyed monkey wearing boxing gloves could have operated the machine better than I was, but after picking up my microphone and giving my two friends a call the boxing gloves were soon removed and I was quickly put on the right path.

I was baffled as to how I should start to learn about programming my newly aquired machine. I had no previous experience apart from reading a few magazines and books, which to say the least confused me more than they helped. The first piece of advice I was given was to learn how to operate the computer as far as typing in programs and editing (I had a lot of that to do !!!!!) were concerned, until I had the 'feel' of the machine. Next came "Think of a simple program and have a go" Who me????? "Yes you". Immediate panic set in, what did I know about all this clever computer stuff ? Not much. Ah well, what simple program could I come up with just to keep my two pals happy? How about Ohms law? My profession is electronics and my hobby is radio, so why not?

Well that was my beginning, my first program was a mere 15 lines long, it was badly written, it looked awful on the screen but IT WORKED and it was all my own work (apart from Mr. Ohm). I could not wait to move on to greater things, perhaps I could achieve my life long ambition and write a program to decode morse code from my reciever, the world was my oyster. No, things don't quite work out like that. I had a heck of a lot to learn before I could venture into the world of the super-league programmers (please, where is it?) My two pals helped me through thick (boy, was I thick) and thin until eventualy I could even switch the computer on without looking at the instuction book (I am only joking! By the way where is the switch?)

After my experiences may I recommend to all ye who aspire to the dizzy hights of computer programming firstly, learn to handle the machine so you understand the error messages, know the editing facilities and feel 'comfortable' with the computer. Secondly, think of a simple (VERY SIMPLE) program such as Ohms law and 'have a go'. You can sit for hours in front of your computer with a book and try to learn but it is the first attempt at your own program that really puts you on the right road. Look at the book by all means to discover new techniques that will help you or to clarify some point you don't understand but please don't try to learn parrot fashion it does not work! Have you ever seen a parrot write a computer program??????????????????? Pretty Polly Pretty Polly

With tongue in cheek and thank's to my two pals Eric and Jon

Ken. Grey

G3WNR

RELATIVE CALLS TO ASSEMBLY LANGUAGE SUBROUTINES.

REF JOHN COUCH'S ARTICLE IN THE FEBRUARY NEWSLETTER (P.22), THERE IS IN FACT A ROM SUBROUTINE AVAILABLE IN THE TRS-80 (AT 13E5H) WHICH ENABLES THE SAVING OF THE HL REGISTER WHILE SIMULTANEOUSLY GETTING THE PROGRAM COUNTER. IT OCCURS ONLY ONCE IN THE ROM AND WAS HARD TO FIND. THE S/R EXCHANGES HL AND CONTENTS OF SP THEN RETURNS TO THE NEXT INSTRUCTION IN THE PROGRAM (REL JUMP).

THE ADVANTAGE IS THAT THE HL REGISTER CAN BE USED FOR OTHER PURPOSES AND IS AUTOMATICALLY PROTECTED (SAVED). THE FOLLOWING LISTING ILLUSTATES A SIMPLE USE OF THE PRINCIPLE (BUT DOESN'T USE HL FOR ANYTHING ELSE, ALTHOUGH IT COULD HAVE DONE).

MAC RA[illegible]LE.

```
00140 ;-------------------------------------------------
00150 ; ● RELCAL ●                              MJR  1-12-81
00160 ;
00170 ; TO CREATE A 'CALL RELATIVE'.
00180 ; FOR RELOCATABLE M/C PROGRAMS.
00190 ;
00192 ;METHOD :-     (MAIN PROGRAM)
00194 ;              (     ''      )              NOTE :-
00200 ;              CALL    13E5H              CALL TO ROM.
00210 ;              JR      SUB                ---------------
00230 ;               (CONTINUE)                 13E5H  EX (SP),HL
00240 ;               (   ''   )                 13E6H  JP (HL)
00250 ;                                          ---------------
00260 ;    SUB       INC     HL
00262 ;              INC     HL
00270 ;              EX      (SP),HL
00280 ;               (SUBROUTINE)
00290 ;               (    ''    )
00292 ;              RET
00300 ;
00310 ;-------------------------------------------------
00320 ;
00330 ; EXAMPLE :  TO PRINT CHRS  1  2  AND  3  ON SCREEN.
00340 ;
00350 ;   (ASSEMBLE IN MEMORY THEN RUN VIA 'EDTASM-PLUS' ETC)
00360 ;
00370 START   PUSH    DE              :SAVE DE
00380         LD      DE,3D30H        :VIDEO
00390         LD      A,31H           :ASC 1
00400         LD      (DE),A
00410         CALL    13E5H           :HL TO STACK.  PC TO HL.
00420         JR      SUB             :REQUIRED SUBROUTINE
00440         INC     DE              :CONTINUE PROGRAM
00450         LD      A,33H           :ASC 3
00460         LD      (DE),A
00470         POP     DE              :RESTORE DE
00480         JP      4386H           :TO EDTASM+
00490 SUB     INC     HL              : ) POINT TO RET ADDR
00500         INC     HL              : )   IN MAIN PROGRAM.
00510         EX      (SP),HL         :PC TO STACK. RESTORE HL.
00520         INC     DE              :NEXT VIDEO
00530         LD      A,32H           :ASC 2
00540         LD      (DE),A
00550         RET                     :TO MAIN PROGRAM
00560         END     START
00570 ;-------------------------------------------------
```


WEST LONDON TRS80/VIDEO GENIE GROUP

monthly meetings on the first Sunday of the month at Northwick Park Hospital Watford rd,Harrow, Middx.

Meetings are held in the Central Common Room of the Residences.(East side of perimeter rd)

Please contact the following fo etails:
Nick Robinson 01 864 5311 ext2588
Geoff Smith 01 560 0754

REVIEW OF TRAKCESS

Not another zap program ! I hear you murmer. Well, yes and no. Trakcess by Roxton Baker is a zap program that differs from all others in style, operation and in end result.

Trakcess requires 48K, and 2 disks if you intend to use the copy and duplicate commands. The program comes in two parts :- TRAKCESS/CMD which you access direct from DOS and once that is loaded you are instructed to enter BASIC and run the second part of the program "TRAKCESS". After loading both parts of the program you don't have a great amount of your memory free.

Even though the program contains it's own disk in/out routines it is recommended that you to have a DOS system disk in drive zero to stop the system hanging up on errors.

On running the program you are presented with a menu which first of all asks you to select a drive and then to enter the head position required, pressing enter gives a head position of zero. 6 followed by a track number moves the head quickly to that track otherwise single stepping can be done using I to step in and O to step out.

You can read and write to a specified block of memory from disk allowing you to repair corrupted tracks or carry out modifications. All writes to the disk sectors are verified reducing the possibility of error. The take and put commands allow you to 'take' from or 'put' to disk a complete track at a time and this can be modified in memory by the editor.

One extremely powerful feature for those with the know-how (count me out) is the ability to tailor a track to your own specifications and the only constraint is the track length. Protect your own software with unusually configured tracks ????

Tracks can be scannned for useable sectors with the track number, sector number, sector length, format and DAM being shown (see below) This process takes about 30 seconds. The whole disk can also be scanned with the option for all the track data to be given. As the program has output to a printer it is worth having hard-copy whilst using this facility as there will be a lot of information to peruse.

We now move onto one of the 'selling' features of Trakcess (that is not to say the rest of the programs features are not excellent, because they are) that being the copy facility. You can scan a track and build a matching format track in memory and then write it out to another disk. If your drives (and your nerves) can stand it you can duplicate (this is a more exact statement than 'copy') a complete disk, even if it has unusual track/sector configurations, but the process takes about 15 minutes for a 40 track disk. Protected disks can be duplicated with ease even though it takes some time to do.

The program also has a very good memory editor (a sample of the display is shown) which allows hex or ASCII display of memory , very good editing facilities and output to printer.

To use Trakcess to it's full advantage I recommend that you have a copy of the data sheet on the floppy disk controller chip, the FD1771 and a copy of TRS80 Disk and Other Mysteries (H. C. Pennington) and a lot of time to spare.

I don't know what your attitude is to a program which enables one to copy protected software ? I for one object to being sold a program where I am unable to make back-up copies for my own use. With the time taken to duplicate the disk and the wear and tear on the drives and diskettes I don't suppose that Trakcess could be used for copying on a commercial basis, but for backing up those expensive pieces of software then Trakcess takes some beating. The other facilities in the program are themselves very good and after a few hours use, along with Disk and Other Mysteries, you will learn more about the make-up of your disks than you ever thought possible.

If you enjoy 'prodding' about on your disks then without a doubt you will have hours of fun with Trakcess, if you just want a program to back up your disks then Trakcess will do the job albeit slowly.

SAMPLE OF MEMORY DUMP

```
74D0:  22 2D 2D 2D 2D 2D 2D 2D 2D 20 4C 4F 43 41 54 45
74E0:  20 41 4C 4C 20 53 45 43 54 4F 52 53 20 4F 4E 20
74F0:  44 52 49 56 45 22 3B 44 4E 3B 22 2D 2D 2D 2D 2D
7500:  2D 2D 2D 22 00 21 75 48 03 47 54 D5 53 54 28 44
7510:  4E 29 3A 91 36 36 30 3A 81 4A 50 D5 30 BD 44 4D
7520:  00 43 75 52 03 8F BE 4D 28 58 29 CA 4D 43 D5 54
7530:  3A 4A 50 D5 44 4D 3A BD 38 39 30 3A 95 91 36 30
7540:  36 30 00 5B 75 5C 03 51 28 4A 50 29 D5 CB 45 54
7550:  3A 8F 4E 53 CA 4E 53 D5 45 54 00 90 75 66 03 8F
7560:  45 54 CA 49 54 24 D5 22 20 48 41 53 20 4E 4F 20
7570:  53 45 43 54 4F 52 53 22 3A 95 49 54 24 D5 22 20
7580:  48 41 53 20 53 45 43 54 4F 52 53 20 20 20 22 00
7590:  B8 75 70 03 B2 [illegible] 32 30 2C 4B 4C 24 3B 22 54
75A0:  52 41 43 4B 22 [illegible] 50 3A B2 40 33 32 3B 2C 49
75B0:  54 24 3A 91 36 39 30 00 D4 75 7A 03 B7 4A 50 3A
75C0:  8F 4D 43 CA 31 31 31 30 3A 95 91 36 31 37 30 3A
```

```
TRAKCESS

) 75C0 (

= 7000H
+1472 D

ADDRESS?
7000
```

SAMPLE OF TRACK SCAN

-- TRACK 11 --

SECTOR	TN	SN	SL	IBM	LENGTH	DAM
1	1A	09	01	Y	256	FB
2	1A	00	01	Y	256	FB
3	1A	05	01	Y	256	FB
4	1A	01	01	Y	256	FB
5	1A	06	01	Y	256	FB
6	1A	02	01	Y	256	FB
7	1A	07	01	Y	256	FB
8	1A	03	01	Y	256	FB
9	1A	08	01	Y	256	FB
10	1A	04	01	Y	256	FB

Ian Owen

80-NET NEWS FREDERICK BROWN

****

REAL COMMUINCATIONS WITH THE TRS-80

Now your trs-80 can talk to the world if you can afford the phone bill's.

A growing use for the micro computer is online commuincations, this is using your computer over the telephone line to talk to other computers.

This enables you to call up the public networking systems like FORUM-80 or MAILBOX-80, or use it at home to access your computer at work, use as a electronic mail system or just trading software over the phone with a friend.

WHAT DO YOU NEED ?

An RS232, modem + software, The Tandy RS232 kit includes a simple terminal program but other COMMS packages are available depending on your requirements.

If you only have a 16k keyboard you will need the PCR-81 (RS232) to run your modem.

HOW DO I USE IT ?

If you have the above, then its all downhill.
So connect up your modem, load your software and your ready to talk to another computer.

Lets try one of the bulletin boards, first of all your RS232 should be setup as table No1, now call one of the bulletin numbers (list No2) if all goes well you will hear a tone after you have dialed the number, now switch to orginate/press data button (depends on type of modem) and press C/R.

A welcome message with logon instructions should start to appear on your screen, enter the details as promted.

If you dont get any welcome message etc don't just keep banging away on you keyboard, your just wasting phone time, disconnect the modem and check everything and try again, If you hear a voice say 'can I help you ' dont drop the reciver as if its just got red hot, The sysop mybe able to help you.

By the way if any of the BOON HEADS are reading this, whistling down the phone trying to crash the system won't work you are just wasting phone calls.

COMMANDS for	FORUM-80	---	MAILBOX-80
A	ABORT		
B	BULLETIN		
C	CONFIGURATION		
D	DOWNLOAD		DOWNLOAD
E	ENTER MESSAGE		ENTER MESSAGE.
F	FLAGGED MSG RETRIEVAL		
H	HELP		HELP
I	INFORMATION		INFORMATION.

```
      K ..... KILL MESSAGE                          KILL MESSAGE
      N .....                                       NEWS BULLETIN
      O ..... OTHER SYSTEMS
      R ..... RETRIVE MESSAGE                       RETRIVE MESSAGE
      S ..... SUMMARIZE MESSAGES.
      T ..... TERMINATE                           TERMINATE.
      U ..... USERLOG                             USERLOG.

List No 1
300 baud,  One Stop Bit,  7 Word, No Parity

List No 2
FORUM-80 (HULL)     0482  859169
   SYSTEM HOURS     TUES & THURS    19.00  TO   22.00 HOURS
                    SAT  & SUN      12.00  TO   22.00 HOURS
MAILBOX-80  (LIVERPOOL)     051 220 9733
                    MON  & TUES     09.00  TO   17.00 HOURS
                    OTHER TIMES     RING   PETER
MAILBOX-80  (TANDY H.Q.)     TANDY  PERSONAL  ONLY  FOR  THE  TIME
BEING.
FORUM-80   (80-NET  TRS-80 USER GROUP B/B) NEW NUMBER SOON.
          TO BE 24 HOURS AND 7 DAY  SERVICE, RING TRS-80 H.Q
FORUM-80   (LONDON) 01 747 3191
          SYSTEM HOURS TUES & FRI 18.00   TO  23.00 HOURS
                       SAT & SUN   ALL DAY
FORUM-80 (WEMBLEY) 01 902 2546
         SYSTEM HOURS  ANYTIME RING AND ASK FOR MODEM
CBBS LONDON         01 399 2136
         SYSTEM HOURS   SAT & SUN  16.00  TO 20.00 HOURS
```

Whats the key to getting the most from your TRS-80 Its information, without a continual supply of information and ideas, you cannot realise the full potential of the TRS-80. That information is available from.

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CORPLAN BUSINESS GAME

Introduction

This is an account of the practical experience of two of the full-time teaching staff of the Department of Accounting and Finance at Luton College of Higher Education, Bedfordshire, England. The two lecturers, Norman Pillow ACMA., FCCA., MBIM., and Maurice Waterson FCMA., JDipMA were invited in 1977 to join the committee of the Bedford and Luton Branch of the Institute of Cost and Management Accountants. They accepted and were appointed Research Officer and Education Officer respectively. Apart from the usual duties of arranging seminars, social events and industrial visits for students and members, it was felt that special attention should be given to simulating actual business problems within an academic environment.

It was natural that their attention should focus upon business games. In 1977 the market was largely restricted to manually operated or sophisticated and expensive main frame computerised models. The game which appeared most suitable was the ESSO BUSINESS GAME. This is an interactive simulation designed for thirty people operating in five teams. Norman and Maurice ran this successfully for two years as a two-evening event sponsored by the ICMA. Interest increased so substantially that many major companies requested that they be allowed to enter a company team. To accommodate them it became increasingly apparent that manually operated business games were no longer viable. Substantially increasing the number of participants meant that the role of the umpires was being reduced to that of comptometer operators rather than arbiters. Main frame computerised business games were ruled out on the grounds of economy and availability.

The 'ideal' business game would have the following advantages:-

1. Realistic simulation of actual business situations
2. Ability to handle a large number of teams
3. Instantaneous feedback of the results of team decisions
4. Elimination of manual calculations by umpires
5. The cost would be modest
6. Provide experience in the areas of investment, production, marketing and finance with emphasis on corporate planning, fund raising, resource allocation and the control of business operations
7. It should be interactive - decisions made by one team would affect all other teams

The College was fortunate to have in the Department the National TRS80 User Group Secretary, Brian Pain, who had seen a program called CORPLAN and, armed with this, Maurice contacted the writer, Martin Mitchell FCA Director of Understanding Ltd., 183/185 Union Street, London, England.

CORPLAN in Operation

Within one hour of using the CORPLAN game on a TANDY TRS 80 microcomputer LEVEL II BASIC with a 16K MEMORY we were convinced that this was the game for us. This entrepreneurial game met all but one of the seven criteria mentioned in our 'ideal' specification. In our opinion, the non-interactivity of this game was of minor importance since it met the other requirements so closely. One 'minor' problem remained - the Department did not possess one single TANDY machine and we required at least fourteen. Nevertheless we purchased the game on the spot. It was obvious that we would have to approach the TANDY CORPORATION (UK) LTD. We were delighted to receive full and enthusiastic support from the corporation and from Martin Soble in particular. At short notice they agreed to loan us the necessary machines to enable us to cope with the 135 participants. The briefing of such a large number before the game presented insuperable problems and we had to settle for familiarisation on the opening night. This was successfully done but something which I would prefer not to experience again. In fairness

to all concerned we believe that several hours should be set aside for a thorough briefing well in advance of the start of the game.
The event was an unqualified success. Apart from the obvious enthusiasm of the players who worked continuously from 6.30 to 9.30 on each of two consecutive evenings it was filmed by Anglia Television, mentioned in "MANAGEMENT ACCOUNTING" and several local publications. We are already assured that Tandy Corporation will give the game its wholehearted support when it is staged in February 1982. The response from industry, commerce and students has been almost overwhelming. It is interesting to note that company representation included Vauxhall Motors, English China Clay, Motorola, British Aerospace, Electrolux, SKF(UK), Cadbury-Schweppes, British Airways, London Brick Company, and Talbot. The winning team shared prizes donated by the Bedford and Luton Branch of the ICMA.

CORPLAN and Examinations

Because of the enthusiasm with which it had been received by the students we turned our thoughts to using CORPLAN as a vehicle for more realistic assessment for examination purposes. Luton College has been given permission by the Association of Certified Accountants to run its own internally examined accountancy courses at Foundation and Professional levels. It was difficult to decide the level at which the game should be aimed as we had allowed first year students to compete with all other levels when running the game in the evenings. We decided to restrict its use initially to students at Professional Stage II Level (those who could expect to become fully qualified accountants in about a year's time).

Briefing for CORPLAN

Armed with our experiment of hasty familiarisation we were determined to provide a much more detailed briefing to the examination candidates. The students, forty in number, were asked to form seven teams and to elect their own leaders. We could have dictated the composition of the teams but deliberately avoided doing so. We restricted our instruction to the team leaders and made it quite clear that it was their responsibility to pass on their knowledge to team members.

We issued to each team leader a nineteen page manual describing the business game and its objectives. A week later Norman and Maurice spent three hours with the leaders explaining any points raised at that time except those relating to documentation associated with the game. We considered this aspect to be important enough to warrant another three hours of instruction.. Each of the ten forms were explained in detail and specimen entries were entered on spare sheets. Only when we were convinced that all the leaders had a thorough grounding in the principles of the game did we allow them 'hands on' experience with the TANDY TRS 80 LEVEL II microcomputer.

The game was played on two consecutive days between the hours of 9.30 to 12.30 and 1.30 to 4.30 and we deliberately put the candidates under increasing stress as the game continued. On the first day they were expected to make business decisions relating to five years running of the company (having inherited a loss-making situation). The profit/loss results of each of the teams were entered on control charts at the end of each year and were freely available to all concerned. The decisions made by each team were closely guarded secrets known only to the team and the examiners.

Auditing of CORPLAN

In the absence of print-out facilities the examiners had to insist on being present when each team entered its decisions into the computer. A separate copy of these decisions was recorded by the examiners to avoid 'cheating'. This practice also enabled the examiners to set up the computers before the start of the second day's play. This was time consuming as each of the machines had to be cassette loaded.

Marking for CORPLAN Examination

The mark allocation for CORPLAN was known to the candidates long before the date of the examinations. A maximum of 60 marks was available in contrast to the 420 marks assigned to the remaining parts of the examination. The parameters for awarding these marks to individual candidates were partly objective but mainly subjective. Fifteen marks were to be awarded to each member of the team earning the greatest profit or sustaining the lowest loss

during the course of the twelve year simulation. The remaining teams received a lower allocation with the worst team being given only three marks. The balance of 45 marks was awarded by the examiners on a subjective basis after consideration of factors such as:-

1. Performance of individual at team interview
2. Individual performance of role assigned by the team leader
3. Individual contribution to collective decision making
4. Degree of co-operation with other team members
5. Ability to forecast the impact of alternative decisions
6. Ability to explain strategy and tactics to the examiners
7. Awareness of the relative importance of the variables used in the computer model

Developments in the use of CORPLAN

The operation of the game can be improved by the more intensive use of peripheral equipment such as:-

1. Printing facilities to obtain auditable hardcopy of team decisions and results
2. A TANDY network to facilitate better overall control of the game by umpires/examiners
3. Disk drive instead of cassette loading
4. With appropriate changes CORPLAN could be adapted for use by School, College and University Students
5. The use of video recordings and transparencies for briefing purposes has much to commend it.
6. As CORPLAN proved so successful in two different situations the Department of Accounting and Finance has now purchased two TANDY TRS 80's and intends to buy more Tandy equipment later.

M. WATERSON
N. FALLOW

INPUT TO LINE 16

I much enjoyed Christopher Perraton's programming tips in the January newsletter and would like to bring my own contribution.
It is possible to input on the last line without distur bing the video display by using the inkey$ function.
Try this;

```
10 PRINT@960,"INPUT STRING ?";:SS$="":FORI=0TO1STEP0:
S$=INKEY$:IFS$<>CHR$(13)ANDS$>CHR$(31)THENPRINTS$;:SS$=SS$
+S$:NEXTELSEIFS$<>CHR$(13)THENNEXTELSEPRINT@0,SS$;
```

Or a more comprehensive input routine as follows;

```
10 CLEAR500:GOSUB100:END
32 'INPUT ROUTINE Z1=NUMBER OF CHARACTERS FIRST CHAR MUST
BE <32 'Z2=1 IF ENTER NOT REQUIRED 'Z3=1 IF NULL STRING
ALLOWED
33 PRINTSTRING$(Z1,136);STRING$(Z1,24);
34 FORZ=0TO1STEP0:ZZ$=INKEY$:IFZZ$=""ANDZ3=1THEN PRINT
STRING$(Z1-Z,32):Z3=0:RETURNELSE IFZZ$<"!"THENPRINTCHR$
(143);CHR$(24);CHR$(32);CHR$(24);:NEXTELSEPRINTZZ$;:Z=1
35 FORZ=ZTOZ1:Z$=INKEY$:IFZ$>CHR$(31)ANDZ<Z1THENPRINTZ$;:
ZZ$=ZZ$+Z$:NEXT
36 IFZ>Z1THENZ=Z-1:PRINTCHR$(24);
37 IFZ$=CHR$(8)THENPRINTZ$;CHR$(136);CHR$(24);:ZZ$=LEFT$
(ZZ$,Z-1):Z=Z-1
38 IFZ<1THEN34ELSEIFZ$=CHR$(13)THENPRINTSTRING$(Z1-Z,32):
RETURN
39 IFZ2=1ANDZ=Z1THENZ2=0:PRINT:RETURNELSE35
100 'DATE ROUTINE
110 CLS:PRINT"TYPE DATE ( DDMMYY )";:Z2=1:Z1=6:GOSUB32:
D$=ZZ$:IFLEN(D$)<>6THEN110
120 V=VAL(LEFT$(D$,2)):IFV<1ORV>31THEN110ELSEPOKE16453,V
130 V=VAL(MID$(D$,3,2)):IFV<1ORV>12THEN110ELSEPOKE16454,V
140 V=VAL(MID$(D$,5,2)):IFV<81ORV>90THEN110ELSEPOKE16452,V
150 D$=MID$(TIME$,4,2)+MID$(TIME$,1,2)+MID$(TIME$,7,2)
160 D1$=LEFT$(D$,1):D2$=MID$(D$,2,1):D3$=LEFT$(D$,2):
M$=MID$(D$,3,2):Y$=RIGHT$(D$,2):D=VAL(D3$):M=VAL(M$):
D9$=M$+"/"+D3$+"/"+Y$
170 M1=M:IFD1$="0"THEND1$=""
180 IFD2$="0"THEND4$="TH. ":GOTO220
190 D2=VAL(D2$):IFD2>3THEND2=4
200 D5$="ST. ND. RD. TH. ":D4$=MID$(D5$,D2*4-3,4)
210 IFD=11ORD=12ORD=13THEND4$="TH. "
220 MM$="JAN. FEB. MARCH APRIL MAY  JUNE JULY AUG. SEPT.
OCT. NOV. DEC. ":IFM=3ORM=4ORM=9THENN=1ELSEN=0
230 S=0:IFM>9THENS=3ELSEIFM>4THENS=2ELSEIFM>3THENS=1
240 M$=MID$(MM$,M*5+S-4,5+N):D6$=D1$+D2$+D4$+M$+"19"+Y$
260 CLS:PRINT@128,"IS "D6$" CORRECT ( Y / N ) ";:Z2=1:Z1=1:
GOSUB32:IFZZ$="Y"THENRETURNELSE110
```

I usually save my programs ,A for listing then I load them into Scripsit put in a little cosmetic work, spaces, margins, etc. and print them as a Scripsit file.

I have a problem with my Tandy Daisywheel. I cannot get the reverse line feed function. The Manual's instruction ie, Chr$(27);Chr$(138) does not work and Tandy as usual are no help at all. Can anybody help ? Pleaeaease!!!.

A.Quain
01.622.4979

A FULLY-PACKED ONE-LINER

I have seen in the various other newsletters a great interest in famous "one-liner" programs, These include graphics routines, or even data input subroutines. But many of them do not benefit the user by being in one line - if only to save space. I have been developing one liner programs for very special cases for some time, So I have included one here as an example of a fully packed one line program. The program may seem like 33 lines but when RUN will erase itself replaceing a lot of DATA sentences with a fully packed line 10. This must then be saved before use (Just in case).

Simply type in the lines as shown in the listing but be very careful of typing the correct number of X's in line 10 (There must be the maximum amount so you must put as many as you can in the line and then enter the EDIT mode and use the Xtend line option and add some more until you have filled about 250 characters. It will not allow any more anyway -- This is important to have the maximum amount). After the program has been RUN it will leave about 20 bytes of BASIC and about 200 bytes of machine language subroutine. The program will sadly only work on NEWDOS/80 V2.0 or V1.0 (It is ORGed at 6A46H and due to the size restriction it could not be made relocateable).

Something that will be noticed is that the line will not list in the usual GARBAGE format because just before the machine code routine started I put an OFCH byte which fools the ROM into thinking that the line has finished listing - Sneaky isn't it! This also has it's uses in the protection end of the market.

The main use of the subroutine is for DATA entry. It is basically a Versatile Keyboard Input routine - but unlike most of the others including Tandy's and Harding's and co. It uses machine language for it's keyboard scanning so no typist can get it to miss keystrokes, not even me! (I type at about 75 words a minute. Or so the Microsoft typing tutor tells me!)

To access the subroutine you must set a dummy string equal to the amount of characters wanted from the routine. You must also find the originating address of the variable using the VARPTR routine. Then you must call the machine language section by using a USR call. All this sounds complicated but I can assure you it is worth it! The routine presents the data in a SCRIPSIT type data entry format with flashing cursors and underlining for the amount of characters wanted.

An example program using it is :

```
10 DEFUSR=27252:' (c) 1982 Jeremy E San.
20 A$ = "                              "
```

Listing of the 'One-Liner' creating program -- by Jeremy E. San.

```
10 REM XXXX
```

```
30 A = VARPTR ( A$ )
40 PRINT "What is your name -->>" ;
50 Z = USR ( A )
60 PRINT "Hello :" ; A$
70 GOTO 20
```

The line 10 is how the packed line will look when listed -- This cannot be typed in from the keyboard!

Another advantage of the input routine is when the above program is executed, It will put the inputted TEXT into the actual line 20 (Embedding it permanently until next time).

I hope this routine is useful! If there is enough interest I will publish the actual Z-80 source code for the data statements and how to go about creating programs ready to be packed. I have also written other machine language packed lines. These include Graphics subroutines and My favorite "An OSCILLOSCOPE" - Yes, it actually takes sounds from the cassette recorder and displays them on the screen in an oscilloscope format. I have played "QUEEN's GREATEST HITs" into the microphone and fascinated any audiences and guests around at the time. It is quite nice to watch and fascinating to experiment with. (I will send this along if there is any demand).

Good luck anyone in TRS-80-LAND and happy April fool's day.

Anyone who is interested in this method of programming please get in touch with me!

Jeremy Elliott San
(01 - 959 - 0114)

SUPER UTILITY by Jim Watt of BREEZE COMPUTING

This Utility which is in the Copyright Library is probably best introduced by the overview supplied by BREEZE COMPUTING and I quote:-

"is the most fantastic program of its kind to be available on the market at this time. SUPER-UTILITY is a machine language stand alone program that has its own I/O routines and does not use any ROM or DOS calls. As a result it should also operate on "CPM" machines and does not require that the disk be in any drive after initialisation of the program. This program also supports the Radio Shack lower case modification. After initialisation, SUPER-UTILITY occupies all memory from 4000H to 9FFFH (that is 24K of machine code!!).

The ZAP utility is a program that does everything that Apparats "SuperZap" does plus many additional enhancements. The zap utility allows the user to go to the heart of the disk annd read and/or modify data regardless of whether it is a protected disk or not. The screen printout on zap is similar to SuperZap, (one sector in HEX and ASCII) but also tells the user the true and relative tracks and whether sector is IBM format or not. Zap also has a search routine that locates and displays the highest or lowest track on the disk and another that locates and displays the highest and lowest sector on a given track. In addition, Zap allows the user to single step track to track or sector to sector and even allows user output to the printer. Zap has dual cursors (one for ASCII and one for HEX) that move simultaneously and allows the user to modify data using hex, decimal or ASCII input, and any changes are automatically updated on both sides of the readout. Zap also allows user to display disk sectors, file sectors, copy disk sectors, compare disk sectors or display/modify main memory. In addition you may search memory or the disk for a specified string and have its location returned.

PURGE is a utility that allows user to kill files by filespec or have the computer list them one at a time for deletion. In addition, Purge will also zero out unused directory entries or zero out unused disk sectors. You may also compute passwords on files. In additon, you can kill files by naming the category of the files (e.g./CMD, /TXT, (I) invisible, V (visble), etc. and also may change the disk name, date, password, protection levels. Purge also contains a complete disk directory that indicates all active and non-active files on the disk and their location in the directory, and the status of all granules on the disk.

FORMAT is a utility that allows the user to format a disk with standard format, format WITHOUT ERASING exsisting data, or Special Format (custom format your disk any way you want it). This utility also allows the user to add tracks to any disk (e.g. change a 35 track disk to 40 tracks).

COPY utility will copy any standard disk with or without formatting. The Special disk Copy allows the user to make a back-up of "ANY" (thats right. ANY) TRS80 readable disk that is presently on the market regardless of any efforts that have been made to protect the disk from being backed-up. NOTE (the only exception is that it wont copy itself). This program is only intended for the user to make back-ups of his/her legally purchased program for his/her own use.

The TAPE COPY utility allows the user to make back-ups of "ANY" TRS80 readable tapes currently on the market regardless of any protection attempts or baud rate.

The DISK REPAIR utility allows the user to automatically repair the HIT and GAT sectors if damaged and will automatically repair a damaged BOOT. This utility does a complete directory check and will advise user of any errors. In addition this utility allows the user to recover killed files and the user may read protect the directory. This utility also advises you of all files that are on the disk, the location of each, and which are presently active.

The MEMORY utility allows user to move memory, jump to memory, test memory, compare memory, zero memory, exchange memory, edit memory, load memory to/from disk and input or output a byte to any port."

In view of their claim of protection on this disk, Breeze Computing insist upon registration with them on purchase, whereupon a back-up disk is supplied. It is of course possible to copy this disk but would be difficult to do on a commercial basis.

The price of SUPER UTILITY was £39.30 inc VAT but a complete re-write of the program has been done to eliminate a few bugs that were present and add to the already impressive list of functions. This new disk, including a back-up is now £52.90 and may be obtained from A.J.Harding (Molimerx).

Laurie King
Southern TRS-80 Club.

PART SCREEN SCROLL

```
0 'SCROLLUP DEM
1 CLEAR 1000:DEFINTA-Z
4 SG$=STRING$(63,131)
30 DIMUS%(7):US%(0)=8448:US%(2)=4352:US%(4)=256:US%(7)=201
1000 CLS
1001 PRINT" LINE #        DESCRIPTION.          QUANTITY ";SG$
1002 PRINT@896,SG$;" YOU  MAY PRESS <UP ARROW> TO END.       <SHIFT AT>
TO PAUSE";
1005 LI=192:LV=10:LZ=10
1010 LT=1:GOSUB40700:PRINTLZ+1
1020 LT=8:GOSUB40700:PRINTSTRING$(24,RND(26)+65);
1030 LT=36:GOSUB 40700:PRINTUSING "######";RND(10000);
1080 A$=INKEY$:IF A$=CHR$(91) THEN PRINT@896,CHR$(31);:END
1085 FOR I=1TO150:NEXT I
1090 LZ=LZ+1:GOSUB 40710:GOTO 1010
40700 IF LZ > LV - 1 THEN  PL = LI + (LV-1) *64 : PO = PL + LT : PRINT@
PO ,"";: RETURN  ELSE L  =  LI  +  LZ  * 64 : O = PL +  LT  :PRINT  @PO
,"";:RETURN
40710 IFLZ<LVTHENGOSUB40700:RETURNELSEJ=0
40711 US% (1) = 15424 + LI : US%(3) = 15360  + LI : US%(5) = (LV-1) *64
: US%(6) = -20243
40712 DEFUSR = VARPTR(US%(0)) : J = USR (0)  : GOSUB 40700 : PRINT @ PL
, CHR$(30); : RETURN
50000 'TAKEN FROM "FASTER AND BETTER BASIC" PAGE 200
```

PASCAL PART1 AN INTRODUCTION

To those of you hooked on BASIC , the first question you may ask is why bother to learn another language. Is it easier? In a word 'no'. So why bother to learn? programmers who take on BASIC as their first language have an easier time of it initially but not in the long run. BASIC programmers tend to develop bad programming habits which must be unlearned in order to master a structured language like PASCAL. Learning the structure may be difficult but its well worth the effort since the very nature of this structure is what makes PASCAL unique and versatile.

Experience of PASCAL programming also leads to better structure in BASIC programming. Before I introduce some of the associated structure it is important to understand the difference from the computers viewpoint between BASIC, an interpreted language, and PASCAL a compiled language.
Beginners stay with me! you will learn something about BASIC to your advantage.

Before I say any more I had better state that you can of course get a Basic that will compile similarly to PASCAL, but to continue, PASCAL is a compiled language. A compiled language is one which first requires that you send your original "typed-in" program to the "compiler." The compiler is a very large program itself (don't worry you never have to read it !) which converts your original PASCAL statements to a "boiled-down" set of instructions for the particular computer you are using. This set of instructions is often called the "object code" for the original program. It's this object code which is executed when we "run" the program.

There are four steps in working with a compiled language like PASCAL :

1. Write the original program (type it in)
2. Compile it
3. Fix the errors
4. Run it

If a computer language isn't a compiled language, it is probably an "interpretive language." Most BASICs are interpretive languages, and there are only three steps:

1. Write the program
2. Run it
3. Fix the errors

The step that's missing is the seperate "boiling-down" step. Every time a program is run in an interpreter language, the actual keywords are scanned and analysed, then each one triggers a built-in package of instructions that 'does' what the keyword implies (e.g. PRINT, GOTO, etc.) This constant scanning means that both the interpreter program and the original source statements must be carried along in memory at the same time. This takes up a great deal of memory space compared to the compiler's boiled-down object code. Finally, the actual scanning and recognising phase of the interpreter can slow the program's execution speed considerably. However, the interpreter approach is simpler for debugging and development of a program... and that's why many manufacturers use it. It also means that unlike in BASIC there is

no syntax checking as each line is entered, so you are quite free to write a load of 'rubbish' and not be aware of it until the whole program is completed and compiled! There are ways round this however.

Well that's the introduction over. My apologies for it being rather wordy and theoretical. Next month we will get to grips with the language itself....in a practial way!

J. Cranfield.
Southern TRS-80 Club

ADVERTISEMENT

My 16-bit 8088-based evaluation system will shortly be available. It can also be used as a stand-alone system for process control, or as an intelligent peripheral.

The system will be on a double-sided, P.T.H. double-Eurocard, and will comprise:-

- 8088 processor (4MHz clock)
- 8255 (24 lines of I/O)
- 8253 (three-channel timer-counter)
- 8251 (USART - async. or bi-sync.)
- 8259 (8 levels of interrupt)
- 1500 baud cassette interface
- 300 baud - 9600 baud RS-232 interface
- 2K CMOS RAM (6116)
- 2K EPROM (with comprehensive monitor)
- 5V only required (1A)
- Expansion (on-board) to 16K RAM/EPROM (sockets provided)
- Off-board expansion capability to 1 megabyte (that's right, 1 MB!!!)
- Ccomprehensive documentation

Price? A mere £300 plus VAT.

I am currently designing an 8086-based single board computer for sale to O.E.M.s that will be software compatible with the IBM Personal computer and the ACT Sirius. I have started work on construction of the prototype, which I hope to have up and running in a month or so. There will be sockets for TWO co-processors (the 8087 IOP, and the 8089 maths co-processor), disk controller for 8" or 5 1/4" double/single-density drives, 128K of RAM (using 64K RAMs), 2K EPROM (bootstrap), two serial ports, Centronics printer port. The whole thing will be on a large double Eurocard, and the O.E.M. price will be around £1000. Other boards will enable additional RAM (up to 1 MB) to be added, hard disks, and high resolution graphics (1024 X 1024) using the new NEC graphics controller. It could be configured to use a standard Model I Level II keyboard for I/O, and your existing disk drives. Your expansion interface will be redundant, of course.

Please drop me a line if you would like more information.

Leon Heller

BASIC FASTER AND BETTER

BASIC FASTER AND BETTER AND OTHER MYSTERIES is Volume 4 of the TRS80 Information Series and is written by Lewis Rosenfelder. It is aimed more at the disk user but could prove very useful to any programmer. It is claimed by the author that much of the subject matter has not before been published. The following list of the chapter headings gives some idea of the coverage in its 287 pages.

Chapter 1. Sub-routines, 'Handlers'and 'Shells'.
Chapter 2. Super-power function calls.
Chapter 3. USR-Routines for speed and flexibility.
Chapter 4. Magic Memory techniques.
Chapter 5. BASIC overlays.
Chapter 6. Number Crunchers and Munchers.
Chapter 7. Using Strings in new ways.
Chapter 8. Date and Time manipulation.
Chapter 9. Bit manipulation.
Chapter 10. Arrays, Searches and Sorts.
Chapter 11. More Arrays, Searches and Sorts.
Chapter 12. Keyboard and Video Trickery.
Chapter 13. Data entry made easy.
Chapter 14. Useful Utilities.
Chapter 15. Model 2 Modifications.
Ch pter 16. The Faster and Better Disks.

There follows Appendix 1 to Appendix 11 plus the index.

It is impossible in a short article to describe all the many user-routines, functions and other utilities but the book can be looked on as hundreds of hints and tips that can be used to improve program efficiency, execution speed, and programming time. There are numerous machine code routines and it is shown how these can be loaded into a BASIC program by the use of strings or arrays or pokes and full information is given for all routines for these three methods, i.e. Tables of data, as well as source code.

As an example, the following is taken from Chapter 1.
Suppose you have the following problem.

If the integer A is between 100 and 300 then B=1
If the integer A is between 301 and 800 then B=2
If the integer A is greater than 800 the B=3
otherwise B=0.

The one line solution to the above problem is given as

```
B%=-(A%>=100)*((A%>=100)+(A%>=301)+(A%>=801))
```

Since all the routines and functions have been given line numbers to a specific plan, it is possibled to merge many of these in a single program and a utility called MERGEPRO/BAS is given to do just that, giving the facility to alter line numbers without disturbing the pattern of blocks of numbers, and automaticaly adjusting GOTO's and GOSUB's.

You have probably gathered that I like the book. It is pricey but so are all the books in this series. Copies can be obtained from Molimerx at $19.90 plus postage.

Laurie King.
Asst. Editor.
Southern TRS-80 Club (Journal)

A review of the ACCEL2 Compiler

ACCEL2 is an advanced version of Southern Software's ACCEL which compiled programs written in Level II Basic, and handles Disk Basic extensions as well. At compile time it occupies 5632 bytes. For a compiler this represents a small amount of memory usage and is accounted for by not compiling I/O statements such as PRINT or INPUT. Statements containing integers and Gosub, Goto and Return are translated to Z80 machine instructions while other more complex statements are translated to ROM calls. ACCEL2 will also give gains in string handling, single and double arithmetic and one dimensional, fixed boundary arrays. Programs are built, modified and debugged in BASIC in the normal way and then the program is compiled to get improved execution speed. No editing can be done on the compiled program but it can be saved or loaded as a core image.

The increase in speed of execution depends on the program and quite spectacular increases of 20 to 30 times are sometimes achieved. Best examples are games, screen graphics, sorting etc., whilst string handling speeds can be increased by a factor of 4 or 5 times. One program I tried that uses a lot of double precision arithmetic and trigonometrical functions was however disappointing in that, for a certain calculation, the BASIC program took 95 seconds whilst the compiled program for the same calculation took 88 seconds.

Another advantage claimed by Southern Software is that the programs can be sold without revealing the original BASIC program because compiled programs can be neither read or edited. For disks, it is necessary to use a second file, which is the run-time component of ACCEL2. Southern Software are happy about selling this run-time segment with the program providing an acknowledgement to them is made in the documentation.

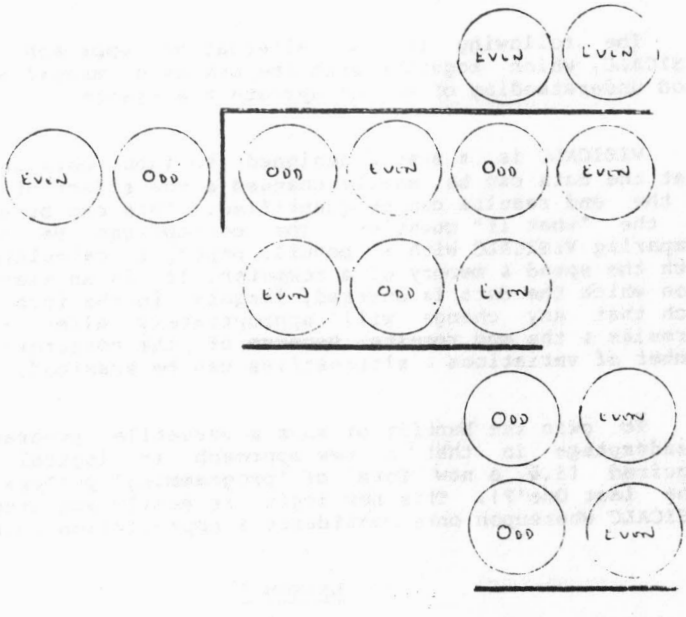
The documentation is quite good and states quite clearly the limitations of the program. Hints are given for programming for maximum performance as are examples of the types of statements to avoid. Two compile-time options are given which it is suggested be used for first time compilations. These are NO EXPRESSIONS and NO ARRAYS and their use is explained.

During compilation, 5 numbers are put to the screen. The first is the size in bytes of the original program, the next four being the size of the program after each of the four compiler passes. Pass 1 builds the variable dictionary. Pass 2 maps out exactly what code will be compiled. Pass 3, which is the slowest pass, does the actual compilation and is the one that expands the text. The 4th pass then tidies up, removing flags used internally by the compiler from the program.

I find this a very interesting program which can make real speed-ups in many types of program.

Laurie King.
Asst. Editor.
Southern TRS-80 Club (SouthSoft)

CAN YOU SOLVE THIS? WHAT ARE THE NUMBERS?



My micro was working on this problem for 2 hours and unfortunately did not give a solution for this teaser set by the Daily Telegraph - Brain Twister.

Can you solve it by a BASIC program in a shorter time? The use of Accel etc. is not permitted, although a comparison of times by normal basic and Accel basic would be of interest.

Rod Bullard,
Southern TRS-80 Club.

ALTERNATIVE VISICALC LESSONS

The following is an alternative approach to learning VISICALC, which together with the standard manual should give a good understanding of how to operate the system.

VISICALC is a system designed to input data in such a way that the data can be easily changed & the effect of such changes on the end results can be quantified. This can be considered to be the "what if" question. The concept can be envisaged by comparing VISICALC with a pencil, paper, & calculator together with the speed & memory of a computer. It is an electronic sheet upon which the data is entered, largely in the form of formulas, such that any change will appropriately alter all affected formulas & the end results. Because of the computer's speed any number of variations & alternatives can be examined.

To gain the benefit of such a versatile program there is a disadvantage in that a new approach in logical thinking is required (i.e. a new form of 'programming' perhaps similar to 'The Last One'?). This new logic is easily acquired by using VISICALC whereupon ones confidence & appreciation increases.

LESSON 1

GENERAL INTRODUCTION

THE SCREEN

On power up, the most obvious elements are the horizontal line with the letters A to F, the vertical line with the numbers 1 to 12 & the flashing square brackets. This is the top left sector of the whole grid, - the whole grid being vertically from 1 to 254 & horizontally from A to Z , AA to AZ & BA to BK (63 positions). The flashing square brackets are the cursor or highlight.

In the top right corner the topmost figure is a C below which is the number 22. The C indicates the mode of calculation, which is Columnar, (i.e. column A1 to A254 then B1 to B254 etc.) This can be reselected under a command when the letter becomes R, indicating Row calculation. The number 22 is the memory indicator stating that 22k is available.

In the top left corner appears A1 below which is a copyright notice. The A1 is the current position of the cursor & the co-ordinates of the position of the cursor will always be so displayed. However when data has already been entered into the cursor position, such as format & formula, it will be displayed alongside the coordinates. The copyright notice disappears on the first key-stroke, for the line is used as t PROMPT line,

namely the commands available & their associated options or the definition of the data. The space below this line is the EDIT line which will be used to record the data being supplied in response to the Prompt before being entered into the computer.

DATA

This is in two forms LABELS & VALUES. Labels are the equivalent to strings & are the descriptions given to the columns & rows to render the grid more readable.
The computer will always regard a non-numeric symbol at the beginning of an entry to mean a LABEL, thus should a beginning number be wanted to be a LABEL (e.g. 1st Month) then the entry must be preceded by a ".

The computer will always regard a numeric or mathematical symbol at the beginning of an entry to mean a VALUE. Values can be either numeric constants or formulas, & formulas are derived from using the grid's co-ordinates (e.g. B2 * B3 means that at the current cursor position store the formula & calculate the result). The problem of overcoming the computer's desire to name this as a Label is to prefix the formula with a symbol (e.g. + B2 * B3 stores a VALUE formula). It is the use of such formulas that the effect of any data changes can be quickly & easily determined.

COMMANDS & FUNCTIONS

The commands & built in functions give the power to VISICALC.
The commands are instigated by a / followed by the chosen letter, & are mostly either for SCREEN or DATA.

B	BLANK		Lesson 1
C	CLEAR		" 1
D	DELETE	D	" 3
F	FORMAT	S	" 2
G	GLOBAL	S	" 2
I	INSERT	D	" 3
M	MOVE	D	" 3
P	PRINT		- - - -
R	REPLICATE	D	Lesson 3
S	STORAGE		" 1
T	TITLES	S	" 2
V	VERSION (copyright)		- - - -
W	WINDOW	S	Lesson 2
-	LABEL REPEAT	S	" 2

The functions are invariably a short-hand notation to facilitate formula creation or opetation activity. The function is preceded by an @ , & the most common would be :-

@SUM @INT @AVERAGE @COUNT @NA @ERROR

Their use is covered in Lesson 3.

STARTING

In order to commence understanding VISICALC a certain amount of basic information is necessary that would not be explained in a dedicated lesson

1. Cursor Movement - there are two ways of moving the cursor, by using the arrow keys or by direct movement. The arrow keys move the cursor in the direction of the arrow, & the keys have REPEATABILITY. Direct movement is started by typing the > , whereupon the Prompt line says GO TO : COORDINATE. In the EDIT line one types the coordinate & the cursor immediately moves to the selected position. If the cursor is being moved off the grid VISICALC will respond with a flashing of the screen.

2. Corrections - whilst making an entry into a coordinate, & before having pressed Enter or a cursor movement, & a mistake is found, then either the CLEAR key or the BREAK key can be used. CLEAR backspaces one digit at a time until the error or all the entry is removed, whereas the BREAK removes the entire entry in one go.

3. Commands - general :-

a, /B BLANK removes data already ENTERED at current cursor position, but is only effected upon the next cursor movement.

b, /C CLEAR removes all data from the grid, but is only effective after a confirming 'Y'.

c, /S STORAGE permits the options of (L)oading a file from disk, (S)aving a file to disk, (D)eleting a file on disk, (Q)uitting Visicalc & # to save/load in data interchange format.

CONCLUSION

It is now suggested that familiarity of VISICALC is gained by performing the basic cursor movements by the arrow keys & direct movement, plus some elementary data input. In so doing one can see the information being displayed in the top left corner, in the respective lines of ENTRY CONTENTS, PROMPT & EDIT. Perhaps one will gain good experience in error correction by the CLEAR & BREAK keys plus the /B command. A few sorties into the STORAGE command would be quite valuable.

LESSON 2

SCREEN APPRECIATION

In order to gain appreciation of the SCREEN commands some data is necessary. If the following data is input, starting from A1 in rows, then not only will one be able to appreciate the screen, but also one will really appreciate the DATA commands that follow in Lesson 3.

As one is inputting the data one could watch the displays on the ENTRY CONTENTS, PROMPT & EDIT lines.

From A1 type :-

(note the → represents the right arrow on the keyboard)

desc → mth 1 → mth 2 → mth 3 → mth 4 → mth 5 → total <E> > A2

tonnes → 100 → 105 → 110 → 100 → 120 → +B2+C2+D2+E2+F2 <E> > A3

price → 201 <E> > A4

cost → 150 <E> > A5

sales → +B2*B3 → +C2*B3 → +D2*B3 → +E2*B3 → + F2*B3 → +B5+C5+D5+E5+F5 <E> > A6

cost → +B2*B4 → +C2*B4 → +D2*B4 → +E2*B4 → +. F2*B4 → +B6+C6+D6+E6+F6 <E> > A7

profit → +B5-B6 → +C5-C6 → +D5-D6 → +E5-E6 → +F5-F6 → +G5-G6 → <E> > A8

"% age → 100*B7/B5 → 100*C7/C5 → 100*D7/D5 → 100*E7/E5 → 100*F7/F5 → 100*G7/G5 <E> > A1

(N.B. The <E> is ENTER :The → is the arrow key :The use of GOTO > coord : The " to override the value symbol in A8 : The arithmetical priority used in row 8)

Although this is a small example there are very real disadvantages in typing in the data, & the general appearance, such as the column alignment, the % age numbers, the failure to get all columns on the screen & when scrolling the headings are lost. Furthermore if one was to change the tonnes in any one month & change the price, then there would be a calculation after each change, & the price would be for every month. There is a problem of lack of flexibility, which with proper "programming" could permit monthly variations. This data should now be saved as TEST1/VC.

COMMANDS

Before using any commands in coordinate A9 insert nine = signs (use the ") & then position the cursor at A10

/-

The repeating label. In coord A10 type in nine = signs (the " is not used). The use is revealed later.

/G

The global command.The prompt response is C O R F.
C is the Column width. If we select 5 <E> then the screen responds with a reduced form that does show all the columns currently on the screen. If the numbers are too large they can be displayed in scientific notation, but if this is impossible then >>>> will be shown (try 3). If we now re-command & select 15 then the columns are widened, & if we look at coordinates A9 & A10 we see that the normal label input is short compared to the full repeat label (/-). This repeat label is therefore good for using as bounda lines.
O is (order of recalculation. Further prompts are C or R, meaning columnar & row, & the particular mode is

displayed in the top right hand corner. If we were to select R & change the price we will then see the ripple be sideways. Which mode is selected depends on how the project was designed.
R is the recalculation mode. Further prompts are A or M, meaning automatic or manual. If manual is selected then many data changes can be made without a recalculation (i.e. no ripple), for a calculation is only started by pressing the ! key.
F is the format of the grid. The further prompt is D G I L R $ *. G is the general format as at set up. I is the integer format, which if selected tidies up all the numbers, such as the % ages; (n.b. the number is still to full value with only the presentation in integer). L is the left justify. R is the right justify. Selecting either of these options transforms the grid, but neither is totally satisfactory. $ is the two decimal places, which is only satisfactory on the % ages. * is used in graphs. Thus this global format can set the form of the grid but the options available cannot satisfy all data.

/F

The local format command. The options are the D G I L R $ *. The D is the default format which defaults to the global format as specified under the Global format (/G). All options are as per the Global format, but it is purely local to the coordinate in question. One can thus have a variety of different formats on the grid so giving a total pleasing appearance to ones own requirement. Use this command to set all % ages to two decimals having under the global format set everything to integer & also set the top headings only to right justify. Now scrolling over the grid, if we watch the entry contents line (very top left) we see the various information that is now stored at the coordinate in question. This can now be saved as TEST2/VC.

/W

This is the window command, with the options of H V 1 S U. H is the splitting of the screen horizontally, V is vertically & 1 is to ONE screen. When splitting the screen, the divide occurs at the position BEFORE the cursor. An example of the use of the split screen would be to hold a remote column (a total?) in view to see total effects, whilst having the detail columns for data adjustment. If we position the cursor on G1 & press /W V the grid appears with the important data on screen. To transfer from one side of the window to another merely press the ; key. For the last two options, when working in one window involving scrolling, the two windows can become out of phase, thus the commands of S for synchronised & U for unsynchronised are provided.

/T

The titles command, with options of H V B N. These commands allow the fixing of the headings (i.e. edge of grid) to be fixed horizontally, vertically, both together or not at all. Thus when scrolling the descriptions are available for reference.

CONCLUSION

The using of the above commands on the data files already established will greatly improve the confidence & familiarity of the screen options available.

LESSON 3

DATA

Before embarking on the most exciting part of VISICALC it is worth remembering that VISICALC regards letters as LABELS & numbers & signs as VALUES, & if a number or symbol is to be used as a label the " must be used. As the flexibility is obtained by the use of formulas created by using coordinates, then to over-ride letters becoming labels then a maths symbol must be used. Finally it must be noted that the priority of calculating is from left to right only, e.g. in BASIC 100+100/2=150 whereas VISICALC gives 100+100/2=100. (so beware in applying % increases).

Data entry is of 3 modes : direct typing, cursor movement for values & commands/functions.

Direct typing cannot be avoided but can be minimal.

Cursor entry is achieved by the computer recording the coordinates following a cursor move entry. The steps are best demonstrated on the TEST2/VC file & first blanking out the coordinate B7. (/B<E>).

With the cursor still positioned on B7:-

1, type in a +
2, move the cursor to B5 & type in a -
(the cursor returns to B7)
3, move the cursor to B6 & then <E>
(this entry is now complete)

Much more complicated formulas can be so constructed.

Commands & functions are the power to VISICALC.

COMMANDS

/R the replicate command.

This is the most powerful & amazing aspect in VISICALC. The use involves identifying both a SOURCE range & a TARGET range for the data to be "copied".
Referring to the TEST2/VC file examples of replicating labels are demonstrated by:-

1, cursor to A10 /R<E>
in response to SOURCE RANGE A10
2, type . followed by A10 (n.b as it is one coordinate you need only type :)
the prompt line now shows TARGET RANGE
3, type <E> followed by B10 then . & G10 <E>
There is now a complete line of =

A further demonstration is to:-

1, cursor to A10 /R<E>
in response to SOURCE RANGE A10
2, type . followed by G10
the prompt line now shows TARGET RANGE
3, type <E> then A9 then . then G9 <E>

The complete line is now copied & is put over the existing data in row 9. (but watch the EDIT line).

As regards formulas VISICALC recognises the futility of exact copying as formulas refer to data references which can vary row by row & column by column.

To continue the example first blank coordinate C5 (/B<E>) & then replicate over D5 to F5.

Now with the cursor on B5 type +B2*B3 & then the replicate command /R. In response to the SOURCE produce B5...B5 & in response to TARGET produce C5...F5. Visicalc will now prompt for the type of change R-relative or N-no change for each coordinate in the formula. The first coordinate is for tonnes which varies with the month thus the response is R. The second coordinate is for the constant price thus the response is N. If we now inspect each entry B5 to F5 we find the formulas exactly as we had so laboriously typed in previously. The type of change is always asked for every coordinate!

To gain further familiarity & gain flexibility in the program:-

1, go to C3 & type in +B3, then replicate from source C3 to target D3...F3 Relative

2, go to C4 & type in +B4, then replicate from source C4 to target D4...F4 Relative
Scanning each coordinate reveals that although there is a constant start value, the value can be changed in any month & the change wiil be reflected from that month.

3, go to B5 & because the formula is already there replicate from source B5 to target C5...F5 Relative Relative

4, go to B6 & similarly replicate from source B6 to target C6...F6 Relative Relative
Scan these coordinates & note the various entries.
Save this as TEST3/VC. To check flexibility make any appropriate changes to any Values. However once a constant has been introduced as a value the flexibility is destroyed unless the formula is re-instated. (easily done in REPLICATE command).

After experimenting clear the grid /C Y

Before concluding replicating if we type (& type fast) the following simple data:-

Remember the → is the right arrow on the key board

under column A a → b → c → d → e → f <E>
under column B 1 → 2 → 3 → 4 → 5 → 6 <E>
under column C +B1 <E>
(note how the computer allows "typeahead)

If we now replicate C1 down the remainder of column C by using a source range of C1 & a target range of C2...C6 Relative, we produce a column of formulas.
If we now use this column of formulas as a source range C1...C6 & now target this to D1...F1 (i.e. the top coordinates of columns) then the command will replicate multiple columns of the formula for each top coordinate in the range, but it will continue to request the type Relative or No change.

/I the insert command.

This provides a blank line before the cursor in response to an option of either R or C (Row or Column). When used all affected formulas are appropriately changed.

If we use TEST3/VC & move the cursor to A5 & then use the insert command /I R we can then confirm that the formulas have been adjusted, merely by viewing the rows for profits & %ages.

/D the delete command.

This will delete the line on which the cursor is, & will again adjust all affected formulas. The options are again either R or C.

A word of warning is that a delete is final, allowing no chance of data retrieval after removal. If a line is removed that contains essential data for other coordinates then an ERROR will be displayed in every affected coordinate. Try deleting the Tonnes row. To restore the situation all formulas containing the @ERROR will need correcting. (N.B. only formulas NOT coordinates containing @ERROR)

/M the move command.

This moves the selected row or column to another row or column. VISICALC knows whether it is a column or row move by the coodinate to move to in relation to the cursor position.

If we return to TEST3/VC & put the cursor on A2 & then use the move command /M type . & the coordinate A11, then the transfer is effected & all entries are relocated up. We can now repeat the exact same move command to move prices & costs. If we now inspect the formulas at sales & costs they have all been suitably changed. We must now save this as TEST4/VC as an example of poor set out giving calculating problems.

Rod Bullard,
Southern TRS-80 Club (Swindon)

PRINT USING With £ Sign

One of the annoying things about the TRS-80 is that it has a powerful PRINT USING function, allowing clever formatting of displays, but it works only with the $ sign. With the following routine, however, it is possible to use PRINT USING with any symbol, including the £ if your lower case has it.

Add to your program :

```
5     GOSUB 10000
          I
          I
      main program
          I
          I
10000 FOR N=16478 TO 16489 : READ D : POKE N,D : NEXT N :
      POKE 16526,94 : POKE 16527,64 : RETURN
10010 DATA 42,32,64,62,36,71,237,185,35,54,35,201
```

Within the program add A=USR(0) immediately after any PRINT USING statement with a $. The second last number in the DATA statement (35 above) is the character code of the character you wish to replace the $ by. The routine works by allowing $ to be printed then quickly changing it to the desired character.

Here is an assembler listing of the routine :

```
405E  2A 20 40      LD    HL,(4020H)   ; get cursor position
4061  3E 24         LD    A,24H        ; $ character
4063  47            LD    B,A          ; large number so BC≠0
4064  ED B9         CPDR               ; search backwards for $
4066  23            INC   HL           ; point at $
4067  36 23         LD    (HL),23H     ; change to £
4069  C9            RET                ; return to Basic
```

The machine code is relocatable and can be POKED into any convenient area in memory. If you live in Germany, as I do, and want to do your household accounts in Deutsch Marks, it is simple to use DM. In the assembler listing add LD (HL),"D" before INC HL and change the other to LD (HL),"M".

This short program will demonstrate the use of the subroutine :

```
10  CLS : PRINT"EXAMPLE OF PRINT USING WITH $" : FOR I=1 TO 14 :
    N=RND(32000) : N1=N/1000 : PRINT USING "######";N;:
    PRINT TAB(15) USING "$##.##";N1 : NEXT I
20  FOR I=1 TO 2000 : NEXT I
30  CLS : PRINT"EXAMPLE OF PRINT USING WITH £" : FOR I=1 TO 14 :
    N=RND(32000) : N1=N/1000 : PRINT USING "######";N;:
    PRINT TAB(15) USING "$##.##";N1 : A=USR(0) : NEXT I
40  GOTO 40
```

Jim Bartholomew
Officers' Mess
RAF Gutersloh
BFPO 47

SYNCHRONOUS CLOCK SPEED UP -- A POSTSCRIPT

Since I wrote about the speed up mod I discovered an item by Dennis Kitsz in the May 1981 80-Microcomputing (Page 54) giving a modification to the new (buffered) expansion interface which speeds up memory access allowing use with the faster clock speed. Apparently the redesigned EI (which started appearing in mid 1980) doesnt use the CAS and MUX signals from the keyboard unit but derives them and a new RAS signal from the keyboard RAS signal by passing this through a purpose built delay line. The result is that the relative timing of these signals is independant of the actual CPU clock speed and is optimized for a 1.78 MHz clock and 450ns memory chips. The main problem seems to be the delay introduced in the new RAS signal (this is the first signal to reach the memory chips when they are addressed). Eliminating this delay makes the new RAS MUX and CAS signals all appear earlier, with the result that the 300ns memory I have in the EI now work quite happily at 2.66 MHz.

The modification

If you bought your EI in 1980 (or this year) AND it doesnt need the buffered cable etc. the following mod should make it work reliably at both speeds.

1. Open the EI and take the board out completely. Refer to the circuit diagrams at the back of the EI manual.
2. Find Z37 and Z38.
3. Cut the trace leading from Z38 pin 9. Call the end furthest from Z38 'loose end A'.
4. Cut the trace leading from Z38 pin 8. Call the end furthest from Z38 'loose end B'.
5. Cut the trace leading from Z37 pin 4. Call the end furthest from Z 37 'loose end C'.
6. Attach loose end A to Z 38 pin 11.
7. Attach loose end B to Z 37 pin 4.
8. Attach loose end C to Z 38 pin 9.
9. Check for solder splashes and reassemble the EI.

LDOS with tuned diskette drive stepping rates , motor on delay and a speeded up clock is now a very fast DOS.

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NEWDOS80.2 NOTES (PART 1)

1. PDRIVE. Password 1 : dn1, dn2(=dn3), TI=type 1, TD=type 2 TC=tc1, SPT=Sc1, TSR= GPL=gc2, DDSL=ln1, DDGA = gc1, A

dn1, password 1 = control information of diskette to be changed

dn2 = drive data to be changed

=dn3 = let dn2 have data assigned to dn3

TI = Type of Interface
- A : standard TRS-80 interface
- B : OMIKRON mapper type
- C : Percom double type interface
- D : (Model III only) Apparat type
- E : LNW type
- H : (Needed for 8" drives)
- I : (Model III) sectors start at 1
- J : tracks start at 1
- K : track 0 formatted on opposite to density of other tracks on diskette
- L : two step pulses between tracks i.e. 3540 can be read on 80 track drive
- M : diskettes are standard TRSDOS Model III

TD = Type of Drive
- A : 5 inch, single density, single sided
- B : 8 " " " single sided
- C : 5 " " " double "
- D : 8 " " " " "
- E : 5 " double density single "
- F : 8 " " " " "
- G : 5 " " " double "
- H : 8 " " " " "

TC = Track Count

SPT = Sectors per track

TSR = Track Stepping Rate (Model III uses TRS=0)
- 0 = 5 ms Standard Mod I is TSR = 3
- 1 = 10 ms
- 2 = 20 ms
- 3 = 40 ms

GPL = Granules per lump (2-8 normally 2 for Mod I, 8 for Mod III)

DDSL = Disk Directory Start Lump (normally 17)

DDGA = Disk Directory Granule Allocation

A = This causes the new pdrive data to be loaded into main memory pdrive table for use - eliminates use of RESET. Works If and Only if NO errors were encountered on pdrive table.

2. PURGE, password 1 : dn1, /ext, USR
   /ext = Purge queries limited to files with this extension
   USR = Purge queries do not include system or invisible files

3 ROUTE, CLEAR - Resets
, dev1, dev2, dev3 (etc)

dev1 is source device
dev2, 3 etc. are destination devices e.g. DO, PR, KB, RI, NL (Nowhere)

Jim Gunson.

Model III Users & Owners

Michael Molloy at 6 The Copse, Haywards Heath, Sussex RH16 2EZ. would like to hear from others as and when they put pen to paper etc. and exchange info. on the above Tandy.

WANTED

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WANTED

Expansion Interface, will collect if necessary etc.

Tony Wilde, Bury, Lancs.

HELP

Ateacher wishes to operate two keyboards & VDU with one printer. Is there a suitable way to link up?

Dave Futcher 01-574-3506 & 01-743-5310 (80US has an articleJan81P117)

TRS80 SECTION OF MKMUG

The above now meet every Sunday Morning at the Woughton Campus, which is just south of Central Milton Keynes.

The facilities are quite superb, and short lectures or projects are now in hand as RS232c, Modem, low cost expansion board.
Ring Adrian Har[illegible] : for details, as the above is just an indication what could be happening. (0908-75481 H)

HELP...? FOR KEN GREY (P21 V3 No. 7 NEWSLETTER)

How can I learn to type that fast Ken? This note will no doubt take me about an hour and a half to key in!

If you have disks then the problem is easily soluble (for cash!) by using a type-ahead buffer facility. This is in effect a method of storing keystrokes outside the application program until the program next asks for keyboard input. In order to ensure that the keyboard is scanned sufficiently often so no key depressions are missed the CPU must be interrupted from the application program on a regular basis to perform this task. On the TRS-80 the interrupt facilities are part of the expansion interface and the integration of application programs and the interrupt structure is (to all but the most ardent assembler programmer) controlled by the disk operating system. This is why you need disks.
(....If you havent got disks youll need a 25ms interrupt timer and Laurie Shields....)

If you have got disks you need to buy VTOS or LDOS as both these operating systems have a fully supported interrupt structure and come with a type-ahead facility as standard. To make use of the type-ahead buffer the applications programs need to use the 'standard' keyboard routines (now modified for type-ahead) and patches to make PENCIL do this are supplied with VTOS and LDOS.

The type-ahead buffer can of course be used for normal operating system commands and with Basic to allow responses to preceed questions whilst the TRS is processing or accessing disks or printer. (The LDOS/VTOS print spoolers permit the same type of effect for program output). If the KSM keyboard driver routine is also active 26 different paragraphs can be read into the PENCIL workspace at any point with a single keystroke - another standard VTOS/LDOS facility. The patches supplied for PENCIL also permit standard routine of formatted output -- to display, communications line (or serial printer) or disk file -- instead of the standard parallel printer. The modified PENCIL also respects any top of memory drivers automatically.

Alan Redhouse

NEW SUB GROUP In MARKET HARBOROUGH

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Contact Neil Griffiths M.H. 65718(Work).

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Beaconsfield First and
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01-743 5310 (Home)

BUSINESS SUB-GROUP

THE ABOVE IS FOR THE INTERCHANGE OF VIEWS & EXPERIENCES OF MEMBERS, AND THERE IS NO INTENTION OF SETTING UP A LIBRARY OF COMMERCIAL PROGRAMS . THE ONE OBVIOUS AREA FOR CODE EXCHANGE IS THAT OF SELF DEVELOPED SUB-ROUTINES. IF MEMBERS COULD WRITE OR RING IN WITH THEIR CURRENT PROBLEMS, THEN PERHAPS THE ANSWERS CAN BE FILED TO ALLOW OTHERS FOLLOWING TO ACCESS THIS FUND OF EXPERTISE, EVEN IF THE ORIGINATOR HAS LONG GONE, AND MOVED ON TO GREATER THINGS

Brian Pain March 1982

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Tel: 01-799 8844

BUSINESS SUB-GROUP

Contact: Brian Pain
(0908) 564271

ONE LINE COMPETITION

Jeremy San & John Newgas would like to invite entries from members on the above. The closing data for entries is 30th April 1982, and their decision is final. There is a small prize, but what really counts is the honour of winning.

Brian Pain 0908-564271 or 0582-34111 9.00-9.30 Mon - Fri

BUSINESS SUB GROUP

Paul Bunn Of Stoke on Trent would like to hear from anybody running inter-active financial accounting programs.

Ken Dudman of the London area is seeking assistance on sorting a variety of files generated in his business.

David Hedges is thinking of a bureau application and would like to hear from anybody who may have suitable programs, especially in the financial accounting areas, and in particular VAT & Ledger programs.

Brian Pain 0908-564271 or 0582-34111 Mon - Fri

BUSINESS SUB GROUP

Keith Engerran from the London area would like to hear from anybody who uses any structural engineering packages:- Model I or II

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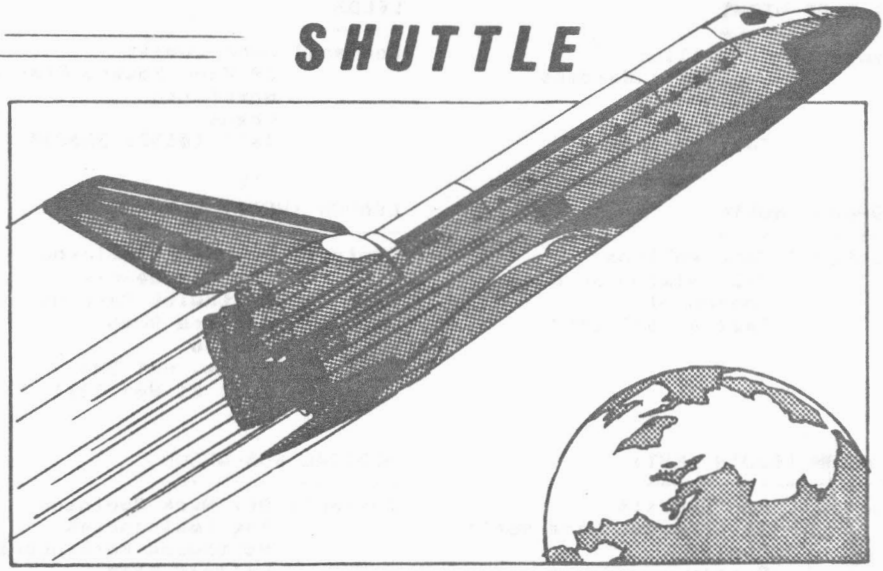
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SHUTTLE



This program is a highly accurate computer simulation of the flight of the Space Shuttle Columbia from the initial countdown through the launch period, the launch itself and into a stable orbit. The craft may be manoeuvred within the orbit and then dropped out to finally fly through the atmosphere to a safe touchdown.

The attraction of this simulation is its authenticity. So far as is possible, it follows the actual parameters of the first Columbia flight with only one or two minor exceptions. The shuttle, of course, starts its flight pointed vertically into the sky and carries a huge fuel tank to provide the fuel for its three main engines in addition to the solid fuel rockets which provide the major thrust to lift it off the ground. Two minutes into the flight the rockets are jettisoned, having burned all their fuel. The count-down for take off starts at T-20 seconds. At T-10 seconds the shuttle motors start firing, but the shuttle remains tethered until T = 0. When the shuttle blasts off, the pilot must guide the craft into its orbit by controlling its attitude and track. A number of guidance controls are supplied, together, of course, with control of the shuttle motors' thrust.

The simulation may be started at one of three points in time: either at take off, at a point where the Columbia is in a stable orbit round the earth, or finally, prior to landing. Measurements of speed, fuel and so on may be selected for either Metric or Imperial measurements. All of the physical forces which acted upon the actual flight are taken into account. One departure from fact has been included in that the two solid fuel rockets have had their thrusts increased from 26 to 36 million Newtons so as to give the pilot an increased latitude for error. In other words to make the take off easier.

A fascinating program, the more so because it follows fact so closely. Available for the Model I and Model III TRS 80, Model I and Model II Genie and on tape or disk. The tape version will run in 16K, the disk in 32K.

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National TRS-80 Users Group

Newsletter

VOLUME 3 ISSUE 10 APRIL 1982

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INFORMATION ON THE GROUP

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

Details of the Group accounts and the constitution of the Group are obtainable from the Secretary.

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

Workshops are arranged from time to time in various parts of the country.

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

The Group runs 80-NET, a computerised bulletin board service that is available to all users of microcomputers (not just TRS-80s or Video Genies).

The Group maintains two software libraries (Model I and Model II) which are free to members. Library lists are obtainable from the Secretary (Price £1). The medical and educational sub-groups maintain their own libraries.

A membership list is available from the Secretary (Price £1).

Back numbers of the Newsletter are available.

Please send all contributions for the Newsletter to the Editor.

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EDITORIAL

By the time you read this the Earls Court Computer Fair will have been and gone. Thanks to Practical Computing and the Amateur Computer Club (ACC) we shall be having a stand there, free of charge. We gained a lot of new members at the PCW show at the Cunard Hotel last year. John Carne and Colin Ashford will be manning the stand, together with Brian and myself. On the Saturday I shall be attending a User Groups conference organised by the ACC, on your behalf. I'll report on what happens in the next issue. We are also getting a stand at the PCW show in September.

This month's issue is smaller than the March one, which was of record size. Brian was rather worried about the printing and postage costs, so, although I had enough material to produce an even bigger issue, I thought it wise to revert to a sensible size, and hold some articles over for the May issue.

Could you please take Laurie Shields's suggestion to heart, if you have received any assistance from other members of the Group, and write it up for publication, so that everyone may benefit. This will also be highly motivating for members like Laurie who are willing to devote a lot of time and energy to solving problems for you.

GUIDELINES FOR CONTRIBUTORS

1. Send material in machine-readable form (Scripsit or Pencil disk/cassette) if possible.

2. Ensure your ribbon is in reasonable condition if using a printer.

3. Printer output should be on A4 paper if possible.

4. If you send in handwritten material, write legibly.

5. Do not fold the sheets when posting them. Use a large envelope and keep them flat.

Leon Heller

MEMBERS' LETTERS

From Laurie Shields

On the ever present topic of the new computer owner finding a lot of our newsletter too complicated and with very little in it for the beginner, Please allow me in Part to make an apology and also to point a finger.

The apology follows simply from the fact that once having worked out a particular solution one forgets that it was ever difficult and that other People could still be struggling with the same problem. So lots of the aspects of the TRS80 that caused me hours of worry over the last few years simply get forgotten.

Forgotten that is until at one of the workshops or over the Phone somebody comes up and asks "What's going wrong here ?" or "How do I do this ?". Usually we manage to work out a solution, or re-organise the Program to by-Pass some insoluble bit of logic, or on other occasions it is solved simply by finding the right Page in the manual.
Invariably however I always suggest that the Person who has been helped should write up the Problem and the solution and send it in for the benefit of others and as one might expect I have never yet seen one in Print in the newsletter.

Newdos 80 Verion 2.0 Simply the best Dos available for the Model 1 or Model 3. It must be a year ago since I sent in "Update/Bas" a Basic Program to update all the system modules on the applications disks after having applied the zaps to the master. With version 2.0 it can all be achieved with one simple copy command.

COPY 0,1,,NFMT,CBF,DFO,ILF=NWD80V2/ILF <cr>

Which translates as follows:
Copy from 0 to 1, default on date, no formatting, copy by file, destination files only, include list of files in file NWD80V2/ILF.

The latter two Parameters are not well explained in the manual as I think they were included in the Dos at the last minute but DFO simply means check what files already exist on the Destination disk and only copy those, whilst ILF=filesPec means check what files are listed on the disk in "filesPec" and copy those. Thus the only files to be copied are the Newdos80 modules that are already on the destination disk and all others are ignored.
If you have a lot of disks to update then on completion of the first and after the Prompt NEWDOS/80 READY just key R <cr> and the complete command is repeated.

At a recent meeting someone asked how to inPut a string of characters with leading blanks using the ordinary Level2 INPUT rather than the Disk LINEINPUT and at the time there didn't seem to be an answer. Later on it struck me that Basic Probably used the same routine for InPut as it did for Read and that enclosing the keyboard inPut in double quotes might work and sure enough it did. Not a very elegant approach but if you need to inPut leading spaces, commas or colons then just start the inPut with a '"'. You don't even need the closing one unless you are inputting more than one variable.

Laurie Shields

THE GNOMIC FEATURE ROM "A"

General Northern Microcomputers (GNOMIC) of 46 Middle Street, Blackhall, Hartlepool, Cleveland market an interesting add-on for the Video Genie and TRS80. It is a plug on ROM which takes advantage of that free area above hex 3000 and before the printer, disk etc. They call it the feature ROM A.
The ROM comes on a printed circuit board which plugs onto the buss connector at the rear of the computer. With the TRS80 version there is an external power supply as the computer does not provide the necessary volts on the buss. If you are using an expanded TRS80 then the board plugs into the spare expansion facility on the side of the expansion box. If you are using an expanded Genie then a buss splitter cable will be required (Gnomic can supply) between the expansion box and the computer.
Once you have the unit plugged in then it is activated with a single line program from Basic or if you have the Gnomic "The Rom" then activation is automatic from power up. With disk I found a simple machine code program (6 bytes) will activate the ROM and if you make the program "Auto" then the ROM will be 'alive' from boot-up.
What does the ROM A give you ? It is accessed by typing shift break once activated. You are then presented with a menu giving .....

0. To Abort
1. Keyboard Reverse (Upper case if lower case activated)
2. Auto Repeat (Repeat key after 1 sec hold down)
3. Single Key Commands (Short hand entry of Basic commands)
4. Cursor Flash (Flashes the cursor)
5. Machine Code Monitor (Examine/modify memory)
6. System Load and Save (Loads and gives details of system tapes)

To elaborate on some of the commands.....
The auto repeat function I find to be one of the most useful Basic editing aids . Typing EDIT xxx <ENTER> then zipping along the line with the cursor or coming back equally as quickly with the left arrow, makes editing an easy task (with the errors in my programs I use this function often). If you have Edtasm or use other software which scrolls a line at a time using the arrow keys, then the repeat key function will allow you to hold down the arrow key and scroll the text up and down the screen as required.
For the avid Basic programmer the single key commands will be an absolute boon. Typing shift P gives you the value for PI (I found this particularly useful) and the other keys give you commands such as CHR$(, INKEY$ etc.
The machine code monitor is somewhat similar to Tbug in operation but it has only 3 commands. Edit displays and allows editing of memory (with the repeat key enabled you can scroll through memory at a fair rate of knots) and appart from the Hex contents of memory the display also shows the Ascii equivalent (cheat on the adventure programs ?) Jump will cause control to be passed to the address jumped to. Abort takes you back to the calling program.
System load and save is an extremely handy command and has it's own sub menu. You can load a 500 baud system tape and have displayed it's start, end and entry addresses with options to save the program back out to tape or to run the program. You can also save to tape any block of memory giving it a start , end, entry and name. Abort will again return control to the calling program. You can now save those 16K adventures on a 16K machine !
The main feature and one that is not a function of the ROM is that it is always there. No having to load in various items of software to do the different tasks, just hit shift break. The standard of workmanship is excellent and the service supplied by Collin Owons the proprieter should any difficulties arise is second to none.
I am informed that ROM B will incorporate renumber and other useful features and should I have the opportunity I will review it in a future news letter.
Incidentally, Gnomic do an excellent lower case hardware mod. I find no difficulty using it with my word processors or the lower case drivers in NewdosB0, Dosplus and Ldos.

Ken Grey

LPRVON

```
10 '   @ LPRVON @                          MJR  V.28-3-82

       PROGRAM FOR SENDING TRS-80 (MODEL 1) OUTPUT TO :-
20 '     1.  PRINTER INSTEAD OF SCREEN.
         2.  PRINTER AND SCREEN SIMULTANEOUSLY.


30 '   THIS MAKES IT UNNECESSARY TO CHANGE 'PRINT' TO 'LPRINT'.
       IT ALSO WORKS FROM THE COMMAND MODE AND ENABLES HARDCOPY
       OF A RUN ON THE COMPUTER, INCLUDING SHOWING THE INPUTS
       WITHOUT ADDING 'LPRINT A£' ETC..
40 '
       THE PRINTER IN USE IN MY CASE IS A CREED TELEX M/C AND
       THIS USES A SPECIAL DRIVER ROUTINE WITH ENTRY AT 7F95H,
       BUT THIS SHOULD WORK FOR THE NORMAL PRINTER IF CHANGES
       ARE MADE THUS :-
50 '
          AT LINES 120 AND 200 :-
               CHANGE 127 TO 5
               CHANGE 149 TO 141

       IN THIS ILLUSTRATION THE M/C CODE IS POKED IN.  YOU
       WOULD NORMALLY THEN MAKE A SYSTEM TAPE FROM THIS.
60 '
       THE CODE OCCUPIES THE AREA USED BY THE VECTORS FOR THE
       LEVEL 3 COMMANDS  CVD,EOF,LOC,LOF,MKI£ AT 415EH ETC..


       IT CAN OF COURSE BE LOCATED ELSEWHERE.
70 '
       SO,  RUN THE FOLLOWING PROGRAM :-


100 FOR N=16734 TO 16746
110 READ A:POKE N,A:NEXT
120 DATA 205,88,4,62,14,185,200,60,185,200,195,149,127
130 REM   CALL 0458H   LD A,14   CP C   RET Z   INC A   CP C
          RET Z   JP 7F95H
140 REM  THIS ALSO TRAPS CONTROL CODES 14 AND 15 WHICH CAUSE
         UNWANTED CR/LF ACTIONS AT 'INPUT' FUNCTIONS.

200 '
       NOW,  TO SEND TO PRINTER ONLY, KEY IN (OR INSERT IN
       PROGRAM) :-
              POKE 16415,127:POKE 16414,149              (7F95H)
210 '
       TO SEND TO PRINTER AND SCREEN SIMULTANEOUSLY :-
              POKE 16415,65:POKE16414,94                 (415EH)
220 '
       TO REVERT TO SCREEN ONLY :-
              POKE 16415,4:POKE 16414,88                 (0458H)
230 '
       NOTE :     THE POKES MUST BE AS SHOWN (16415 FIRST AND
                  ALSO IN ONE LINE WITH A COLON) OR THE TRS-80
                  WILL GO OFF INTO DREAMLAND (SO SWITCH OFF).
240 '
       MAC RANDLE.                          28-3-82.
```

EDUCATIONAL SOFTWARE REVIEW

Educational Software Review

A Look at some more Software from Bryants Educational

By Dave Futcher 3rd March 1982

Some sixth months ago Bryan Etherington launched his own software company to supply educational programs for the TANDY TRS-80 and VIDEO GENIE to schools. He started with just a list of two or three programs but over the months he has built up an extensive list of programs for Primary and Secondary schools and a few general games programs. In his early work Bryan showed that he was determined to use the power of the micro especially in its graphics mode. The work that this review will consider shows how far BRYANTS EDUCATIONAL have moved along in the last few months.

MONEY BOX.

Despite its name Money Box is not a program about money, it is a program which offers practise in multiplication and subtraction. Although the money box has a crucial role to play in the idea behind the program. Every time that the user responds correctly there is a reward of ten pence that drops into the users money box.

The program opens with a very good visual sequence in which a dragon-like creature, snaps his jaws and sets the tone for some of Bryants visual rewards that are to come latter.

It is so important that when a program begins that the options available to the user are clearly established. This program has an excellent intialization routine. The screen is clearly laid out and good use is made of the TRS-80 double character mode. Firstly you have to choose between subtraction and multiplication and then you move into a sequence where the user is able to set the limits of the numbers that are to be used in the practise. These have been carefully thought out and are presented well. Teachers, even those who are not frequent users would have no trouble in following the sequence. Unfortunately one of the options at this stage is the ending of the program. This seems harmless enough, till you discover that it wipe the whole program from memory, leaving you to load it in again for the next child. I quickly altered my copy of the program to stop this happening!

EDUCATIONAL SOFTWARE REVIEW

Lets look at the two modes offered. First then the subtraction option. Much play is made of the idea of subtraction and complementary addition. To get this over to the children the subtraction problem is set in two ways

```
 47                    12 and what
-12                    make 81
----
```

At first the idea proved a little difficult and confusing to our children, but they soon found the turning of subtraction problems into addition ones a great way to deal with them.

The subtraction option worked very smoothly and had much to offer, except it had nothing built in to help the child to split tens or hundreds up to solve the problem on screen. I felt that this was a serious ommission. It is a great shame when the children sitting at a computer suddenly have reach for paper and pencil to solve a problem when the computer can ad should be taking the children though the necessary sequence.

The multiplication option also used the idea of setting out the problem that the child had to work on in two ways. However this tome the options were only between, one as a formal multipication problem and the other in words. By using a simple routine the answer immediately appeared both places at once.
I was most pleased with what was on offer in two of the options. These enabled the user to attempt quite difficult long multiplication

- multipy numbers 10 to 50 by 10 to 20
- multipy numbers 50 to 100 by 10 to 50

Here the program had been cleverly designed, as the child is taken through the sequence of multiplwing parts of the sums and building up the answer correctly. Bryants had carefully thought out the screen layout and the actual breaking down of th multiplication into parts and then the adding up the parts t find the actual answer. Staff at my school actually used the two long multiplication option more than any of the others available in this program.

Unfortunately the version of Money Box that I was using did not help the child if they made a wrong response. Infact they could go on making it time and time again until the teacher realized. I understand the version now on release limits the nuber of accepted mistakes to three.

Now is the time to think about the correct responses because Bryan Etherington has put a lot of effort in this direction.

EDUCATIONAL SOFTWARE REVIEW

Evry time that a problem is solved correctly the idea of the Moey Box is used. For every correct response a ten pence piece tumbles down the screen and into a money box. In latter versions sound too has been added to this. When a hundred pence has been collected the program switches into its graphica reward sequence.
Bryants has built up a reputation for graphics and Money Box follows in the way of the previous offerings. When the pound ha been won, the user is allowed to choose or buy various graphcal rewards. These range from
-- Jets that screem accross the screen.
-- a sausage dog that walks and waps.
But my favourite and the kids too is the Dragroo which snaps and flashes its teeth. The great reward is to control a few keysand control a little man and take on this Dragroo and fight to the death.

Money Box is sold at the reasonable price of $4.50 which considering the work that it offers in the two areas of subtraction and multiplication is good value.
Although I feel that the multiplication option actually has the most to offer as it better designed.
The children of course loved to use the program and even after many months of use the have not tired of the fun that the graphic rewards bring. Byrants certainly know what to aim at inthis area.

DECIMAL DAN.

In a fun way DECIMAL DAN provides practise in multiplying and dividing numbers by 10 and 100.
The program has been aimed at increasing the childs awareness of place value in decimals. I've seen a number of "homemade" programs in this area, a number of which have been very sucessfully used at my school. Bryants have tried to build one this important area of place value and to produce a commerical program.
Decimal Dan is full of some fine pieces of clever programing that certainly give it much that the "homemade" ones do not have. I think the sequence that actually allows you to move the decimal point arround one screen to be excellent. Here the arrow keys are used to very good effect. The user can move the point, look at it, think, and move again. The decimal point is finally fixed into place by tapping the space bar.
For reinforcemnt you are then asked to type in the correct number.

The program starts by asking you to muliply or to divide a number by 10 or 100. Of course there is the usual initialization routine where the teacher or the child set the

level of the work. The screen is set up in double character mode and the problem to be attempted is boxed, as are areas that tell you the score and whether you are right or wrong. The screen layout is very clear to read and it is quickly obvious to the child what is expected of him/her.
I was a little worried how some of the decimal fractions were actually displayed, as I felt that they would lead to confusion. For instance 5.54 might sometimes be displayed as 05.54 .

After tackling one problem and getting it correct you move to where Decimal Dan shoots down decimal points, with his "all action bow and arrow". This animation reward was appreciated by the children, but I feel that Etherington has unfortunately overdone the options available for a simple reward package. He should simply program one shot at the decimal points for each correct response.

Decimal Dan was certainly liked by staff and children but it is in need of a little bit of further work to improve its performance. It must have some on screen instructions at the begining so that the user knows what to expect and how to control the program. Without this much time is wasted by the new user. Also the way some of the decimals are presented must be tidied up and presented the way that taecher and children expect to see them. Again the price is $4.50 which is fair for the type of work that program offers. It is certainly at the normal Bryant level of graphical display and animation to warrant addition to an schools software collection.

ALADDIN.

Aladdin is one of Bryan Etherington's most ambitious attempts at the use of graphics in an educational program. In most of his other work, the graphics are there as animated reward when the user has been sucessful, but in Aladdin you are treated to excellent displays of graphics all the time while using the program.
As the name implies the program is based the story of Aladdin and his magic lamp. The program is really a simple practise program that enables you to work on simple division problems. At the begining of the program the user is asked which table the division problem is to be on. Once set the Alladin appears infront of an enormous mountain. After finding your way to the right cave entrance hidden in the mountainside, the child finds themselves inside a cave with stalimites and stalitites and treasure boxes with, yes you have guessed, with division problems to be solved in. You move from box to box answering the questions in turn.There are four boxes and if you are correct you are treated to an excellent inverse video routine

that alters the treasure cave before your eyes, in addition the score is increasd. However if you are wrong, beware as one of the stalitites falls from the roof and crashes down on you. While all this problem solving is going on a little graphic Aladdin and his lamp, is there scampering accross the screen. After 12 problems have been worked, you are given a report on your, progress which tells you your score so far and also lists your errors and their corrections.

ALLADIN is a simple, and very useful program, that will have great use in many classrooms. It has much to commend it, but it has a few things that I do not like that could be easily improved. Firstly I wish at the begin of the program that the scoring was clearly explained to the children, they get confused when they have points deducted for not finding the cave entrance straight away, and children do like to know what to expect for correct response. You really cannot just leave them to find or to work it out. A simple but important point. I do hate programs that compromise aspects of computing and teaching, and there is one part of this program that I really feel lets it down. This is the use of the slashf, instead of the proper division sign. We all know that the proper sign is missing from the character set of the TRS-80 Model One, and we all recognize, the difficulty of creating it from graphics: it takes more than the six pixels per line and so needs at least two lines.

Bryants are selling Alladin for their normal price of £4.50, which is again good value. Despite some of my criticism, it is worthy of a place in a school software library, and will get heavy use.

TOWERS AND CROCODILE.

These two program sell at £3.50 each, and are designed to go together. They have both been written to cover the area of odd and even numbers. They both have a place at the top end of an Infant school or in the early years of a Junior school.

Towers is all about using cubes and building them into towers, and if those towers are of equal height, the number is an even number. If the towers are not equal in height, the number is odd. The program recreates in animation the sorting and the stacking up of cubes just as children and teacher would do in a practical situation. The aim behind Towers is to let the child practise odd and even number recognition and to reinforce his suceess.
I think there is only one area that this program, could be improved, and that is in the size of the cubes presented on the screen.

EDUCATIONAL SOFTWARE REVIEW

At the beginning of the program you have the chance to set the limits of the problems set. Two levels are on offer, up to ten, or up to twenty five.

Crocodile really does complement Towers, it builds on to the practical sorting of cubes, and instead offers numbers to be assessed as either odd or even. Crocodile, is based on a bit of fun where a tame crocodile eats up the number if you respond correctly to the question asked. But if you answer incorrectly a whole screenful of crocodile appears on screen and they advance accross the screen and ..... After that, so that the crocodiles don't get you again there is a sequence that offers corrections.

Towers and Crocodiles cover a small area of mathematics, but they do provide a different way to practise it. The animation has been cleverly done and is well worth using to complement work in this area. Both programs run smoothly and were enjoyed by children and staff.

Well this is the second batch of programs that BRYANTS EDUCATIONAL have on offer, that I have reviewed. Viewed as a group, they are a good range of programs that must be of interest to the TRS-80 and Video Genie Educational Users in schools. Bryants have tried very hard to harness the power of the computer and let it be used in an educational setting. Unfortunately, there are still not many people or companies arround that are producing educational software, if Bryants carry on producing material like these on offer, they will do very well.
All of the program ran very smoothly and were mostly bug free. From my previous dealings with Bryan Etherington I know that you can rely on him for sending out, updates and corrections to the minor errors that become obvious only after long term validation in school.
A whole range of Language Development programs is also available from Bryants. These include

Spellsort	Storybuilder
Speechparts	Jumbles
Target Sounds	

At the moment the reviewed programs are I understand being updated to include sound routines that will add much to them. Also versions are being made available for the BBC MICRO and for the SINCLAIR ZX81.
Programs can be ordered from Bryants Educational
1, The Hollies,
Chalcraft Lane,
North Berstead,
BOGNOR REGIS

Dave Futcher

NEWDOS80,2 NOTES (PART 2)

4. SYSTEM

```
    AA = yn : AA = Y = >passwords enabled
    AB = yn : AB = Y = >system in RUN-ONLY mode + involves
                        AD=N, AE=N, AF=N
    AC = yn : AC = Y and AS = Y debounce routine on
    AD = yn : AD = Y = >JKL enabled
    AE = yn : AE = Y = >123 enabled
    AF = yn : AF = Y = >DFG enabled
    AG = yn : AG = Y = >BREAK in input as 01, AG = N = >
                        BREAK not returned.    > 00
                        substituted
    AH = yn : undefined
    AI = yn : AI = Y = >lower-case installed
    AJ = yn : AJ = N = >repeat function disabled, debounce
                        disabled, JKL, 123, DFG disabled
    AK = yn : undefined
    AL = al : (value 1-4) number of physical drives in
system
    AM = am : (value 0-255) number of tries for disk I/O
                        before error signalled - normally
                        10
    AN = an : (value 0-3) default drive no. for DIR
    AO = ao : system starts searching at drive no. ao and
                        above
    AP = ap : = HIMEM address value
    AQ = yn : AQ = Y = > CLEAR key enabled; disabled if
                        AQ = N + AJ = Y
    AR = yn : AR = Y = > COPY (5.6) allowed without
                        password even if passwords enabled.
    AS = yn : AS = Y = > input text lower to upper
    AT = yn : AT = N = > chaining in record mode else
                        in single character mode
    AV = yn : AV = Y = > repeat key on
    AV = av : av defines frequency of repeat (no. of
                        intervals)
    AW = aw : no. of write with verify disk I/O's allowed
                        - if >1 then write will be retried
                        after bad read
    AX = ax : highest printable character (192 if want
                        graphics)
    AY = yn : AY = Y = > operator asked day and time (on
                        start up), AY = N date + time set
                        to 00s
    AZ = yn : AZ = Y = > operator asked date and time,
                        (on reset) AZ = N causes date +
                        time to be same as before.
    BA = yn : BA = Y = >ROUTE DO,NL on reset
    BB = yn : (Mod III)
    BC = yn : BC = Y = > operator can manually pause or
                        cancel chaining.
    BD = yn : BD = Y = > operator can override AUTO by
                        <ENTER>
    BE = yn : BE = Y = > enable repeat command R
    BF = yn : BF = Y = > LCDVR,Y activated else LCDVR,N
    BG = yn : BG = Y = > LC,Y activated else LC,N
    BH = yn : BH = Y = > blinking cursor enables at
                        power-up/reset
    BI = bi : at reset, bi is cursor value (standard i )
    BJ = bj : Z80 speed-up
    BK = yn : BK = Y = > SRDIRP + W,C of DIRCHECK allowed
```

to be executed else DISK ACCESS DENIED

BM = YN : BM = Y = > performs separate VERIFY at end of FORMAT

BN = yn : BN = Y = > function to enable interchangeability between Mod I + III

5. CHAIN

System AT = Y then all requests for input from keyboard are honoured i.e. INPUT, LINEINPUT and INKEY$.

6. REDUCED SIZE SYSTEMS

Min = BOOT, DIR, SYS0-SYS4
SYS5 - DEBUG (1 Gran)
SYS6 - FORMAT, COPY, APPEND (7 grans)
SYS7 - TIME, DATE, AUTO, ATTRIB, PROT, DUMP, HIMEM, PURGE, SYSTEM, PDRIVE (1 gran)
*SYS8 - DIR,FREE (1 gran)
SYS9 - BASIC2, BOOT, CHAIN, CHNON, MDCOPY, PAUSE, STMT (1 gran)
SYS14 - CLEAR, CREATE, ERROR, LIST, PRINT and ROUTE (1 gran)
SYS15 - FORMS, SETCOM (1 gran)
(May always be deleted on Model I)
SYS16 - PDRIVE (1 gran)
SYS17 - WRDIRP, SYSTEM (1 gran)

*SYS13 - BASIC error messages (1 gran)
SYS12 - REF TC "
SYS11 - RENUM "
(*)SYS10 - GET, PUT "
*SYS18 - BASIC executor "
*SYS19 - LOAD, RUN, MERGE, SAVE "
*SYS20 - BASIC executor "
SYS21 - CMD"0" executor "

*VITAL files are asterisked

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

Victor Saleh has imported several Orchestra-85 packages, which are for sale to members at £60 + £1 P. and P., plus 15% VAT. He will also throw in a lot of music he has transcribed for the system (ranging from Scott Joplin to Mozart!). Contact Victor on 01-902 2546 for further details.

BASIC

```
RUN  "filespec 1", V )
LOAD "filespec 1", V ) preserves variables + leaves files
                       open

REF = xxx where xxx is a string up to 16 char long.

CMD"C" (S,R) compresses program eliminating spaces, deletes
  remarks
CMD"F" - Function
CMD"J", date 1, date 2 (string variable)
        if date 1 is mm/dd/yy, date 2 is returned as rel
          day of year
        if date 2 is - yy/ddd, date 2 is returned as
          mm/dd/yy
CMD"O" - Array Sort

CMD"F  = POPS" - all returns + FOR-NEXTS purged -
          continues with next statement
   "F  = POPR" - GOSUB level purged + FOR-NEXTS for that
          level returns to statement after CMD"F = POPR"
   "F  = POPN" - most recent FOR-NEXT is purged - returns
          to statement after CMO"F = POPN"
   "F  = POPN"vn (variable name) - FOR-NEXT for variable
          purged
   "F  = SASZ"size change string area size without
affecting variables.  "Size" must be large enough
to contain current strings
   "F  = ERASE"vn1,vn2...- specified variables cleared
   "F  = KEEP",vn1,vn2...- all variables cleared except
          vn1, vn2
   "F" , DELETE ln1-ln2 - allows deletion of lines during
      program execution : must be last statement in line
   "F  = SWAP"vn1,vn2 - swaps variables
   "F  = SS" - turn on single stepping
   "F  = SS", ln1 - single step from ln1
   "F  = SS",N - turn off single stepping

CMD"O" - SORT ROUTINE

 Basically : CMD"O", n, vn1(a), vn2(a) ...
             where n is size of array to be sorted (if n=0,
             size taken from first array)
             a is number of first element of array to take
            part in sort

CMD"O", n, *vn1(a), vn2(a) ...
vn1 must be integer array, initialised to a, a+1, ...
a+n-1.   Only this array is moved around to indicate the
sorting order of the other arrays

CMD"S" - return to DOS READY

   "S = cmd" - quit BASIC, perform "cmd" : return to DOS
READY

CMD"cmd" - perform "cmd" : return to BASIC
```

Jim Gunsen.

THE TRS-80 COLOUR COMPUTER

The TRS-80 Colour Computer ---
an examination of its design and capabilities,
and its possiblities as an educaational computer.

by Dave Futcher

February 1982.

The TRS-80 has been long accepted as one of the four main educational computers in the UK and its Model I has been at the forfront of educational computing for the past three years or so, the Model I was joined by the Model III about a year ago. Now the TRS-80 has a Colour computer on te market. It was launched in December 1981 in Britain and becoming available in volume.

Two models are currently available, but for this review we used a machine with
16K RAM and EXTENDED COLOUR BASIC
which is sold for £449 at this time, a model with 4K RAM is the other alternative but with a less powerful basic.

WHAT COMES WITH IT.

For £449 you get the following
16K Colour computer with Extended Basic
Built in RS-232 I/O port and real time clock
Cable to connect computer to TV
Operating manual
Colour Basic instruction manual
Extended Colour Basic instruction manual
Card listin statements, functions, and operations

You must supply your own colour TV set (or black and white) and Tape recorder.
The computer uses a 6809E Motorola eight bit microprocessor chip with a clock speed of 0.894 MHz.

THE COMPUTER CASE AND ALL.

As in other models the Colour computer comes in the now tradition grey and silver plastic casing. It looks as sturdy as ever and I am in no doubt as to the reliablity of the strength of this material having seen a few TRS-80 bounce in

THE TRS-80 COLOUR COMPUTER

recent years. Unlike the Model I, the TRS-80 Colour computer has it power supply inside the case so that reduces the number of leads trailing. Infact the power supply unit seems to take up a large proportion of the case, but there appear to be no problems with overheating. The case measures 37cm wide and 34cm deep, and is well mounted on rubber feet that certainly do not let the computer slide about on desktops.
At the back of the computer there are DIN connectors for a tape recorder, serial printer or modem, and dual joystick controllers. In addition this is where you connect the computer to the TV. Here too is where you find the on / off switch and well tucked away is the reset button.
Near the back on the right hand side is the slot for ROMPAKS suitably protected with a flap.

THE KEYBOARD.

I was more than a little concerned, when I first saw the keyboard. Although it had calculator style keys they were certainly much better than those of the early PET. They were well spaced out and quite suitable for typing and entering programs, But why did Tandy move away from the excellent keyboad that they had provided on their other machines? In school the keyboard has presented no problems whatsoever. Childen have used quite happily the keyboard for CAL packages. In fact there is one great asset of this keyboard. It is reallyeasy to produce masks that slot over the keys, the uses osuch a mask has tremendous potential in education for labling key to represent responses.
In the package ART GALLERY from Tandy the overlay keyboard is used to very good effect and the children that have worked withthis program have appreciated the overlay. I understand thathe Colour computer word processing package will have a simialar overlay for remembering defined functions.

SCREEN DISPLAY.

The letters and symbols displayed on the screen are of good size and are extremely clear for even the youngest children to read. Unfortunately the machine that we have at present is only able to display on screen in upper case letters, but I undestand that a lower case modification is shortly to be released and will be available in the UK. The screen is sixteen lines deep and 32 uppercase characters accross. As I have already said this provides for real clarity in an educational setting, and within any normal CAL work the length of line should present no problems.
Although I must admit that when programming I found the 32 character lines a little cramped.
The clarity and colour of your screen will depend upon the

condition of your TV set. For the purpose of this review I have used a 14 inch SONY and a 16 inch PHILLIPS, very successfully, in addition some use has been made of the large school TV. We found no real problems with colours not being as sharp as they should be.
The screen display is normally black on a green background, but this can easily be changed to red on yellow within a program.

THE GRAPHICS CAPABILITIES.

In the past those familar with Tandy computers have had to deal with blocks of white graphics in screens of 48 by 128, but now with the colour computer you have as many as eight colours nine if you include black and five modes of resolution ranging from 32 X 64 to 192 X 256.
The colours available are -

- green
- yellow
- blue
- red
- buff
- cran
- magenta
- orange

When working at the maximun resolution of 192 by 256 up to four colours are available. As you would expect there is a trade off between memory consumption colour choice and the resolution.
When you switch on four pages of graphics memory are reserved for use. Each page use 1.5K and it is possible to reserve up to eight pages.

PROGRAMMING IN COLOUR GRAPHICS.

There are three commands that must be used in sequence to program in colour graphics. These are

PCLEAR	this will reserve up to eight 1.5K pages of memory for graphics. If you do'nt use the command four pages are automatically reserved.
PMODE	this command sets up the resolution to be used and the starting page of the screen memory.
SCREEN	this instructs the computer as to the screen type (graphics or text) and the colour set depending on the colour mode.

Two additional command are needed but these can appear anywhere in the program and in any sequence following the

PCLEAR statement.

PCLS	this will clear the screen to a specified colour.
COLOUR	this sets up the colour of the fore and backgounds used by the other graphics commands.

Lets look now at some of the graphics commmands that back up the hardware and really make use of the power of the colour computer.
The LINE command as you would expects draws lines between two specified points. If you only one pair of coordinates are specified the line is drawn between the the point and the previs point used. The line command can also be used to erase a line too as well as creating one. Todo this you merely draw in the background colour that you are using.

The CIRCLE command as you would expects allows you to draw circles but it is also possible to draw ellipses and arcs as well. Drawing circles on the screen is surprising easy, you only have to specify the centrepoint and the radius. And there is a further feature that enables you to specify the colour it is drawn in.

Perhaps the most wonderful of the graphics commands is DRAW. This command presents an easier way of doing some of the things that you may wish to attempt with the LINE and CIRCLE commands. DRAW enables you to draw a line or a series of lines by specifying there direction, angle, and colour, all in the same program line. This commands takes the form of a string expression. It is possible within DRAW to move in eight different directions, and there is also the amazing potentional to scale up and down the object that you are drawing.

Once you have produced an outline shape whether it be by LINE CIRCLE or DRAW it is possible to use another Colour Basic word to fill it in. The command here is PAINT. You merely have to specify a starting point and the shape is filled in.

SOUNDS.

I was most impressed at the sound possiblities that the machine had at its disposal. At the heart of the sound lay the idea to add audio information to the TV signal, thus enabling the TV speaker to be used for the generation of sounds.
Two distinct methods of using sound are possible, they can be generated from basic by the computer, or they may come from thecassette recorder. The latter idea allows instruction on tape to be called into use. The command AUDIO is used to

output the cassette to the television speaker, on and off are ued as control words. In addition MOTOR controls the tape motionof the tape recorder.
Musical sounds and tones are generated in basic by the commands SOUND and PLAY. Sound is very easy to control and master by these commands SOUND has considerable potential in providing simple effects within an educational program, whereas PLAY is far more powerful and whole sound seauences canbe built up by strings

COLOUR BASIC.

Tandy Colour Basic, and Extended Basic are both written by MICROSOFT and therefore have a lot in common with the many MICROSOFT basics available. Earlier in the review we have looked particularly at the Colour and graphics features and it would not be right to spend too much time and space on the basic Basic of micro-computers that are now so well known.

PROGRAM LOADING AND SAVING.

I have only used the normal Tandy computer cassette recorder during the period that I used the Colour computer, as usual I found it reliable and effective as long as one remembered to keep it clean. The cassette interface transfer data and programs at 1500 baud. As with other TRS-80 computers motor control was provided. As you can imagine I found the 1500 baud rate fast compared with the 500 of the Model I and it was a real improvement as far as program loading was concerned.
Programs can be saved to tape with names of up to eight characters in length. Normal TRS-80 CLOAD and CSAVE are present for loading and saving programs, but ther is no CLOAD? for verifying programs saved to tape. Machine language programs are loaded by the CLOADM instead of SYSTEM.

One of the features that make the TANDY colour computer stand ot is the facility to use ROMPAKS. We are all aware of the use of games packs on machines like the Atari. They have been acclaimed as a most successful means of inputing programs. The Sorcerer has proved again the advantage of this method of entering programs. So now the TRS-80 Colour machine has this possiblity. ROMPAKS certainly make for ease of loading programs. It is difficult to imagine anyone being able to not mnage this loading method.

INSTRUCTIONS AND THE MANUALS.

The operation manual is a clear easy to read and to follow guide to connecting the system together. It includes a useful

section on what to do if the computer fails to operate correctly.
The two manuals -
GETTING STARTED WITH COLOR BASIC
and
GOING AHEAD WITH EXTENDED COLOR BASIC
are written the well known and loved (or hated) Tandy style. I personally like the humourous style used and other colleagues tat came to grips with Colour Basiic with the TRS-80 Colour computer and these manuals thuoght a lot of them. The getting started manual assumes that you know next to nothing about computing and takes you through a simple and effective course. I felt that both manuals contained plenty of examples, quizes, and tasks to be undertaken. Both manuals also contained for the more experienced user the the necessary appendices summarizing keywords, ASCII codes etc.

CONCLUSION.

There is no doubt that the TRS-80 Colour computer is a powerful machine that has tremendous potential. It makes the most of its colour and its graphics and certainly functions well. I believe that it still reasonably priced when compared with the other colour machines on the market. Already in the USA a full range of accessories are becoming available, in the same way as they have done for other TANDY machines. A disc system is already in the UK and official memory expansion is comming.
What potential then has the Colour computer to offer as an educational machine? Having had the TRS-80 Colour up and runnin for a month in school it is already obvious the power of the machine in terms of appeal to the children. A coloured display with the quality of graphics available moves us into a new arena. We have yet to fullly come to terms to the potential available to us. I am sad though that the TANDY Colour does not capitalize on the extensive range of software available on the Model I and III. However Tandy intend to reproduce the many educational packages they have marketed for there other machines. Lets hope that the schools and colleges rally do realize the power of this machine and begin to harness it.

Dave Futcher
47, Birkbeck Grove,
ACTON, London W37QD.
ENGLAND.

PROBLEM SECTION

I have four problems:-

1) Where can I buy a TRS-80/Centronics printer interface cable? I know they are very easy to make, but I do not have the time to do all that soldering. Tandy ones are also rather expensive.

2) Could someone please give me a reliable modification to the TRS-80 for inverse video. Wherever I see one proposed anywhere, someone writes later to say it has a bug.

3) In need to use my TRS-80 in some awkward places for power supplies. Do you know how I can run it off a car battery?

4) All these modifications are needed for a horse show at which I am calculating the results. It would be nice to have a second video screen attached to my TRS-80 to show results. Is there some way of using a screen as a sort of "pseudo-printer", while the normal screen stays for my own use?

T.D. Edwards,
Woodstock,
Coleheath Bottom,
Speen,
Bucks. HP17 0SZ.

(* The Tandy cable is not really that expensive. The cable, connectors and parts will cost you around £20, I would think. Then you have the cost of asssembly.

Roger Abbott sells a suitable inverse video mod. kit. Contact him on (08677) 3625.

Interport Mains Store Ltd., POB 51, London W11 3BZ, Tel. 01-727 7042, make DC-AC inverters that would enable you to run your system off a car battery. They are not exactly cheap, however, and you might need quite a lot of filtering to keep the computer happy.

For display purposes you could just wire up a video monitor in parallel with the Tandy one. If you wish to treat it as a printer things get rather expensive. You could get anRS-232 interface and use a standard visual display terminal, or a second TRS-80, with a large monitor, as an output device. It would look like a serial printer to your system. LFH =)

I have at the moment an old VG with sound box, Microware Hi. Res. (hardly tried out yet), extra 48K in expansion box

3015, DD accition and TEAC dual drive from Cumana.

When the Hi. Res. was added Microware returned the existing lower-case addition. This is a small PCB containing 74LS00 and SN74S262N - two chips connected by a 24 way ribbon cable to a 24 pin plug which presumably replaced the character generator ROM. This unit has two leads, a pink one (+5V?) and a white one (0V?). Can anyone advise how I can connect these to another VG not fitted with lower-case. Can anything be usefully achieved with the old character generator chip?

When at Comserve, my supplier, mention was made - was it a rumour? - that the chip actually contained more characters than were being accessed. Has anyone any information on this?

(* You might be able to get some information out of Lowe's, the VG importers. Try their hot line - (0629) 4995. LFH *)

I HAVE JUST WRITTEN AN ENGINEERING PROGRAM WHICH SEEMS TO PRODUCE CORRECT RESULTS AND IN IT I HAVE USED AS VARIABLES TH, TR, CM, CL AND CD.
IN SEPT.1980 YOU SHOWED DAVID HAINES' LETTER AND TABLE OF PERMISSIBLE VARIABLES. NOW, THIS TABLE DISALLOWS ALL THESE FIVE VARIABLES !
HOW HAS THE PROGRAM ESCAPED TROUBLE ?
MY SYSTEM IS SIMPLY VIDEO-GENIE + SEIKOSHA GP-80A.
I SUPPOSE THERE MUST BE A BETTER WAY TO WRITE A LETTER THAN THIS, AND I WOULD BE PLEASED IF YOU WOULD TELL ME HOW !

HARRY FISHER

(* Simply buy a word-processing program, or write yourself one in BASIC. Harry sent this request in the form of a listing of a BASIC program, with the text in the form of REMs. LFH *)

In Level II BASIC,
POKE 16396,165
Disables the break key and enables shift break. What is the POKE for Disk BASIC?

Rod Bullard.

From Ian Marr 0934 82 3467
Gloucester Crest Hotel
Thank you Brian for organising the event and an especial "thank you" to Leo for the talk on discs.
John Christie mentioned in passing that he could not get the Tandy light pen to work on the green screen, I have built a cheap version for about £2 which will work through a green screen but not 100% efficently with a Tandy cassette recorder, although it does with a Ferguson.
If anybody is interested I will let them have the circuit diagram, and continue to try and sort out the pen to work with a Tandy cassette.

PASCAL LESSON 2

By John Cranfield
Southern TRS-80 Club (Swindon)

AS THE MAIN INTENTION OF THIS LESSON IS TO GET THE READER USING PASCAL, LET US GET STRAIGHT INTO A PROGRAM.

```
(1)      PROGRAM SUM ;
(2)      (* REMARK STATEMENT *)
         (* GIVE AN IDEA OF WHAT THE PROGRAM DOES *)
(3)      VAR A,B,TOTAL : INTEGER ;

(4)      BEGIN
(5)           WRITELN('ENTER TWO NUMBERS TO BE ADDED  ');
(6)           READ(A,B);
(7)           TOTAL := A+B ;
(8)           WRITELN('THE SUM OF',A,'AND',B,'IS',TOTAL ')
(9)      END.
```

** IMPORTANT ....THE NUMBERS IN BRACKETS ARE NOT LINE NUMBERS. THEY ARE INCLUDED FOR REFERENCE ONLY **

ALTHOUGH A SIMPLE PROGRAM ,IT EMBODIES THE ESSENTIAL STRUCTURE OF PASCAL. THIS WILL NOW BE ANALYSED.....

(1) EVERY PASCAL PROGRAM MUST START WITH THE WORD PROGRAM FOLLOWED BY A NAME CHOSEN BY THE PROGRAMMER, FOLLOWED BY A SEMI-COLON. THESE SEMI-COLONS ARE AN IMPORTANT PART OF PASCAL SYNTAX AND THEIR USE IS AN ESSENTIAL PART OF PASCAL.
FOR CLARITY IT IS SUGGESTED THAT THE PROGRAM NAME REFLECTS THE PURPOSE OF THE PROGRAM. THE WORD 'PROGRAM' IS AN EXAMPLE OF A RESERVED WORD. A RESERVED WORD IS A PREDEFINED WORD THAT HAS A SPECIAL MEANING WITHIN A PASCAL PROGRAM. BASIC EQUIVALENTS ARE .... PRINT,DIM,REM etc.
THE FIRST CHARACTER OF A RESERVED WORD SHOULD BE A LETTER FOLLOWED BY AN UNBROKEN STRING OF ALPHANUMERIC CHARACTERS. ONLY THE FIRST 8 CHARACTERS ARE RECOGNISED BY MOST
COMPILERS.

(2) THERE ARE NO LINE NUMBERS ! A SEMI-COLON IS USED TO SEPARATE ONE STATEMENT FROM ANOTHER. THERE IS NO SEMI-COLON AFTER A REMARK STATEMENT ie (*.....*)
REMARK STATEMENTS MAY APPEAR ANYWHERE IN A PROGRAM AND ARE OPTIONAL.

(3) ALL VARIABLES MUST BE DECLARED BEFORE THEY ARE USED IN A PROGRAM. TO DO THIS WE USE THE RESERVED WORD VAR FOLLOWED BY THE VARIABLE NAMES AND THEIR TYPE. THE VARIABLE NAMES MAY CONSIST OF AN UNBROKEN STRING OF UP TO EIGHT ALPHANUMERIC CHARACTERS STARTING WITH A LETTER. VARIABLE NAMES IN A VAR STATEMENT ARE SEPARATED BY A COMMA.
eg VAR A,B,TOTAL : INTEGER ;

NOTICE THERE IS NO COMMA AFTER THE LAST VARIABLE 'TOTAL'.
NOTICE ALSO THAT HAVING UP TO 8 LETTERS FOR VARIABLE NAMES ALLOWS REALISTIC DATA NAMES. AS WELL AS DECLARING VARIABLE NAMES IN A VAR STATEMENT WE MUST ALSO DECLARE THEIR TYPE.
THERE ARE TWO KINDS OF SCALAR TYPES IN PASCAL .... BUILT-IN TYPES AND USER-DEFINED TYPES.THE FOUR BUILT-IN TYPES ARE :-
INTEGER, REAL, CHAR, BOOLEAN.

FOR THE MOMENT WE SHALL ONLY CONSIDER THE TYPE INTEGER. THOSE WHO HAVE ACCESS TO TANDY'S TINY PASCAL WILL FIND THAT THIS IS THE ONLY TYPE SUPPORTED.

(4) ONCE ALL VARIABLES HAVE BEEN DECLARED IN WHAT IS CALLED NATURALLY ENOUGH THE 'DECLARATION SECTION', WE CAN CONTINUE WITH THE MAIN BODY OF THE PROGRAM. THIS ALWAYS STARTS WITH THE WORD BEGIN. THERE IS NO SEMI-COLON AFTER THE WORD BEGIN.

AS PASCAL IS A STRUCTURED LANGUAGE IT IS A GOOD IDEA TO USE INDENTATION TO ADD CLARITY TO YOUR PROGRAM.

(5) TO INPUT DATA WE HAVE A CHOICE OF TWO WORDS WRITE AND WRITELN. WRITE RESULTS IN WHATEVER FOLLOWS IT IN BRACKETS TO BE DISPLAYED. WRITELN HAS THE SAME EFFECT EXCEPT THE SYMBOL FOR INPUT WILL APPEAR AT THE BEGINNING OF THE NEXT LINE. NOTE THAT THE ACTUAL TEXT TO BE DISPLAYED IS SIMPLY ENCLOSED IN SINGLE QUOTES (APOSTROPHES) IN THE PROGRAM. THIS SEQUENCE OF CHARACTERS IS CALLED A CHARACTER STRING. THE STATEMENT IS ENDED BY A SEMI-COLON.

(6) READ(A,B) MEANS READ TWO NUMBERS FROM THE KEYBOARD AND CALL THEM A AND B. NUMBERS MUST BE SEPARATED WITH A COMMA AND THEN PRESS ENTER. READLN(A,B) ACCOMPLISHES THE SAME TASK BUT AT THE SAME TIME ACTIVATES THE CARRIAGE RETURN LINE FEED. JUST TO RECAP ..... A AND B ARE CALLED VARIABLES BECAUSE THEIR VALUES MAY BE CHANGED LATER ON IN THE PROGRAM OR EVEN DURING ANOTHER RUN. A AND B HAVE BEEN DECLARED OF TYPE INTEGER IN THE THIRD LINE OF THE PROGRAM. AS A RESULT THE COMPILER WILL VERIFY THAT ANY VALUE GIVEN TO A OR B IS INDEED AN INTEGER. THIS PARTICULAR FEATURE IS CHARACTERISTIC OF PASCAL : THE TYPE OF EACH VARIABLE MUST BE DECLARED BEFORE USING THE VARIABLE, AND MUST BE RESPECTED THROUGHOUT THE PROGRAM.

(7) TOTAL := A + B ; THIS STATEMENT MEANS "COMPUTE A+B AND CALL THE RESULT TOTAL." THIS INSTRUCTION IS CALLED AN ASSIGNMENT STATEMENT. NATURALLY THE SUM OF TWO INTEGERS IS AN INTEGER. INDEED IT MUST BE AS WE HAVE DECLARED TOTAL TO BE OF TYPE INTEGER.

FOR A NOISY TRANSFORMER IN THE VDU

The following was suggested at a recent MKMUG meeting:-

1. Mark tags on trans., Top right, Top left, Bottom right and bottom left.
2. Unsolder the above.
3. Unscrew from the cabinet.
4. Remove clamp from outside of laminations.
5. Varnish laminations with thinned down varnish - several coats.
6. Reassemble while wet.
7. Lightly squeeze laminations in vice, and replace clamp.
8. Reassemble transformer into VDU case, using grease proof paper underneath(transformer) in case of seepage.
9. Replace bolts with screw headed self tappers.

Brian Pain and Peter Harris on-Northampton

(8) ANY TEXT TO BE PRINTED IS SIMPLY ENCLOSED IN SINGLE QUOTES. THE VALUE OF THE VARIABLES A,B,TOTAL IS PRINTED WHEN THEIR NAMES ARE USED.

THERE IS NO NEED FOR A SEMI-COLON AT THE END OF THIS STATEMENT AS THE NEXT LINE IS NOT A STATEMENT BUT THE WORD END.(ACTUALLY IN THIS CASE MOST COMPILERS WOULD ACCEPT A SEMI-COLON.) IN GENERAL A SEMI-COLON IS USED TO SEPARATE ONE STATEMENT FROM ANOTHER.

(9) EVERY PROGRAM MUST FINISH WITH THE WORD END FOLLOWED BY A FULL-STOP.

NOTICE THE WAY THAT THE WORD END LINES UP WITH THE WORD BEGIN .

SO YOU CAN PLAY AROUND WITH THE LANGUAGE THIS IS WHAT YOU CAN DO WITH THE TYPE INTEGER.....

INTEGERS ARE WHOLE NUMBERS THAT MAY BE POSITIVE OR NEGATIVE,THEIR MAXIMUM AND MINIMUM VALUE DEPENDING ON YOUR INTERPRETER. OPREATORS FOR INTEGERS ARE :-

+ ADDITION , - SUBTRACTION , * MULTIPLICATION , DIV DIVISION.

NOTE THE USE OF THE WORD DIV. DURING EXECUTION DIV WILL YIELD A TRUNCATED INTEGER RESULT.....TRUNCATION IS THE DROPPING OF ANY DIGIT TO THE RIGHT OF THE DECIMAL POINT eg.

```
20 DIV 6 = 3
```

MOD YIELDS THE REMAINDER OF A DIVISION e.g.:-

```
9 MOD 4 = 1
```

QUITE A HEFTY LESSON ! NEVERTHELESS FOR THOSE OF YOU STILL READING THIS (BOTH OF YOU!)....YOU NOW HAVE ENOUGH INFORMATION TO WRITE YOUR OWN PROGRAMS. REMEMBER HOWEVER THAT YOU CAN ONLY USE INTEGERS, AT LEAST UNTIL THE NEXT LESSON.

FOR THOSE WELDED TO BASIC, I HOPE SOME OF THE WAYS IN WHICH THE PROGRAMS ARE LAID OUT TO MAKE THE STRUCTURE CLEAR, WILL BE OF USE TO YOU IN WRITING YOUR PROGRAMS.

JOHN CRANFIELD.
SOUTHERN TRS-80 CLUB (SWINDON)

FOR INFO ON :-

a) High Resolution add on.
b) DIY modem
c) Light Pen.
d) Receiving the clock from Rugby
e) Golf ball interfacing.
f) Details about a motherboard.

Contact John Christie on 0452-830141(H).

SOME BASIC THOUGHTS

It is easy to overlook the speed of even the trusty TRS-80 Model 1. In many ways this may be a danger in that there is now not the same amount of thought put into the design of programs. This may or may not be a good thing!

Recently I purchased a TRS-80 (Sharp) pocket computer - mainly because my Model 1 will not work off 12 volts. This purchase was not because I have an overwhelming desire for the mental relaxation of a quick programming session but because I am involved in the organisation of motoring competitions where there are a number of routine calculations where speed and accuracy are important.

The most interesting! involves the calculation of a group index. The event which I organise has a number of groups which are considered individually. In order to determine an overall winner an index is required to reduce the group based scores to a common base. The method is as follows:-

Add up the lowest scores where if the group number is:-

1) Less than five - All the group scores plus the lowest score added in so that the number of scores considered equals 5.

2) Under 12 - The lowest five scores.

3) Over 12 - Half the group number rounded down.

In looking at the problem there are two parts:-

a) Sort the scores ie. input in starting order, so as to find the lowest scores.
b) Calculations as per the rules.

In my first attempt the program asked for the scores in starting order, then used a bubble sort to arrange in ascending order and then performed the calculations.

Because of the low group numbers this would have worked quite well on my Model 1. On the pocket computer the times were a bit long!

Back to the drawing board and a chat to a friendly professional D.P. person. Yes I do know of a few! The advice was to drop the bubble sort and re-arrange the data as it is input. Rather than explain in words I enclose the program below. Masochists can put back a bubble sort and see the difference. The message should be clear - Even with small problems it is worth making sure that the method is right as your structure may then be appropriate for the larger problem or to put it another way - If it runs faster

under the interpreter it will fly under a compiler!

Most computers will require that A is dimensioned e.g.

```
90 DIM A(100)
```

This is not required for the pocket computer.

```
100 REM Written for TRS-80 pocket computer
110 INPUT "NO IN GROUP";N
120 P=30:REM first position in array
130 Z=P+N-1:REM bottom of array
140 Y=Z:REM current position in array
150 FOR A=1 TO N
160 INPUT A(Y)
170 V=A(Y)
180 IF Y=Z THEN 260
190 FOR B=Y TO Z-1
200 IF V>A(B+1) THEN 210:REM move down the array
205 GOTO 250
210 A(B)=A(B+1)
230 NEXT B
240 A(Z)=V:GOTO260
250 A(B)=V
260 Y=Y-1:NEXT A
280 IF N<6 GOTO 291
281 IF N<11 GOTO 292
285 GOTO 294
291 I=N:GOTO310
292 I=5:GOTO310
294 I=INT(N*.5):GOTO310
310 T=0:FOR A=1TOI:T=T+A(P+A-1):NEXT A
320 IF I>4 THEN 350
330 FOR A=I+1TO5:T=T+A(P):NEXT A
340 I=5
350 PRINT"GROUP INDEX SCORES"
360 FOR A=1TO N
370 B=A(A+P-1):C=INT(B/T*I*1000+.5)/10
380 PRINT A;B;"INDEX";C
390 NEXT A
```

Apart from speed! I have noticed that the pocket computer is reluctant to accept repeated keystrokes. It must have a siginificant debounce routine! The other trap is that it is a bit naughty with array storage. Array A(1) - A(26) overwrites variables A-Z. This is the reason for P above starting at 30. It is mentioned in the manual but I must admit to thinking that the BASIC was a bit odd until I noticed the comments.

My remaining tip is that I could not make my tape recorder work until I used batteries instead of mains power - I wonder if this is a general point?

Derrick Rowe

MODEL II DISK CARE

I have now been using a number of Model II's for almost 18 months. During this time there have been three types of disk faults. Some are recoverable and others are not. For information I offer the following advice:-

1) Use TRSDOS 2.0 - This is significantly better than 1.2. Not only is it more robust but it stores two copies of the directory. It really does work and DO NOT be tempted to suppress the alternate directory to speed up the system.

You know when the alternate directory is in use as the DIR command will slow down and show the directory in chunks as it tries to read and then skips the defective sectors.

You can turn off VERIFY DETECT and SNAPP provide patches to produce some speed gains. This is only worth the risk if your programs prompt for disk changes or you are 100% that you will remember to 'I' before disk changes.

2.0 is really good news provided you don't turn off the protection features. CP/M by comparison is a dog!

2) Error 4 - This indicates a disk alignment or similar compatability problem. Try other disk drives and when it works copy the file to another disk. Don't give up as Error 4's can usually be recovered.

3) Error 5 - This is bad news and I have never been able to recover this one. Often caused by switching the power off with the disks left in. Good news is that BACKUP will write a new disk and skip these errors. If you can locate the error and correct then fine otherwise back to your last BACKUP. You do have BACKUPS?

4) Other funny disk errors - I saw some odd errors under 1.2. RACET's XGAT, XHIT and SUPERZAP may help but in general it is back to your BACKUP. Sometimes I find errors are flagged during BACKUP, but everything is quite alright when running the disk.

In order to avoid problems then apart from common sense care of the diskettes the two most important rules are:-

a) Clean the drives once a week with a disk drive cleaning kit.

b) Try to match disks to disk drives to minimise the compatability differences.

I have tried IMMAC's lifetime disks. These do seem stronger but are a lot more costly. If I was buying they might not justify the extra pennies. However against the cost penalty I have to say that most of the nasty problems

I have seen are due to defective media - would you believe the coating has been seen to strip off! If any one else out there has some comments about disk types then could they write in. I am in no doubt that re-inforced centred disks have to be worth having on both the 5 1/4 and 8 inch drives.

Hopefully the hard disk should eliminate most of these points but in the meantime If you can't be careful then don't!

Derrick Rowe

TAB FUNCTION EXTENDER

WITH REGARD TO RECENT? LETTERS CONCERNING THE TAB FUNCTION, HERE IS A SHORT PROGRAM WHICH ALLOWS THE FUNCTION TO REACH THE RIGHT HAND SIDE OF MY EPSON (TAB 132).

```
10 'TAB FUNCTION EXTENDER                    K.R.TAYLOR  (0749)
2561
20 DATA
34,110,64,43,126,254,188,32,250,205,27,43,95,42,110,64,201,0
,0
30 DATA 195,93,64
40 FOR X=16477 TO 16495:READP:POKEX,P:NEXT
50 FOR X=16851 TO 16853:READP:POKEX,P:NEXT
60 LPRINT CHR$(15) 'SET CONDENSED MODE ON EPSON
70 FOR X=0TO131 STEP4:LPRINT TAB(X)"A";:NEXT
```

THE TAB FUNCTION TAKES A DOS EXIT AT 41D3H. HOWEVER THE TAB POSITION HAS ALREADY BEEN CALCULATED BY THEN SO IT IS NECESSARY TO BACKSTEP OVER THE LINE LOOKING FOR THE TAB TOKEN AND THEN RECALCULATING THE POSITION OF THE TAB (ALLOWING IT TO GO TO 255). THE ABOVE PROGRAM CAME FROM THE FOLLOWING :-

```
        ORG     41D3H
        JP      START       ;SET PTR TO NEW ROUTINE
        ORG     405DH       ;A CONVENIENT & APPARENTLY SAFE
PLACE FOR                                SHORT PROGS
START   LD      (BUFF),HL   ;SAVE HL
LOOP    DEC     HL          ;BACKSTEP OVER BASIC LINE
        LD      A,(HL)
        CP      0BCH        ;LOOKING FOR TAB TOKEN
        JR      NZ,LOOP     ;CARRY ON TILL FOUND
        CALL    2B1BH       ;RECALCULATE TAB POSITION
        LD      E,A         ;SAVE IN E
        LD      HL,(BUFF)   ;RESTORE HL
        RET
BUFF    DEFS    2           ;2 BYTE BUFFER
        END     72H         ;GOTO BASIC AFTER LOADING
```

K.R.TAYLOR

ROD BULLARD'S ODD-EVEN TEASER

I was very pleased to receive a program written by Peter Griffiths giving a solution to Rod's Teaser and reproduce a listing below. It would be nice if more members came up with a contribution to the Newsletter. Nice work Peter.

L. Kaye.

```
1 CLS : PRINT @ 76,"*********************************
                   *  BRAIN TWISTER SOLUTION  BY  *
                   *       PETER GRIFFITHS        *
                   *********************************"

4 PRINT : PRINT : PRINT : PRINT : PRINT"TO CHANGE THE PAGE PRESS ANY
KEY WHEN THE FLASHING SQUARE APPEARS."
5 GOTO 120
10 PRINT@960,CHR$(191); : A$ = INKEY$ : IF A$ = ""THEN
PRINT@960,CHR$(128); : GOTO10
12 CLS
20 PRINT"                      E E                    A B"
30 PRINT"                   ---------              ---------"
40 PRINT"            E O ) O E O E          D E ) F G H I"
50 PRINT"                  E O E                    J K L"
60 PRINT"                  -----                   -----"
70 PRINT"                     O E                     M I"
80 PRINT"                     O E                     M I"
90 PRINT"                     ---                     ---"
100 PRINT"                   - -                      - -"
105 PRINT : PRINT
110 RETURN
120 GOSUB 10
130 PRINT"  THE BIGGEST NUMBER ANY FOUR DIGIT NO. COULD BE TO BE
DEVIDED  BY A TWO DIGIT NO. AND GET A TWO DIGIT NO. IS 9801 (99 * 99).
BUT FOR IT TO BE ODD EVEN ODD EVEN THE LARGEST NO. IT COULD BE WOULD";
140 PRINT"BE 7898."
145 GOSUB 10
150 PRINT" THE LARGEST NO. A SINGLE DIGIT NO. MULTIPLIED BY A TWO
DIGIT NO. COULD BE IS 891 (9 * 99) BUT SEEING AS IT IS AN EVEN NO.
MULTIPLIED BY AN NO. WITH THE DIGITS EVEN ODD THE LARGEST NO. IT";
160 PRINT"COULD BE WOULD BE 712 (8 * 89) THEREFORE JKL<712."
170 GOSUB 10 : PRINT"VALUES FOR JKL IE EVEN * EVEN ODD WOULD BE : -"
180 FOR A = 0 TO 8 STEP 2 : FOR DE = 1 TO 89 STEP 2
190 IF INT(DE/10)/2<>INT(INT(DE/10)/2) THEN GOTO 200
191 IF A*DE<210 THEN GOTO200
192 IF INT(A*DE/100)/2<>INT(INT(A*DE/100)/2) THEN GOTO 200
193 IF INT(A*DE/10)/2 = INT(INT(A*DE/10)/2) THEN GOTO 200
195 N = N+1 : JK(N) = A*DE : A(N) = A : DE(N) = DE
199 PRINTA;"*";DE;" = ";A*DE;"  ";
200 NEXT DE : NEXT A
210 GOSUB 10
220 PRINT"FGH = JKL+M     OEO = EOE+O"
230 FOR I = 1 TO N : FOR M = 1 TO 9 STEP 2
240 IF INT(INT((JK(I)+M)/10)/2)<>INT((JK(I)+M)/10)/2 THEN 260
250 IF INT(INT((JK(I)+M)/100)/2) = INT((JK(I)+M)/100)/2 THEN 260
255 PRINTJK(I)+M;" = ";JK(I);"+";M;"      ";
256 G = G+1 : FG(G) = JK(I)+M : JL(G) = JK(I) : M(G) = M : A(G) = A(I)
: DE(G) = DE(I)
260 NEXT M : NEXT I
```

```
270 GOSUB 10
275 PRINT" MI = DE*B"
280 FOR N = 1 TO G : FOR I = 0 TO 8 STEP 2
290 IF INT(((M(N)*10)+I)/(2*DE(N)))<>((M(N)*10)+I)/(2*DE(N)) THEN GOTO
310
300 PRINT(M(N)*10)+I;" = ";DE(N);"*";((M(N)*10)+I)/DE(N)
305 MI = (M(N)*10)+I : DE = DE(N) : AB = (A(N)*10)+(MI/DE) : FG =
(FG(N)*10)+I : JK = JL(N)
310 NEXT I : NEXT N
315 GOSUB 320 : GOTO 325
320 PRINT@960,CHR$(191); : A$ = INKEY$ : IF A$ = "" THEN
PRINT@960,CHR$(128); : GOTO 320
321 RETURN
325 CLS
326 PRINT@212,"-----------"
327 PRINT@408,"-----"
328 PRINT@604,"---"
330 PRINT@0,"THE ANSWER IS : -";CHR$(23)
340 PRINT@128,"              ";AB;
350 PRINT@256,"       ";DE;")";FG;
360 PRINT@320,"            ";JK;
370 PRINT@448,"              ";MI;
380 PRINT@512,"              ";MI;
390 PRINT@640,"               --";
400 GOSUB 320
410 CLS
420 END
```

As my contribution I offer another approach to the problem. The only assumption that I make is that the two 2 figure numbers must be greater than 30 to save computing time. It takes 1min 17secs to produce the answer.

L. King

```
10 CLS : PRINT@75,"**  SOLUTION TO ROD BULLARD'S TEASER  **
15 PRINT
30 PRINT"                          C D
40 PRINT"                       ----------
50 PRINT"                A B ) F G H I
60 PRINT"                      O P Q
70 PRINT"                      ------
80 PRINT"                        (< = 9)I
90 PRINT"                          AA BB
100 PRINT"                          ------
110 PRINT"                           -  -
112 PRINT"                          -------
115 PRINT@896,"PRESS ANY KEY TO START THE CLOCK AND SOLVE PROBLEM.
120 A$ = INKEY$ : IFA$ = ""THEN 120 ELSE 130
130 CLS
140 PRINT@474,"SOLVING
150 CMD"TIME 00:00:00
160 DEFINT A-Z
170 Z = X * Y
180 FOR X = 31 TO 99 STEP2
190 FOR Y = 30 TO 99 STEP 2
```

```
200 Z = X * Y
210 A = INT(X/10) : B = X-INT(X/10) * 10 : C = INT(Y/10) : D =
Y-INT(Y/10) * 10
220 F = INT(Z/1000) : G = INT(Z-1000 * F)/100 : H = INT(Z-1000 * F-100
* G)/10 : I = Z-(1000 * F+100 * G+10 * H)
230 L = X * C
240 O = INT(L/100)
250 P = INT((L-O * 100)/10)
260 Q = L-O * 100 -P * 10
270 IF F AND NOT -2 : IF H AND NOT-2 : IF G+1 AND NOT-2 : IF I+1 AND
NOT-2 : IF A+1 AND NOT-2 : IF B AND NOT-2 : IF C+1 AND NOT-2 : IF D+1
AND NOT-2 : IF O+1 AND NOT-2 : IF P AND NOT-2 : IF Q+1 AND NOT-2  :
IF(100 * F+10 * G+H)-(100 * O+10 * P+Q)<10 THEN GOTO 300
280 NEXT Y
290 NEXT X
300 AA = INT(D * X/10) : BB = D * X-(10 * AA)
310 CLS : PRINT"                    EVEN EVEN
  "C;D
320 PRINT"            -------------------
-------------------
330 PRINT"EVEN ODD) ODD EVEN ODD EVEN           "A;B" )      ";F;G;H;I
340 PRINT"          EVEN ODD EVEN                             ";O;P;Q
350 PRINT"          ----------------
-------
360 PRINT"                    ODD EVEN
"AA;BB
370 PRINT"                    ODD EVEN
"AA;BB
380 PRINT"                    ----------
-------
390 PRINT"                      -   -
-
400 PRINT"                    -----------
-------
410 PRINT@832,"TIME TAKEN WAS " RIGHT$(TIME$,8)
```

L.W.King
Editor Southern TRS-80 Club (Swindon)

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One possible solution to the problem on page 40 of March 1982 Issue of the Newsletter

```
9 FORTI=0TO2:POKE&H4041+TI,0:NEXT
 :LPRINT"Time Started :- "RIGHT$(TIME$,8)
 :LPRINT" "
10 CLS:DEFINTB-Z:DIMX(20),Y(20):GOTO20
15 B=0:A=VAL(Z$):IFINT(A/Z)=A/ZTHENB=1:RETURNELSERETURN
20 FORX=1TO20:READA:X(X)=A:NEXT
30 FORY=1TO20:READA:Y(Y)=A:NEXT
40 FORX=1TO20:FORY=1TO20
50 A$=STR$(X(X)*Y(Y)) :IFLEN(A$)<5THEN200
60 A1$=MID$(A$,2,1) :Z$=A1$: GOSUB15 :IFB=1THEN200 ' Odd ?
70 A2$=MID$(A$,3,1) :Z$=A2$: GOSUB15 :IFB=0THEN200 ' Even ?
80 A3$=MID$(A$,4,1) :Z$=A3$: GOSUB15 :IFB=1THEN200 ' Odd ?
90 A4$=MID$(A$,5,1) :Z$=A4$: GOSUB15 :IFB=0THEN200 ' Even ?
100 C$=STR$(Y(Y)) :C$=MID$(C$,2,1): C=VAL(C$)*X(X)
   :Y$=STR$(VAL(MID$(A$,2,3))-C)
   :IFVAL(Y$)>9THEN200
120 B$=STR$(Y(Y)) :B=VAL(MID$(B$,2,1))*X(X): B$=STR$(B)
130 B1$=MID$(B$,2,1) :Z$=B1$: GOSUB15 :IFB=0THEN200 ' Even ?
140 B2$=MID$(B$,3,1) :Z$=B2$: GOSUB15 :IFB=1THEN200 ' Odd ?
150 B3$=MID$(B$,4,1) :Z$=B3$: GOSUB15 :IFB=0THEN200 ' Even ?
190 LPRINT"X(X) = "X(X),"Y(Y) = "Y(Y),"Product = "A$
195 LPRINT" "
   :LPRINT"Time Finished :- "RIGHT$(TIME$,8)
200 NEXTY
210 NEXTX
1000 DATA21,23,25,27,29,41,43,45,47,49,61,63,65,67,69,81,83,85,87,89 :'ONLY POSSIBLE VALUES OF X(X)
2000 DATA20,22,24,26,28,40,42,44,46,48,60,62,64,66,68,80,82,84,86,88 :'ONLY POSSIBLE VALUES OF Y(Y)
```

```
Time Started :- 00:00:00

X(X) =  49      Y(Y) =  62      Product =  3038

Time Finished :- 00:00:27
```

John Rutherford

Movie Mods

Have you ever sweated and strained over creating a nice looking menu for a machine code program ? Perhaps you are like me and all your machine code programs are devoid of titles, menus and instructions. Well, if you have Tandy's Micro Movie, then with a few minor mods to the program, and a little work, you can create some fantastic looking graphics. First a word about 'Movie'. The program is essentialy a stand-alone program that enables you to draw 'pictures' intermingled with text. You can also make the pictures 'move' and have such things as reverse graphics. The composed picture is saved out onto tape for future re-loading for play-back, Movie has to be in residence at all times.

The idea behind my modification to the program is to move the completed contents of screen to an area of memory and 'lift' this for use with my machine code program. If you examine the keyboard intercept in Movie you will find a jump to 0000H in response to shift break. This is located at 4352H and 4353H. I changed these bytes to E9H and 42H repectively, so now when shift break is pressed a jump to 42E9H takes place and it is a that address I have placed a small LDIR routine.

Enter the following from 42E9 ..... 21 00 3C 11 00 6C 01 FF 03 ED B0 C3 00 43

Movie now goes from 42E9H t[illegible]H entry 4300H

This mod dumps the contents of screen at address 6C00H.

This is a very rough and ready modification to get round a particular problem that I had.

In the near future I will be publishing details of a more extensively modified Movie which will allow you to enter the address to move screen contents to and also to allow for any portion of screen, rather than the full 1024 bytes as at present, to be chosen for the move. One nice feature of the modification is that the screen can still be saved out to tape thereby giving you a second byte at the cherry should anything go wrong. How you make use of the relocated screen contents is up to you, I normally attach a LDIR routine to move it back onto screen and punch out a copy with Monitor 4 for later use with my machine-code program. I hope this short article may have prompted you to look into Movie and find some uses for it that uncle Tandy overlooked or didn't think of.

Ken. Grey

This Months Teaser

By Bob Sparling

Yes we have revived the old teaser spot again, I wanted to try and make the successfull result a usefull routine which can be used for games in the future and this fits the bill.

We will start with an easy one split into three parts.

1> Make the computer wait for an input for a defined time if the input has not arrived when the time is up to then report the fact.

2> Make the computer wait for an inkey$ type of input of one character and then as question 1 above

3> As question 2 above but input 3 characters

Please have a go, even if you don't actually get it to work let us have your efforts before or at the next meeting.

If you are writing something and have a problem making something work let us know it may be next months Teaser

Bob Sparling,
Southern TRS-80 Club.

HELP FROM THE SOUTHERN TRS-80 CLUB (SWINDON)

In last months Newsletter Mr A. Quain asked if any one could help with reversed line feeds for the Daisy Wheel Printer, Tandys did send a circular to all shop managers when the Daisy Wheel first arrived in England, but it looks as though this has been forgotten, this is what they say :-

REVERSED LINE FEEDS

The following routine allows you to reverse line feed on the Daisy Wheel Printer. The existing Daisy Wheel Printer manual advises that a single reverse line feed is achieved by CHR$(27);CHR$(138). This is however, incorrect and replacement manuals are being shipped into national parts. For the meantime, the following does work and is published for your guidance :-

```
 5 RL$=CHR$(27)+CHR$(30)+CHR$(27)+CHR$(30)
10 LPRINT"&&&&&&&&&&&&&";RL$;"###############"
```

```
 5 RL$=CHR$(27)+CHR$(30)+CHR$(27)+CHR$(30)
10 LPRINT"%%%%%%%%%%%%%"
20 FOR I=1 TO 5 : LPRINT RL$; NEXT
30 LPRINT"**************"
```

Sylvia Hasler askes :-

Is it possible to get Pascal on the Tandy ?

Yes it is, is the short answer, Tandy sell the Tiny Pascal for the Level II tape only users and both John Harding Molimerx Ltd. 1 Buckhurst Road, Bexhill on Sea, E. Sussex. and Microcomputer Applications, 11 Riverside Court, Caversham, Reading, RG4 8AL. stock a version of Pascal.
Molimerx stock the Pascal Version 4.3 and Microcomputer Applications stock Pascal 80, I am sure there are others around, the most confusing part is which one to get ? and how do they differ ? Can anyone help with this one ?

SEEING DOUBLE

Some time ago I decided that my two 40 track drives under single density did not provide me with sufficient space on the disks to store all the data I wished to have immediately to hand. I thought of purchasing an 80 track drive for drive zero thereby releasing my other drives for other things.
One look at the price of 80 tracks changed my mind immediately. It was at this point I considered going to double density and I checked on the price of a doubler board for my E63013 Video Genie expansion box. At a quarter of the price of the disk drive there was no doubt which was the better option.
The E63013 expansion box was not designed for the addition of the Video Genie double density adaptor but Lowe Electronics provide a mod sheet with the E63021 adaptor to enable it's fitting inside the E63013. To elaborate a little; the new expansion box (the E63014) does not have a data seperator as did it's predecessor the E63013, so when you come to fit the adaptor to the E63013 you have to disconnect the existing data seperator. This is no small task, requiring the cutting of 5 IC pins, the breaking of one track, the adding of one wire and the adding of a 10K resistor (not for the squeemish)
The next problem that arises is the actual fitting of the adaptor to the main board. The clock crystal and 4 capacitors prevent the board from going into the socket vacated by the 1771 disk controller and these components have to relocated on the reverse side of the board (phew sounds like a lot of hard work to gain extra disk storage the worst is yet to come.

The adaptor board has 40 round pins to plug into the empty 1771 socket on the main board. If you are as unlucky as I was, the type of socket used does not like the round pins and the board will refuse to stay put. A solution is at hand. Piggy-back a low profile 40 pin socket which will accept the round pins on the adaptor board and which will also plug into the socket on the main board securely. You will notice as I did that it is now not necessary to relocate the capacitors because the board now has sufficent clearance (some work saved !) Anyway I reassembled the expansion box and booted up my single density Newdos 80. No problems, it behaved as before and I breathed I great sigh of relief. I then tested the double density system using DOSPLUS 3.3 and lo and behold that worked as well. I tried formatting, copying and backing up with double density and found only one disk out of 20 Verbatim Datalife disks that locked out a track. Hooray !!!!! I am seeing double at last and I have a new DOS to play with. Next month I will explain some of the foibles of DOSPLUS and it's incompatibility with the Video Genie and how to overcome some of the problems.
A couple of points to note. If you decide to add double density to your E63013 then be prepared to do more than plug a board into a socket. The adaptor works superbly well and I am more than pleased with the results. I have looked at the circuit of the expansion box and by using the piggy back socket method, bending out a couple of the pins of the extra socket, then it is possible to fit the adaptor with no more than the addition of a wire, the rest of the work being done on the socket. If you have the E63014 box then the adaptor board fitting is very straight forward and simple and will improve the operation of the single density system by adding the data seperator on the added board and give you the advantage of having DD when you need it.

Ken Grey

Temperature Conversion

This program will convert Centigrade to Fahrenheit and back again, I cannot remember publishing any conversion programs with the exception of the Hexadecimal Binary and Decimal program, if anyone has the time they could write a program to convert gallons to liters or inches to miles etc.

```
10 CLS    'WRITTEN WITH GLOVES ON. L.W.K. 15/1/82.
20 '     TEMPERATURE CONVERSION
30 PRINT:PRINT"ENTER   THE TEMPERATURE. IF  CENTIGRADE  THEN PRECEDE IT
          WITH A 'C' E.G C15
40 PRINT:INPUT T$
50 IF LEFT$(T$,1)="C" THEN 60 ELSE 80
60 TC$= RIGHT$(T$,LEN(T$)-1)
65 TC=((VAL(TC$)/5)*9)+32
70 PRINT:PRINT  TC$ " DEGREES CENTIGRADE = "  INT(TC*100)/100  "DEGREES
FAHRENHEIT.":GOTO 100
80 TF=(VAL(T$)-32)*5/9
90 PRINT:PRINT VAL(T$)  "  DEGREES FAHRENHEIT =  "  INT(TF*100)/100   "
DEGREES CENTIGRADE"
100 PRINT@769,"FOR ANOTHER TRY TYPE 1.   TO EXIT, TYPE 2
110 B$=INKEY$: IF B$=""THEN 110
120 IF VAL(B$)=1 THEN 10
130 IF VAL(B$)=2 THEN END
140 IF VAL(B$)<>1 OR VAL(B$)<>2 THEN 100
```

Laurie King,
Sothern TRS-80 Club (Swindon)

YOUR COMPUTER AND THE TELEPHONE

The Amateur Computer Club (ACC) held a symposium on "Your Computer and the Telephone" at the North London Polytechnic on Saturday 17 April, concurrently with the London Computer Fair. I helped to organise the proceedings and gave one of the presentations. Here is a brief summary of what went on.

Peter Whittle, Chairman of the ACC, chaired the proceedings, which commenced with a talk by Robin Bradbeer, a lecturer at the Poly., and former Editor of Educational Computing, on IT82 (yes, we are in the middle of Information Technology year).

Yours truly then gave an introductory talk on what you can do when your computer has a communications capability, and what you need to get started in this fascinating area.

Peter Whittle then told delegates what modems were and how they worked, followed by a session on computer interfaces - RS-232 and V24.

Following lunch, was a session by Tony Sweet, of British Telecom, on Prestel.

Someone from CET then gave a talk on Telesoftware, a facility enabling Prestel users with a micro to download programs into their own system. Most of the software is educational in nature for the 380Z and Apple, but they are working on programs for the TRS-80 and other systems.

A chap from NPL then demonstrated Prestel editing for the hobbyist. The ACC have been given a large number of free pages on Prestel that can be used by members with a suitable micro.

Our own Victor Saleh then set up his Model I and showed what can be done with the FORUM-80 computerised bulletin board system. Victor runs one of the London FORUM-80s, and managed to successfully access Frederick Brown's FORUM-80 in Hull.

Following a brief second chat by me on communications between two users (we were running out of time), a panel discussion brought proceedings to a close.

Leon Heller

BUSINESS SUB GROUP

For a list of members and their interests etc, a SAE plus double the postage Please.

Tony Wilde on 070 682 4889, is interested in stock control, with particular emphasis on Manufacturing control and in ation systems.

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At the present time holding regular meetings

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Initial Contact Colin Ashford 01-462-7296

CRAWLEY AREA

John Bennett would like to hear from members in his patch, to discuss any common interests. His address is 11 Haywards, Pound Hill, Crawley, Sussex, RH10 3TR, 0293-882933

ACULABS IN THE EAST ESSEX AREA

Anthony Stamp at Bonds Cottage, Worminsford, Colchester, Essex, would like to hear from any other members to exhange expertise on this particular system.

WORKSHOP REPORTS

CAMBRIDGE The members were to be found esconced in a 4 star hotel, with excellent talks and beer to while away an enjoyable day. The first two talks were by Frank Hope on Sargon and the software he is developing for arable farming.
The first was of course about the niceties of chess, and the second on screen formats and error trapping. Many have seen Frank's skilled efforts on the latter and there many questions on how he achieved the effects.

The third chat was a short disussion on the DOS's as seen by Andrew Donald, which allowed a variety of questions to be fired at Andrew with the majority answered swiftly, the remainder with a little more careful thought before a lucid return.

The afternoon was devoted to EPROMs, with Andrew Donald, Leon Heller and Duncan Spencer. The latter casually advised us that he had connected a HARD DISK to the VIDEO GENIE. This was the first time that this length of time had been devoted to EPROMS, but judging from the questions there should be more members dabbling, even with one hand on the handrail.

BRIAN PAIN

LEICESTER Here the members were five floors up in the tower of the Poly with a howling gale and the football fans cheering seven goals at nearby Filbert Street.

The talks were by Dusty Miller on low cost word processing, Marc Leduc on string packing and Laurie Shields on his assembler notes. Dusty Miller's chat always gives members a very clear idea on how to squeeze the very most from a system, and is only to pleased to pass on this expertise.
I knew Marc was very skilled in his area, and this was amply shown, the only problem was time. I hope to book him into a long session at Milton Keynes, and if the London weekend specialist subjects are a success, perhaps around 12 hours on this topic. Finally Laurie arrived to go through the assembler notes part one & two. I must say that each time he does this session I learn more on presentation, and my own modesty will not allow me say more. The feedback from members is that they value all the assistance from Laurie either in person or through the notes,and and the proof is in the fact that part one has now sold over 200.

GLOUCESTER This is always enyable for the trip to the hotel and the first class facilities made available to us. Next time we can show any videos that may have been made by members on the systems that we all use.

The talks were by John Christie on High Res., Leo Knaggs on using DOS for the first time, Brian Pain on the Mysteries Series and John Taylor/Graham Wickens on the floppy Tape.
John's main feature was SARGON II, and his DIY electronics, with Leo trying very hard to keep at grass roots for those contemplating DOS, or having just acquired disks. I enjoyed my session and persuaded Henry Shepherd to come along for the ride. Thank you Henry for your assistance. John and Graham did a very fine job and will be booked in to the Milton Keynes weekend if they can be pulled away from there floppies.

BRIAN PAIN

If your interested in running your bulletin board network, there is a programme in the march issue of 80-Microcomputing for a single drive system. (copies from 3-line Computing HULL 0482 445496 at 1.80p +p&p)

Anyone with access to a U.S.A modem a new International TRS-80 Bulletin Board, I.T.B.B.S (0101-404) 498 2392.

Date Bank For BS1 Electronic Component Data

Selecting the right electronic component for a particular purpose will be easier from now on as a result of a mammoth project undertaken by Sheffield University with the co-operation of the British Standards Institution. A computer-based data bank entitled Codus has been established at the University to hold up-to-date characteristics of all electronic components approved by BS 9000 and CECC specifications. Access to the Codus files is now available to anyone seeking the latest information on electronic components of assessed quality. For further information and user application form, please contact Dr.D.E.Radley, Department of Electronic and Eleltrical Engineering, University of Sheffieldm Mapping Street, Sheffield S1 3JD (tel: Sheffield 78555, extension 5410).

British Business Features Information Technology Supplement.

The 12 March issue of British Business (the weekly news magazine of the Department of Industry and Trade) featured a comprehensive Information Technology supplement highlighting the latest developments in teletext and viewdata. This is the first in a series of six bi-monthly British Business supplements intended to bring together as many of the diverse aspects of Information Technology as possible. The other five supplements will cover the electronic office, IT in industry, the changing state of television, the effects of relaxing British Telecom's monopoly and, at the end of 1982, a complete review of this Information Technology year. British Business is published by HMSO every Friday and costs one pound ten pence.

Applying Microelectronics In Manufacturing Industry: Do1 guide

Any manufacturing company has identified a need to make use of microelectronics but is not sure how to proceed should be interested in a new guide published by the Department of Industry on 18 March. 'Applying Microelectronics in Manufacturing Industry - A guide for Management' explains how to undertake a project from first concept to final evaluation. The guide cost three pounds fifty pence and is available from the Department of Industry, FREEPOST, Map Information Centre, Room 524, Dean Bradley House, 52 Horseferry Road, London SW1P 2AG (: No. 01-212 3411/4).

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12 hours on BASIC from the Level 2 Manual in JULY 1982, at a central hotel in LONDON.

The above will be chaired by Brian Pain, with the lectures given by Martin Miller author of the famous ELECTRIC ACCOUNTANT. The lectures will be on consecutive Saturdays, with the sessions so organised that hands on will be available to the first 10 persons who enrol. The classes will not be larger than 20, and a full syllabus is available to help anybody make their minds up.

Martin will be giving handouts during the lectures, and if prior notice is given will cover a specific point!

Lunches will be from a grill next to the lecture rooms, and should cost around 2.50 (Pounds) or there is no reason why sandwiches cannot be brought.

The cost of the two sessions will be around 10.00(Pounds), and may be booked by cheque, ACCESS or BARCLAYCARD.

To BOOK ring Brian Pain, 0908-564271 any time

STOP PRESS WEEKEND IN JULY ***** FRIDAY BUSINESS *****

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INNOVATIVE
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SUPER UTILITY +

Super Utility Plus is probably the most extensive disk orientated utility available on the market at the moment. It is important that it should be differentiated between a zap alone program such as our Prozap or Superzap. Both of those programs are specialised disk repair and investigation utilities. Whilst SU + includes these functions it is also aimed at a broader spectrum. We introduced the original Super Utility almost a year ago but the present SU + is a complete re-write with many new functions. Existing owners of Super Utility (who bought it from us) may update for the difference in price and should contact us accordingly. SU +, unlike the original, supports double density as well as the usual single density, zapping. There are seven sections to the program, each with many commands as follows:

Disk Zap

1. Display Sectors
2. Verify Sectors
3. Compare Sectors
4. Copy Sectors
5. Copy Sector Data
6. Zero Sectors
7. Reverse Sector Data
8. Exchange Sectors
9. String Search
10. Sector Search
11. Read ID Address Marks
12. Alter Data Address Marks

Disk Purge

1. Kill Selected Files
2. Kill by Category
3. Remove System Files
4. Remove all Passwords
5. Disk Directory
6. Zero Unused Entries
7. Zero Unused Granules
8. Change Disk Name
9. Change File Parameters
10. Check Directory

Disk Format

1. Standard Format
2. Special Format
3. Format without Erase
4. Build Format Track
5. Write Format Track
6. Software Bulk Erase

Disk Backup

1. Standard Disk Backup
2. Backup non standard disks

Disk Repair

1. Repair Gat Sector
2. Repair Hit Sector
3. Repair Boot Sector
4. Read Protect Directory
5. Un-Read Protect Directory
6. Recover Killed Files
7. Move Directory
8. Display Directory
9. Check Directory
10. Clear Unused Entries

Tape Utilities

1. Read Tape
2. Write Tape
3. Verify Tape
4. Copy Tape

Memory Utilities

1. Display Memory
2. Move Memory
3. Exchange Memory
4. Compare Memory
5. Fill Memory
6. Reverse Memory
7. Test Memory
8. Jump to Memory
9. String Search
10. Input Byte from Port
11. Output Byte to Port
12. Memory to Sectors
13. Sectors to Memory
14. Memory to Track
15. Track to Memory

File Utilities

1. Display File Sectors
2. Compare Files
3. Copy Files
4. Disk Directory
5. Free Space
6. Offset a File
7. File Locations
8. Drive Status
9. Sector Allocation
10. Build a File
11. Clear a File
12. Disk Allocations
13. Compute Hash Code
14. Compute Passwords

In addition to the above, SU + itself may be configured to read single/double density, tracks up to 80, any standard stepping rate, any directory track, any standard delay, high or low speed clock and printer configuration.

SU + is very difficult to copy so a backup copy is included in the price. In other words you get two disks.

Super Utility Plus. Minimum 48K 1 disk for TRS-80/Video Genie . . . . . £46.00 + V.A.T. = £52.90

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National TRS-80 Users Group

Newsletter

VOLUME 3 ISSUE 11 MAY 1982

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INFORMATION ON THE GROUP

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

Details of the Group accounts and the constitution of the Group are obtainable from the Secretary.

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

Workshops are arranged from time to time in various parts of the country.

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

The Group maintains two software libraries (Model I and Model II) which are free to members. Library lists are obtainable from the Secretary (price £1). The medical and educational sub-groups maintain their own libraries.

A membership list is available from the Secretary (price £1).

Back numbers of the Newsletter are available.

Please send all contributions for the Newsletter to the Editor.

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EDITORIAL

We seem to be having problems again in getting the Newsletter out on time. So as to get this issue out before the end of the month, it will have to be somewhat shorter than has been usual recently.

Please note the re-introduction of 80-NET, our computerised bulletin board system. I shall be writing to the monthly magazines informing them of the change of number.

We shall be supplying British Telecom with all the programs in the Library, for incorporation in the Telesoftware section of Prestel. We get free Prestel pages (how many depends on how much software we give them) which might be of use in publicising our activities to a wider audience. One of our members, Roger Hamlett, has written a Telesoftware downloader for the Model I. You will need a Micro-Tantel adaptor (cost about £135 from B.T.) but we hope to get a number of these for nothing in return for the software we are giving them. These will then be available for members to borrow. I shall prepare an article on Prestel for the next issue.

Leon Heller

GUIDELINES FOR CONTRIBUTORS

1. Send material in machine-readable form (Scripsit or Pencil disk/cassette) if possible.
2. Ensure your ribbon is in reasonable condition if using a printer.
3. Printer output should be on A4 paper if possible.
4. If you send in handwritten material, write legibly.
5. Do not fold the sheets when posting them. Use a large envelope and keep them flat.

Leon Heller

MEMBERS' LETTERS

From Laurie Shields

1. Holmes wrote the other day with news of their 'Mainframe Expansion' as they call their latest for the Model 1. It consists of a seperate box with power pack to accomodate a number of different boards that provide seperate functions. The first board is the disk controller and that is available for 5 and 8 ins single density as standard. A double density version costs slightly more.
The second board is an 80 x 24 video display driver and then there's to be an RS232 unit. The basic box is $150 plus postage, insurance, customs etc and the disk controller is about the same again.

2. A colleague has converted Tandy's 'Tiny Pascal' from cassette to Model 3 disk and this can be made available at a modest charge.

3. I've just been witnessing an optical card reader hooked up to a Video Genie 2 via the RS232 port and it looks very promising. The intention is to extend an existing stock control package to accept input from bin cards; and also to develop a system using marked cards for processing servicing records in a large scale electonics rental/repair organisation.

4. Remember Steve Alderton (from a couple of months back) ? Well he kept the cassette Zen I sent him and sent a cheque the other day. He would still like his Macros but is quite prepared to sacrifice them for all the other gains.

Laurie Shields,
151 Longedge Lane,
Wingerworth,
Chesterfield, S42 6PR.
Tel: 0246-75568

FOR SALE

1. Aculab Floppy Tape + tapes + software - £140

2. 32K Holmes memory board - £60

3. Epson printer interface (keyboard - printer) including cable - £50

John Carne,
01-427 1098

From Ken Grey

In reply to Alan Harding's letter of help to me regarding the "dropped" letters in Electric Pencil when it is doing it's end of line word shuffle. I was using Newdos80 as the operating system and even though I am not the World's fastest typist, once there was more than a screen full of text then there was a good chance of dropping a letter while typing at even a moderate speed.

A couple of weeks prior to recieving my news letter with Alan's reply I bought LDOS V5.1 and I configured the system with the keyboard driver for type ahead. I can still comfortably beat the system and even though I do not get as many dropped letters the problem still exists.

Some time prior to recieving LDOS I bought Ajedit as it promised to be a reasonable word processor with the ability to utilise the print options of my MX80 and at a price somewhat less than Scripsit (my last half dozen contributions to the news letter were done with it) Ajedit is advertised as the word processor for the person who only occasionally needs to use one, well I find Ajedit an extremely complex program which requires a considerable amount of user time in learning the various options and commands. If I have a few hours to spare and if Leon will allow me a couple of news letter pages then perhaps I can give a brief review of Ajedit (Molimerx give 4 pages of their catalogue to it's advert!) My initial comments on Ajedit are that it lacks the ease of cursor control and editing of Pencil but is extremely versatile when it comes to utilising the printer. It has built in mail merge and is a serious contender in the business side of word processing. I have not had the opportunity to try Scripsit and I don't know if there would be an advantage in using it in preference to the word processors I already have, particularly as I do not require a professional system but do require full control over my MX80.

If anyone could perhaps list the "for and against" points of the various systems then it should be possible to select the word processor to suit specific requirements. Advertisements can be confusing and at the worst misleading and a comparison between the currently available word processors would, I am sure, be a help in making the correct choice. The price of a good word processor is such that it pays to pick the right one from the start. I don't know if Scripsit would be more suitable for my purposes than say Ajedit or Lazywriter so if any of you out there have a word processor why not put it to use and give a run down on it's capabilities.

This was prepared using... LDOS 5.1... Ajedit... Hexspell 2... MX80... on a 48K Video Genie system.

Ken Grey

From Tim Bourne

I'm probably not the first person to have trouble with the printer driver intercepting form feed characters. Since I use an Anadex DP8000 set to print only 62 lines per page, to miss the perforations, I didn't want the driver counting lines for me - I could never remember to reset the number of lines per page. I solve the problem by adding 128 to the value of any printer control character - the driver doesn't recognise them then, but the printer does!

I have APL80 from RAMWARE, bought by mail order from Softside in the States. I've not really pushed it hard yet, but it does seem impressive, and the performance is not at all bad. It appears to use the ROM floating point and other routines. Has anyone else any interest in APL?

Dare I enter the fray on behalf of ZEN? I bought it a few months ago after my Pascal run-time routines (see below) overflowed the capacity of EDTASM, and would have been completely stuck without it. I think the point about macros is that they are only of use if your programs contain repetitive or nearly repetitive code, and this is fairly unlikely unless you are writing whole programs in Assembler. I've been using macros in programming mainframe computers for over 15 years, but have yet to feel the need for them on my TRS-80.

David Washford asked recently about double density on Model I. I have been using an LNDoubler for some months now with complete success (given suitable quality diskettes), driving one double-sided Shugart and two Micropolis drives with Newdos/80 Version 2. I bought the board from Apparat in the States by mail order.

Sylvia Hasler and others have asked about Pascal on TRS-80, and I have been disappointed to see that no-one has suggested the all-British solution - my Pascal system which is marketed by A.J.Harding (Molimerx). This has now been available for about 18 months; the current version has most of the major features of Standard Pascal, the main exceptions being pointers and dynamic storage, records and non-text files. Unlike most Pascal systems on micros, the compiler produces executable Z80 code, and the result is fast as can be seen by the benchmark figures in the May '82 PCW. A disk-based 48K system is required; of course the package runs unchanged on either Model I or Model III. I shall be happy to answer any queries about the system and its capabilities.

It is now well known that on Model I the locations 4049/A hold the address of the highest usable memory, and may be changed to protect printer drivers etc.. After some research I can reveal that the equivalent function for Model III is performed by locations 4411/2 hex. Members may

also be interested to know that a PEEK at location 3000 hex will tell you what model your program is running on: on Model III this is part of the additional ROM and contains a JUMP (C3), while on Model I there is nothing at this address and FF is returned. This should work unless a Model I has had extra RAM or ROM added at this address.

I would be happy to offer help to any of our newer (or older) members in this area, or others by phone (0442-67220) on the above points or any others. I've picked up a lot of useful tips from the newsletter and from speakers at meetings; carry on the good work!

Tim Bourne.

PLUGGING A MODEL I INTO A UNIVAC MAINFRAME!

Using the HDBS data base management system I have provided a client with a large data base containing about 80 items on each of about 2000 buildings around the country. The data base is organised hierarchically on four levels.

In addition to the programs I am writing to access the data base and generate reports according to the client's requirements, a need arose to perform a cluster analysis on some of the variables in the data base. Cluster analysis is a multi-variate statistical technique that uses all the capabilities of a large mainframe. It is quite out of the question on a small system like the Model I.

Having established that SCICON, a large computer bureau only a few minutes from my home, had a suitable program as part of their BATCHSTAT package, I first wrote a program to dump a subset of the data from the data base into a scratch file (sequential ASCII). I then loaded my rather battered Model I into the car and took it round to SCICON. One of their staff helped me set my system up in their client area. We then plugged my serial interface cable into one of the sockets connected to their massive twin-processor Univac 1108 system. Using ST80-III we successfully logged-on, and a few minutes later the scratch file was transferred to the Univac. We then ran the cluster analysis program a couple of times, with different parameters.

Now that I know that the exercise is quite feasible, we shall be going ahead with a full-scale run in a couple of weeks.

The total cost of the two runs (about 8 seconds of CPU time, and a stack of printout about four inches high) was about £120!

Leon Heller

First impressions of CP/M and the Omikron Mapper

I ordered the package described as "The Works" direct from Omikron in California, in response to an advertisement in "80-microcomputing", and some six weeks later it arrived, after I had paid about £50 in VAT and duty. The box contained a PCB, three diskettes (WORDSTAR is to follow) and no less than ten manuals, as follows:

The Omikron Mapper Owner's Manual
An Introduction to CP/M Features and Facilities
CP/M 2 User's Guide
CP/M 2 Interface Guide
CP/M 2 Alteration Guide
CP/M Assembler User's Guide
CP/M Editor (ED) User's Manual
CP/M Dynamic Debugging Tool (DDT) User's Guide
Microsoft Basic-80 (MBASIC)
CBASIC Language Manual

Installation instructions were clear and adequate. The Z-80 chip is removed from the keyboard and inserted in the Mapper board, which is then replaced in the Z-80 socket. Some modifications are suggested, and were necessary in my case, to achieve satisfactory operation. These are to improve the consistency of power supply to the Z-80 and the buffer chip Z75, and consist of replacing C47 and C56 by 4.7uf tantalum capacitors (supplied by Omikron) and adding a jumper lead from pin 11 of the Z-80 socket to pin 16 of Z75 and another from pin 29 of the Z-80 socket to pin 8 of Z75. Pressing RESET then gives you a choice between CP/M and TRS-80 modes; in the latter case the system behaves exactly as it did before.

In CP/M mode all address signals from the Z-80 are modified to be 4K lower, so that in a 48K system you have RAM from 0 to BFFF hex. The screen and other memory-mapped devices have C000 hex added to their addresses, and C000 to C7FF is occupied by a ROM containing part of the CP/M code. This means that data can be loaded in TRS-80 mode and then accessed (but at a different address) in CP/M mode, or vice versa.

CP/M comes adapted for the TRS-80 and Mapper, and with an OPTIONS program to tailor it for your particular configuration (type and number of drives, lower case,

printer, etc.). The resulting CP/M is sufficiently standard for all the standard manuals to apply, subject to some special uses of certain keys. There is sufficient information in the manuals to find your way round CP/M and make any changes which you want, though none should be necessary.

All CP/M systems come with the Editor (ED), an 8080 Assembler (ASM), the debugging aid DDT and the data transfer utility PIP. With this version a number of extra programs are provided: a fast copy program, memory and disk test programs and the options program mentioned above. In addition, a program is provided to transfer ASCII text files from TRS-80 disk format to CP/M.

The documentation is generally adequate, though there is the usual problem that the versions of manuals and disks are not quite in step. CP/M itself is not difficult to use, though of course not up to the standard of say Newdos/80; however the editor is somewhat primitive, designed for a teletype user, and the Assembler uses the old Intel mnemonics and does not support the additional Z-80 instructions. I expect WORDSTAR will solve the first problem, and plan to use ZEN in TRS-80 mode to solve the second, passing the object code across in memory. Alternatively, when funds permit there are of course many suitable products available for CP/M.

MBASIC-80 is similar to TRS-80 Disk BASIC, while CBASIC is widely used for commercial applications; I have verified that both work, but have no further comments on them as yet.

To sum up, this package is so far at least living up to my expectations, with the exception of the late delivery of WORDSTAR. After an hour or so of soldering it worked perfectly, and the documentation is certainly plentiful and generally quite readable. Omikron seem to have done a good job, and I look forward to developing software on my "new" CP/M computer.

Tim Bourne

WARRANTY PROBLEMS

Problems with the interpretation of warranty procedures still seem to be arising, so I telephoned Tandy HQ to see if I could get things clarified.

Apparently, Tandy are sticking to the 90 day warranty. The Sale of Goods Act only obliges them to refund your money, so if you ask for the item to be repaired, and it is out of the 90 day warranty period, you will have to pay for the repair. This should be made clear to you when the item is accepted for repair, and it seems that not all Tandy staff are doing this, in spite of a directive from Tandy HQ. If this was not made clear to you, Tandy will in many cases refund the cost of the repair if you kick up a fuss. It might be best to write to Tandy HQ rather than argue with the store manager.

It would appear that the best thing to do if an item is out of the 90 day warranty period (and it is under a year old) is to insist on a full refund under the Sale of Goods (Implied Terms) Act due to the item not being of merchantable quality, and refuse to have it sent away for repair. Then buy a new item with the refund. This might not make you very popular with the store, but could save you a lot of money. The chap I spoke to at Tandy HQ agreed with this approach.

Has anyone got a better solution?

To be fair to Tandy, they are abiding by the law. And they say that to offer to repair items free of charge up to a year after purchase would result in large price increases. They should make things clearer so that there is no room for misunderstanding.

Leon Heller

Details of some MEMORY Addresses

cassette select latch		14308	37E4
bit 0 = 0 : cassette 1			
1 : cassette 2			
Line printer		14312	37E8
4 = no fault			
5 = device not selected			
6 = out of paper			
7 = busy			
63 = ready			
233 = on but not ready			
255 = off			
DCB	Keyboard	16405	4015
0 = level II	VDU	16413	401D
1 = Normal			
16 = Disc			
64/32 cpl		16445	403D
bit 3 = 0 : 64 cpl or POKE 16445,0			
= 1 : 32 cpl or POKE 16445,8			
TIME$		16449	4041
16449 - seconds		16454	401D
16450 - minutes			
16451 - hours			
16452 - year			
16453 - day			
16454 - month			
Device Type		16540	409C
-1 = tape			
0 = video			
1 = printer			
First Basic program location		16548	40A4
normally 233 - 66 (= 17129)		16549	40A5
= basic program start			
==> change to protect basic program			
Number type		16559	40AF
2 = integer			
3 = string			
4 = single precision			
5 = double precision			

Memory end	16561	40B1
if no protected memory by MEM SIZE = 20479 for 4K = 32767 for 16K = 49151 for 32K = 65535 for 48K	16562	40B2
Last memory location	16598	40D6
= Memory end unless stack is used	16599	40D7
AUTO	16609	40E1
not auto = 0 . all other values = auto.		
Last Line Edited or Entered	16620	40EC
The line number stored here will replace the "stop" in : LIST. EDIT. etc	16621	40ED
Last Addr. Basic program	16633	40F9
Next available address for program i.e. last used address +2 !	16634	40FA
First free mem location	16637	40FD
MEM is difference between S.P. and this value. (or 16598 -99 less MEM = value 16637-38) or further S.P.=Value(16598-99)-(16637-38)	16638	40FE
Type marker of variable	16641	4101
i.e. for A to Z marks as follows :	16666	411A
2 = integers 3 = string 4 = single precision 5 = double precision		
so DEFSTR P will set 16656 to 3 or if 16641 = 2 then all A's = integers		
TRON/TROFF	16667	411B
TROFF = 0 all rest TRON		

K E Y B O A R D

Address (value)	1	2	4	8	16	32	64	128
14337	@	A	B	C	D	E	F	G
14338	H	I	J	K	L	M	N	O
14340	P	Q	R	S	T	U	V	W
14344	X	Y	Z					
14352	0	1	2	3	4	5	6	7
14368	8	9	:	;	,	-	.	/
14400	ENTER	CLEAR	BREAK	UP	DOWN	LEFT	RIGHT	SPACE
14464	SHIFT							

POKE routines.

Keyboard disable

```
POKE 16405,6
POKE 16405,1   Enables
```

Break disable

```
Level II, III, and IV  :  POKE 16396,x
TRS-DOS 2.3            :  POKE 23887,x
NEWDOS 2,1             :  POKE 23462,x

x = 23  : disable    x = 25  : enable
```

List disable

```
POKE 16843, 195
POKE 16864, 114
POKE 16865, 0

to reset    POKE 16863,201
```

Protection Basic program

```
POKE 16548, PEEK(16633)-2 :
POKE 16549, PEEK(16634)
once other program loaded (event repeat) :
POKE16548,233 :POKE16549,66
```

Serge Six

ECOLOGY SIMULATIONS

These programs were originally developed by the Huntingdon Computer Project directed by Dr. Ludwig Braun under a grant from the National Science Foundation at the State University of New York. The programs were modified and graphics output added by Ann Corrigan of Creative Computer Software. The programs come on tape and are suitable for Level II 16k. There are four simulations on the tape, as follows:-

1 POP Population growth models.

2 STERL The Sterile Male - Techinique of insect control.

3 TAG "Tagging and recovery". A method for wildlife population study.

4 BUFFALO Buffalo herd management program.

On loading and selecting a program, a graph is displayed for the particular program chosen showing results which can be obtained and you are then asked if you would like to continue to "play this game". This sounds strange for what is obviously a serious simulation but once you start entering your own figures into the program it really does become a challenge to obtain the results desired. A small booklet is supplied with the program which discusses each model and supplies the necessary information required. For example, in the population study, Reproduction Rates are given for the fruit fly, elephants, bacteria, and humans. The STERL program allows you to investigate the effectiveness of two different methods of Pest Control. (1) The use of pesticides and (2) The release of sterile males. In view of the environmental damage of pesticides, the second method could be much more attractive. The program also allows an investigation into the use of both methods of control in combination.

TAG is a program for wildlife population study and gives as an example, the tagging of a number of fish in a pond and the taking of samples at various sites on the pond to determine the total population of fish in the pond. All very interesting.

BUFFALO. A short history of the North American Bison is given and the program simulates the yearly cycle of the population growth and decline, allowing you to investigate the the effects of different herd management. Simulations such as BUFFALO allow you to explore "what if" questions and experiment with approaches that might be disastrous in real life.

These programs and the accompanying documentation are written for self teaching or classroom use and include background material, sample exercises and study guides plus interesting graphic displays. As mentioned above, they can be treated if desired, solely as a number of really absorbing games.

Laurie King.
Southern TRS-80 Club

TRS-80 MEMORY ADDRESSES

Decimal Address	Function	Hexadecimal Address
00000 - 12287	Level II Basic	0000 - 2FFF
12288 - 15359	Memory-mapped I/O	3000 - 3BFF
15360 - 16383	Video Memory	3C00 - 3FFF
16384 - 16404	Basic Vectors	4000 - 4014
16405 - 16412	Keyboard DCB	4015 - 401C
16413 - 16420	Video DCB	401D - 4024
16421 - 16428	Printer DCB	4025 - 402C
16429 - 16869	RESERVED	402D - 41EB
16870 - 17128	I/O Buffer	41EC - 42E8
17129	Start Basic Program	42E9
20479	END 4K System	4FFF
32767	16K	7FFF
49151	32K	BFFF
65535	48K	FFFF
12287 - 14301	Unused	3000 - 37DD
14302	Communication Status	37DE
14303	Communication Data	37DF
14304	Interrupt Latch	37E0
14305	Disc Drive select Latch	37E1
14308	Casette select Latch	37E4
14312	Line Printer address	37E8
14316	Disc Controller CMD/Status	37EC
14317	Track	37ED
14318	Sector	37EE
14319	Data	37EF
14336 - 14591	Keyboard addressing (see table)	3800 - 38FF
16405	Keyboard DCB Type (disable)	4015
16406 - 16407	Driver (LSB/MSB)	4016 - 4017
16408 - 16410	0	4018 - 401A
16411	'K' (Character 75)	401B
16412	'I' (" 73)	401C
16413	Display DCB Type	401D
16414 - 16415	Driver	401E - 401F
16416 - 16417	Cursor position	4020 - 4021
16418	Cursor Character	4022
16419	'D' (Character 68)	4023
16420	'O' (" 79)	4024
16421	Printer DCB Type	4025
16422 - 16423	Driver	4026 - 4027
16424	Lines/Pages	4028
16425	Line Counter	4029
16426	0	402A
16427	'P' (Character 80)	402B
16428	'R' (" 82)	402C
16429	Normal return to DOS	402D
16432	Error return to DOS	4030
16445	64/32 cpl	403D
16448	25 msec Heartbeat	4040

16449 - 16454	TIME$	4041 - 4046
16455 - 16456	Lowest usable Mem	4047 - 4048
16464	Disc interrupt vector	4050
16466	Communication interrupt vector	4052
16478	25 msec interrupt vector	405E
16526 -16527	USR(X) start	408E - 408F
16531	INP	4093
16534	OUT	4096
16537	INKEY$ storage	4099
16538	RESUME	409A
16539	Printer carriage position	409B
16450	Device type	409C
16541	Print £	409D
16544	Start String space	40A0
16548 - 16549	Basic program start (1st location)	40A4 - 40A5
16550	TAB cursor position	40A6
16551	INPUT buffer	40A7
16554 - 16556	RND seed	40AA - 40AC
16559	number type	40AF
16561 - 16562	Memory end (including protection)	40B1 - 40B2
16563 - 16564	String work area Addr.	40B3 - 40B4
16565 - 16597	String work area	40B5 - 40D5
16598 - 16599	Last memory location (MEM SIZE)	40D6 - 40D7
16605	DIM	40DC
16606	PRINT USING	40DE
16607 - 16608	Entry point Machine Code (Tape)	40DF - 40E0
16609	AUTO flag	40E1
16610 - 16611	line number (start)	40E2 - 40E3
16612 - 16613	increment	40E4 - 40E5
16614 - 16615	Encode statement Addr.	40E6 - 40E7
16616 - 16617	S. P. Addr.	40E8 - 40E9
16618 - 16619	RESUME	40EA - 40EB
16620 - 16621	Last line Edited or Entered	40EC - 40ED
16622 - 16623	RESUME	40EE - 40EF
16624 - 16625	location of error routine (i.e. on error goto....)	40F0 - 40F1
16629 - 16630	Last line executed	40F5 - 40F6
16631 - 16632	Addr. for CONT	40F7 - 40F8
16633 - 16634	Last Addr. basic program	40F9 - 40FA
16635 - 16636	Location of 1st array variable	40FB - 40FC
16637 - 16638	1st free Mem location	40FD - 40FE
16639 - 16640	next program location executed	40FF - 4100
16641 - 16666	Type marker of variables	4101 - 411A
16667	TRON/TROFF	411B
16669 - 16676	Arith table	411D - 4124
16679 - 16686	Arithex table	4127 - 412E
16688	Line number area pointer	4130
16722 - 16805	Basic instruction code	4152 - 41A5
16722 - 16724	CVI	4152 - 4154
16725 - 16727	FN	4155 - 4157
16728 - 16730	CVS	4158 - 415A
16731 - 16733	DEF	415B - 415D
16734 - 16736	CVD	415E - 4160
16737 - 16739	EOF	4161 - 4163
16740 - 16742	LOC	4164 - 4166

16743 - 16745	LOF	41	- 4169
16746 - 16748	MKI$	416A	- 416C
16749 - 16751	MKS$	416D	- 416F
16752 - 16754	MFD$	4170	- 4172
16755 - 16757	CMD	4173	- 4175
16758 - 16760	TIME$	4176	- 4178
16761 - 16763	OPEN	4179	- 417B
16764 - 16766	FIELD	417C	- 417E
16767 - 16769	GET	417F	- 4181
16770 - 16772	PUT	4182	- 4184
16773 - 16775	CLOSE	4185	- 4187
16776 - 16778	LOAD	4188	- 418A
16779 - 16781	MERGE	418B	- 418D
16782 - 16784	NAME	418E	- 4190
16785 - 16787	KILL	4191	- 4193
16788 - 16790	&	4194	- 4196
16791 - 16793	LSET	4197	- 4199
16794 - 16796	RSET	419A	- 419C
16797 - 16799	INSTR	419D	- 419F
16800 - 16802	SAVE	41A0	- 41A2
16803 - 16805	LINE	41A3	- 41A5
17032 - 17033	System stack addr.	4288	- 4289
17128	Always ZERO	42E8	
17129	Start Basic Program	42E9	

Serge Six

REMOVING TRAILING SPACES FROM STRINGS

I am currently doing a great deal of work with the Micro Data Base Systems Inc. MDBS package. About the only problem I have found with this excellent piece of software is in the retrieval of strings; unless they completely fill the field they are retrieved with trailing spaces which can cause problems, for instance, when printing out complete names when the surname, christian name and title have been stored as separate items.

The following function strips off the trailing spaces:-

```
DEFFNS$(A$)=LEFT$(A$+' ',INSTR(A$+' ',' '))
```

The addition of the extra space is to ensure that the function behaves properly when there are no trailing spaces.

Incidentally, the defined function can be extremely useful, although very few programmers employ it. Provided that the function can be defined in one line of code it can save quite a lot of typing, and make your programs somewhat more readable.

Leon Heller

DOCLIST/BAS

This is a utility program that is given in the book 'FASTER AND BETTER BASIC' and it's purpose is to give a print-out of a BASIC program in a manner which makes it much more readable and easier to understand the logic of the program. Both print-out and saving to disk as a sequential file for use with a word processor are optional. On running the program, the name of the program to be listed is requested and having checked that the program requested is indeed a BASIC program, which must be normal compressed form, not ASCII, you are then presented with several options:

<R> Line number range. <D> Output to disk
<W> Special page width <H> Special page heading.
<S> Stop after each page <P> NO lineprinter O/P.

Just type in the letters selected and <ENTER>. The default page width is 80 characters. <R> allows just a portion of a program to be so listed while <H> asks for the heading which will be printed at the top of every page. <P> turns OFF the printer output.

An example follows which gives part of an original program and then what it would look like after being processed by DOCLIST. It should be noted that the underlining separating lines 54/55 shows that logic never directly falls from 54 to 55. The dotted lines in the IF-THEN statement of line 52 show possible breaks in logic but since there is not a solid line before line 53, there could be some conditions in which logic will fall from through from line 52 to line 53.

```
51 X=5712:Y=0
52C=PEEK(X):IFC>127THENPRINT@544,RW$(Y),:Y=Y+1:IFY>123THEN55ELSEW$(Y)=C
HR$(CANDNOT128):GOTO54
53 RW$(Y)=RW$(Y)+CHR$(C)
54 X=X+1:GOTO52
55 RW$(16)=RW$(16)+""
```

```
51 X = 5712:
   Y = 0
52 C = PEEK (X):
   IF   C > 127
   THEN PRINT @544,RW$(Y),:
        Y = Y + 1:
        IF   Y > 123
        THEN 55: ....................................
        ELSE W$(Y) = CHR$ (C AND NOT 128):
             GOTO 54.................................
53 RW$(Y) = RW$(Y) + CHR$ (C)
54 X = X + 1:
   GOTO 52
-------------------------------------------------------------
55 RW$(16) = RW$(16) + ""
```

The one snag with this program is the time it takes to check through the reserved words etc. so if you have a long program to list, I suggest you set it running, pour out a glass of your favourite tipple and settle back to study the form on the Sports page (or would it be Page 3 ?)

L.W. King
Southern TRS-80 Group

SCRIPSIT PATCH FOR NEWDOS

The Tandy Scripsit word processing program is written to work on TRSDOS, this can present problems when you want to use your own favorite disk operating system

The problem arises because Scripsit makes calls to the disk operating system and uses verious parts of memory that on another disk system would not be in that particular area of memory.

The LDOS people have already thought of this problem and have supplied patches with the disk system that can be applied to Scripsit, if fact with LDOS 5.1 there are two patches to select from, both giving different extras.

Acorn Software have also thought of the short commings in the original Scripsit and have written patches to the program to allow some of the features available on different printers to be used by Scripsit, but they have not provided patches for working on other disk operating systems.

The NEWDOS+ disk operating system is a good system to use, providing much more than TRSDOS and was written quite a long time ago now, because it has been in exsistance a long time there are a lot of Newdos users around, the Scripsit program will not work correctly with this system and as at the present time it has the largest number of users (although LDOS must be catching up fast) I have a list of the patches to make Scripsit work with Newdos.

Using a ZAP program, either Superzap as supplied with the Newdos operating system or Prozap, a far superior ZAP program now available to work on double density and Model III, using the R command in Prozap or the DFS command in Superzap 3.Ø, once in Superzap DFS command you will be asked for the filename, don't forget to type the extension, the file will then be open an available to update, Superzap will then ask for the relative sector in the file, Prozap will give the same sort of prompts, you then modify the file as given below.

Scripsit Patch for Newdos

Relative Sector ØB byte 75 alter
from
47 ØØ CD 6E 7A 47 TO 47 ØØ 3A B9 7C 4F
Relative Sector ØB byte FB alter
from
B7 C4 EF 5D 79 TO B7 32 B6 7C C4
Relative Sector ØC byte ØØ alter
from
32 B9 7C 11 TO EF 5D ØØ 11
Relative Sector ØØ byte 63 alter
from
7C 21 FF ØØ 25 7E 2F 77 AE 2Ø F9 22
TO
7C 2A 49 4Ø ØØ ØØ ØØ ØØ ØØ ØØ 22

Now your Scripsit will work with the Newdos disk system

Bob Sparling,
Southern TRS-80 Club

Brain Twister Number Problem - Page 40 of March 1982 Newsletter

```
 50  FOR J% = 2 TO 8 STEP 2
 60    FOR K% = 2 TO 8 STEP 2
 70      A% = 10 * J% + K%
 80      FOR L% = 2 TO 8 STEP 2
 90        FOR M% = 1 TO 9 STEP 2
100          B% = 10 * L% + M%
110          C% = A% * B%
120          C$ = STR$ (C%):X = 1:LL%= 4: GOSUB 200
130          IF F$ = "Y" THEN D% = A% / 10: E% = D% * B%: C$ = STR$ (E%):
X% = 0: LL% = 3: GOSUB 200
140          IF F$ = "Y" THEN F% = C% - 10 * E%: C$ = STR$ (F%): X%= 1:
LL% = 2: GOSUB 200
150          IF F$ = "Y" PRINT A%,B%,C%
160          NEXT M%
170          NEXT L%
180      NEXT K%
190    NEXT J%
195    STOP
200    FOR N% = 2 TO LL%+1
210    F$ = "N"
220    FOR P% = 0 TO 8 STEP 2
230    IF VAL (MID$ (C$,N%,1) = P% + X% THEN F$ = "Y"
240    NEXT P%
250    IF F$ = "N" RETURN
260    X% = 1 - X%
270    NEXT N%
280    RETURN
```

Running time 2½ minutes

Solution A% = 62 B% = 49 C% = 3038

Robin Norman

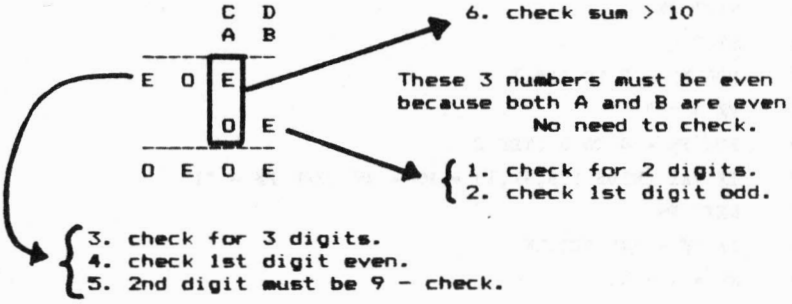
BRAIN TWISTER SOLUTION

Re Puzzle submitted by Rod Bullard, Southern TRS-80 Group

The puzzle (in User's mag. March '82) was a long division with certain digits specified as ODD or EVEN

```
          A B
C D ) O E O E        A even, B even
    E O E            C even, D odd
      O E
      O E
      - -
```

At first it looks as though 6 variables are needed giving a large number of permutations. However if the problem is tackled in reverse i.e. treated as a multiplication then only 4 variables are needed and everything becomes much simpler.



Note: None of the four variables A, B, C, or D can be zero.

The following basic programme finds and displays a solution in about 7 seconds and continues for about another 6 seconds in order to show that the solution is unique. A total time of just under 13 seconds.

```
10 DEFINT A-Z
20 CLS
30 FOR A = 2 TO 8 STEP 2
40 FOR B = 2 TO 8 STEP 2
50 FOR C = 2 TO 8 STEP 2
60 FOR D = 1 TO 9 STEP 2
70 E =10*C+D:F = B*E/10:IF F>9 THEN 140
80 IF F = 2*INT(F/2) THEN 140
90 G = E*A:IF G<100 THEN 140
100 H = G/100:IF H > 2*INT(H/2) THEN 140
110 I = G - 100*H:IF I <90 THEN 140
120 J = I-90:IF J + F <10 THEN 140
130 GOSUB 160
140 NEXTD:NEXTC:NEXTB:NEXTA
150 PRINT@832,"NO OTHER SOLUTION":END
160 K=10*A+B
170 PRINT@288,K
180 PRINT@349,"--------"
190 PRINT@407,E;" ) ";E*K
200 PRINT@478,A*E
210 PRINT@544,B*E
220 PRINT@608,B*E
230 PRINT@673,"--"
240 RETURN
```

P.J. Chapman

CLARIFICATION - PAGES 11 & 12

Depending on which way up your copy of the March HOT ! LXXX was xeroxed, you will have lost a little of the detail at the top or bottom of the page. The other pages are also affected of course, but the content is not so critical. Herewith the details of the missing program lines:

Top of 11 - column 2

```
1 CLEAR500:ZZ$=STRING$(11,0):AD=1+VARPTR(ZZ$):POKE16526,PEE
K(AD):POKE16527,PEEK(AD+1):AD=PEEK(AD)+PEEK(AD+1)*256:AD=AD)
32767*65536+AD:FORI=ADTOAD+10:READA:POKEI,A:NEXT:DATA205,127
,10,205,192,27,35,205,55,35,201
```

Top of 12 - Column 1

```
270 IFASC(YY$)>91THENNN=ASC(YY$)-32ELSEIFASC(YY$)<91THENNN=
ASC(YY$)+32
280 YY$=CHR$(NN)
300 II$=II$+YY$:PRINT@65,II$:GOTO220
```

Top of 12 - Column 2

```
440 IFASC(ZZ$)>64ANDASC(ZZ$)<91THENZZ$=CHR$(191)
450 WW$=WW$+ZZ$
460 NEXTI
```

TRS-80 Educational Users Group
Newsletter Six

3rd May 1982

It is now a year since a few TRS-80 users met in Exeter and decided to form an Educational Users Group. Well we have gone a long way since then although there is certainly much more to be done to spread the word about our machine and to help each other.
The Educational Users Group continues to grow and now has contact with some 230 members accross the U.K. which compared with some six months ago is a rapid increase in those we are in touch with, athough it is some way short of the some 1000 or so schools that actually have TRS-80 in use. It is surely a great help to everyone to have some form of contact with other users accross the country and that is why the EUG was formed back in April 1981.

SOFTWARE DIRECTORY TWO AND THREE.

Since we last wrote in the National Newsletter our Directory Two was printed and distributed. This has led to some very good public domain software becoming available accross the lenght and breath of the country. Directory Two was far better produced than the first, it was not the purple peril type sheets that all teacher love to hate, it was properly printed and readable all the way through. Now we are about to launch DIRECTORY THREE. This will be even better. As we intend to try to give more details about each program listed. If you want an early copy of DIRECTORY THREE contact Dave Futcher without delay.

PRINT TO LPRINT

Some members will remember the query that we raised about changing PRINT to LPRINT some of the POKE that were being used were not proving to be that reliable all of the time. Thanks to Jim Bartholomew from RAF Gutersloh we seem to have solved all our problems. Jim has drawn our attention to page 215 of William Barden's book Programming Techniques for Level II Basic where there is a routine to solve all our difficulties. Here is the routine

```
5000 A=PEEK(16414)
5100 B=PEEK(16415)
5200 C=PEEK(16422)
5300 D=PEEK(16423)
5400 POKE 16422,A: POKE 16423,B
5500 POKE 16414,C: POKE 16415,D
```

This routine swaps the driver addresses of the video display DCB and the lineprinter DCB, so that any LIST or PRINT action will go to the system lineprinter rather thatn the display.

USING AND DEVELOPING A SPEAKEASY.

Tony Hughes on of the original members of the EUG from Bristol has been developing a Speakeasy machine for use in school for the last six months or so. For the EUG newsletter he has written a short piece.

In July 1981 I bought a wideband Speakeasy from Intelligent Artifacts. It cost me just over £100. I took it to Microware Computing in Bristol to get a cable made up. They read the rather sketchy details in the manual and said that they would have to build an interface, which would cost me £50.
Then the machine would not work so they and I wrote various letters to the suppliers. Eventually, just after Christmas they got the information and decided that the machine must be one of a faulty batch, so it was replaced freely, and the new one worked.
You produce speech by a rather circuitous route. First you look up the phonemes in their word list, then you look up a table to find which numbers represents those phonemes. Finally the numbers (in decimals form) have to be output to the port (eg. OUT 70,63), separated by a short timing loop.
Microware wrote me a program that looks up the numbers for the phonemes I type in, then outputs them. This makes it quite easy to experiment with different sounds till I get the one I want, then I can note down the numbers to put in my own program. The program from Microware also enables me to build up whole sentences, and to save them on to tape or disc for later recall.
I can get quite clear words with a slight American accent. They can be typed in as string arrays or read from data lines.
I can supply a listing of two simple routines to do this and I have done one program, a version of Spelling Bee, with speech. If anyone is interested I will be glad to help. I think there can be far reaching uses for a gadget like this.

You can contact Tony at The Homestead, Says Lane, LANGFORD, Avon.

UPDATES TO PROGRAMS IN THE EUG LIBRARY.

Tom Loran who wrote ORGANAL a Chemistry progarm in the LIbrary has realised that the version in the library only works in lower case. To remedy this you should change 835 to

```
835 IF F<>G AND F+32<>G THEN GO TO 900
```

Ken Robinson who has submitted a number of programs to the library over the last year has suggested an alteration to improve his Arithmetic Practise program. Ken has not been pleased with the Tandy 2 and by some alteration to his program has attempted to alter the Tandy 2 to something more exceptable in programs for younger children. Try these lines in Ken's original program

```
1200 FOR T=0TO10
1210 SET(X+T,Y)
1230 SET(X+T,Y+10)
1240 IFT>5THEN1260
1250 SET(X+10,Y+T)
1260 IFT<5THEN1280
1270 SET(X-1+2*(10-T),Y+T)
1275 SET(X+2*(10-T),Y+T)
1280 NEXTT
1290 RETURN
1300 FORT=0TO10
```

USERS IN COLLEGES OF EDUCATION.

The EUG now has a number of members from Colleges of Further Education and Technical Colleges, plus a few Colleges of Technology and Colleges of Higher Education. The time has come to strenghten the ammount of software that our library holds in this area of interest. If members have developed any material for this area of education I would be grateful to here of their work.

SUPPORT FOR DISC'S

The EUG will shortly be able to offer to send out material on disc as well as cassette. How long it will be, will depend on how long it will take to put the present 350 programs on to disc.
While that is being done the EUG library will be very pleased to receive it programs on disc.

NETWORKED SYSTEMS.

TRS-80 Computer classrooms are being installed in increasing numbers, and it would be helpful to maintain an up to date register of where these classrooms are and the use that schools and colleges are putting them to. IF you are using a Networked System do let me know.

SCHOOL ADMINISTRATIVE PACKAGES

Ian Bruce of Stockport has recently added two interesting programs to the library on enables you to use the TRS-80 to record and display the results of events at a school sports. The other program enables league tables to be

produced. Many of our members are interested in the administrative use of their machines and the library has a range of software to order scores, arrange option groups and produce lables for letters home. I personally long for the program that will organize my Form 7 return. Any offers?

RECENT SOFTWARE RECEIVED

In recent months the number of Secondary Science programs that have found their way into the library have rapidly increased. A regular contributor here has been Ed Le Quesne from Victoria College in Jersey. His work is all from the Physics area and recent programs submitted include

Coins	Quanta
Fourier	Wavesum
Oscillator	Orbits

Tony Hughes from Bristol has been attempting to build up the librarys range of Primary language material and has submitted

Guess the moving phrase
Guess the moving word and Wordsplash

Two excellent conversions of the NEWCOPS RM 380Z program Cloze Proceedure have been received and added to our library. These were provided by Phil Quartermain of Crawley and Ken Robinson of Milton Keynes.

As usual our members in Walsall have produced a whole run of exciting Primary programs. These include material on fractions, reaction testers, number recognition, stories with animated graphics, and an excellent B-D discrimination.

If you have not as yet made contact with the Educational Users Group do so without delay.
CONTACT Dave Futcher at Beaconsfield First and Middle School, Southall, Middx. 01-574-3506

DOSPLUS 3.3D AND THE GENIE

Last month I described the traumatic experiences I had fitting the double density adaptor to my Video Genie expansion box and I said that I would give some details on using Dosplus with the Genie.

As Genie owners know, there are some non-compatibility problems when you use TRS80 software that uses (a) the cassette port (b) the printer port (c) the RS232 interface. The cassette problem can be overcome with either mods to the software or relatively easy mods to the hardware (the new Genie I has built in sound box, so no problem). The differences in the way the printer is addressed can cause serious problems with some software, to the point where the printer will not work at all. Dosplus does not like the Genie printer port. The RS232 is probably the most difficult of the incompatibilities to resolve. Neither Dosplus or Monitor 4 like the Genie RS232 (does anything ?)

Dosplus 3.3 (there is now a 3.4 version) is a relative newcomer onto the DOS scene and offers an alternative to Newdos80 V2.0 and Ldos V5.1 for double density operation. One of it's main attractions is the price, being somewhat lower than the other two DOS's, it's claimed operating speed and the fact it will operate D-D in drive zero as the system disk.

One of the features of Dosplus is it's ability to re-route the devices ie: you can direct the output destined for the printer to the screen and vice-versa. To do this Dosplus has it's own self contained routines and it addresses the printer to 37E8H, ok if you are using a TRS80 but no go for the Genie. To modify the routine for the Genie alter..... Track 0FH Sector 0BH Bytes 59H 5AH 5BH to read D3 FD 00 Bytes 6DH 6EH 6FH to read DB FD 00 . I have experienced no difficulty with the printer using this mod.

Dosplus has its own distinctive cursor and if you either don't like it or you just fancy a change then the cursor character can be found at Track 0FH Sector 0AH Byte CEH.

One of the more difficult routines to unravel is the RS232 and as yet I have not had time to do the modifications for the Genie. If you wish to have a go yourself you will find the RS232 in/out routines on Track 14H Sectors 01H and 02H. If you beat me to the punch with this one, pass the gen along I would be greatful for the rest from peering at the sector dump on the vdu.

Dos plus does not believe Newdos80 40 track disks really do have 40 tracks and persists in telling you that there are 35 tracks with correspondingly less space than really exists. To overcome this one, modify your Newdos disk Track 11H Sector 00H Byte CCH to 05H. This will have no adverse effect on Newdos but will keep Dosplus's Free and DIR happy. It will also do the same for Ldos 5.1.

Compatibility of disks between systems is somewhat of a headache and at the moment I can read Ldos D-D disks, Newdos S-D disks, Trsdos S-D disks and of course Dosplus disks with Dosplus. Ldos will not read Dosplus D-D disks but will read everything else. As my Newdos80 is version 1 it will only read S-D. My advice is, choose a system and stick to it exclusively otherwise you will have a collection of disks than can be read by this and not by that etc.

I had no intention of writing a review of Dosplus but I have set out to show the problems that can arise due to system incompatibilities and my feeble attempts to overcome them. If I had to choose from the systems that are available then I think I would go for Newdos 80 version 2, mainly because I think that version 1 is the best single density system there is, offering far more than it's competitors. I am pleased that I have had the opportunity to use an alternative DOS and I now know which system suits me the best.

I would be pleased to hear from anyone else who uses Dosplus 3.3 and if anyone has experience of V 3.4 then perhaps they would care to put print-head to paper and give comparisons with the earlier version.

KEN GREY

ACC USERS GROUPS MEETING AT THE COMPUTER FAIR

In my capacity of Chairman of the Group, I attended a meeting organised by the Amateur Computer Club during the Computer Fair held recently at Earls Court.

Peter Whittle of the ACC chaired the meeting, which was attended by representatives from the following groups:-

Apple, Sinclair, Tangerine, PET, TRS-80.

Proceedings commenced with the various delegates describing the organisation and financial arrangements of their groups. It was decided that the more affluent groups would make a nominal contribution to the ACC for the organisation of stand facilities at shows like the Computer Fair and the PCW Show later in the year. The stands are donated by the organisers to the ACC, but they have to arrange delivery of tables etc., so I think we should contribute something.

I made a suggestion that the other groups might care to share premises with us at some of our workshops, but none of them seemed all that keen, perhaps because they have never considered organising such functions for themselves; at any rate on a regional basis.

Leon Heller

LONDON COMPUTER FAIR

Thanks to the Amateur Computer Club, we had a stand at the London Computer Fair held recently at Earls Court. The show itself was a bit of a disappointment - none of the major manufacturers were there (apart from Sinclair), and, the new Sinclair Spectrum apart, there was nothing really of interest to be seen. We didn't get all that many new members, but it was nice to see to meet some of you on the stand. Our thanks to John Carne and Colin Ashford for manning the stand on the Sunday, when Brian and I went off to a workshop somewhere or other.

We shall be at the PCW Show at the Barbican in September. Hopefully it will be a lot more interesting.

Leon Heller

Amateur Radio and the Computer

If you read my tongue-in-cheek article regarding my introduction into computers, you would have no doubt noticed my reference to my other hobby of Amateur Radio. I gather from information I have recieved that I am not the only one of the amateur fraternity among the TRS80 users out there.
The two hobbies go together very well indeed and I find that computers are one of the main topics of conversation on the amateur radio bands. I have held my amateur license for 15 years and I have seen many changes in the hobby in that time. One aspect has changed rather dramatically with the coming of the home computer, that being the use of RTTY (Radio Tele-type) on the amateur bands. Some years ago 99% of RTTY operators used machines such as the Creed tele-type and the 'shack' used to be full of clankety-clank noises and the smell of oil. With so few wives tolerating this intrusion into the family home, the RTTY operator was either a bachelor or the shack was located at the bottom of a very long garden. Computers have changed all that and with a suitable program and hardware (a terminal unit with computer interface) RTTY has at last become 'respectable'. There are 'mail box' computer controlled RTTY stations where you can leave messages for your friends or retrieve data on where the best DX (rare far-away stations) can be found or even get up to date information on the amateur radio satellites. Nothing has made so much impact on RTTY as the computer.
Amateur Radio licensing authorities world wide have woken up to the computer age and the amateur is now permitted to transmit data between stations. The most popular method is 110 baud ASCII and even though at the moment this mode is not permitted in the UK on the HF bands, the day is not far away when computer to computer machine independent contacts will be as common-place as RTTY is today. With an RS232 interface, terminal unit and a relatively simple program 110 baud ASCII can be 'on the air' at the drop of a hat.
If RTTY or ASCII is not your thing then how about TRS80 to TRS80 (or Video Genie) without interface ? A number of local amateurs and myself regularly exchange data via 2 meter FM using nothing more than the 500 baud I/P-O/P of the TRS80. The only interface required is a 1K pot across the computer 'out' lead with the slider to the mic socket and providing you keep the level down to maintain the correct bandwidth for FM, you are 'on the air' with your computer. The data in comprises nothing more than the cassette 'in' lead being plugged into the reciever speaker socket. Some experimentation with levels will be necessary. Using 500 baud has it's disadvantages, firstly at that speed you have to have a good signal from the transmitting station otherwise you will get data errors, secondly to remain within the allowable bandwidth for FM the level of audio for 500 baud has to be fairly low thereby adding one more problem at the recieve end. But even with these problems you can achieve a great deal of success, our distance record locally is 70 KM for a program of about 3K and there were no errors recieved.
Computers and Amateur Radio interface extremely well together and in the years to come the computer will be as common place in the amateur's shack as the morse key is today (I still use my morse key even though I have written a program for the computer).

73 (All the best)

Ken. Grey
G3WNR

NUMBER OF DAYS BETWEEN TWO DATES

These routines should be self-explanatory.

```
1499 'DATE TO NO.OF DAYS CONVERSION ROUTINE'
1500 D$=DTE$
1503 D=VAL(LEFT$(D$,2)):M=VAL(MID$(D$,3,2)):Y=VAL(RIGHT$(D$,2))
1505 DTE=INT((Y-73-(M)2))*365.25)+INT((M-3-12*(M(3))*30.6+.4)+D-305
1507 RETURN
1527 '
1528 '
1529 'NO.OF DAYS TO DATE CONVERSION ROUTINE'
1530 DAYS=DTE
1540 D=DAYS+26725:DAYS=0:'STARTS 30.12.72
1545 Y=INT((D-122.1)/365.25)
1550 M=INT((D-INT(365.25*Y))/30.6001)
1555 D=D-INT(365.25*Y)-INT(30.6001*M)
1560 M=M+12*(M)=14)-1
1565 Y=Y-(M(=2)
1570 D$=STR$(D):M$=STR$(M):Y$=STR$(Y)
1575 A=LEN(D$):D$=RIGHT$(D$,A-1)
1580 A=LEN(M$):M$=RIGHT$(M$,A-1)
1585 Y$=RIGHT$(Y$,2)
1590 DATE$=D$+"."+M$+"."+Y$
1595 RETURN
```

Charles Davies.

(* These routines were sent to me by Charles. They have been adapted from a couple of Hewlett-Packard routines. LFH *)

80-NET NEWS

By the time you read this, 80-NET, our computerised bulletin board system, will be operational again from Steve Bird's abode in Kidlington, near Oxford. The system will have its own telephone, and should therefore be available 24 hours a day. The number will be (086 75) 77305.

We are sorry about the delay in setting things up, but the 'phone took quite a time to get installed, and then Steve had to go abroad for a few weeks.

Please give it a try sometime, if you have communications facilities. The Group now has a modem and an RS-232 board which members can borrow, so it won't cost you much to get involved with this fascinating aspect of personal computing.

Leon Heller

MISOSYS DISK*MOD

A Patch to Edtasm (V1.1 & 1.2) for Disk Operation

If you have a DOS other than Newdos and if you intend to do some assembly language programming then perhaps you are looking for a disk based editor assembler. If, like most people, you have up - graded from cassette to disk then you may have a tape version of the Tandy Editor / Assembler which is sitting on the shelf doing nothing. Well if you have one of our plastic friends (a credit card) and it can survive 23 dollars then an answer is to hand in the form of Diskmod from Misosys.

I sent off to Misosys for the program and 14 days later the cassette and manual arrived by first class airmail. The program has to be transferred from tape to disk and I used Ldos's Cmdfile to do this. There are two versions of the program on the tape, one for Edtasm version 1.1, the other for version 1.2. I used the latter to move my V1.2 onto Ldos. Once the program is resident on disk and called from Dos you are prompted load your Edtasm cassette. When Edtasm has been loaded it is immediately modified by Diskmod and you are then prompted to ready a system disk in drive zero. The program EDTASM/CMD is then written to the disk. A patch is given for using the disk directory with VTOS, even though the manual does not say so it also enables DIR with LDOS.

What do you get with this version of Edtasm ? Well apart from disk in - out and the retention of the tape in - out routines Diskmod gives you the following.....

Move blocks of text by line number reference.
Change a string to any other string throughout the text buffer.
Print the number of free and in use bytes in the text buffer.
Print a disk directory.
Kill a disk file.
Clear key operates as normal.
Paging of printer output.
Sorted symbol table.
Optional vector from 'B' command.
Scroll up - down gives a full 15 lines.
Protect top memory.
Re - enter after a re-boot with text buffer intact.
Improved 'DFM' assembly output.
Change a sequence of characters throughout the text buffer.
Display a text file without disturbing the text buffer contents.
Provide file in - out default extensions.
Model III compatibility (including 1500 baud cassette)

The documentation provided is excellent and Misosys provide a technical section for the curious among us. The creation of the new Edtasm was very straight forward and the operation of the program is very good. The new commands take only minutes to learn and the overall result is a worthwhile program for very little outlay.

You can obtain Diskmod from.

MISOSYS
5904 EDGEHILL DRIVE
ALEXANDRIA
VIRGINIA 22303
U.S.A.

Quote the computer model number, your credit card number and expiry date and specify delivery by first class air mail. The program costs $20 (twenty dollars) and the air mail should cost no more than $3. I hope that you are equally as impressed with the program as I am.

Ken Grey

LOCAL GROUPS

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WHO NEEDS AN EXPENSIVE/DIFFICULT TO IMPLEMENT DATABASE MANAGEMENT PROGRAM TO HANDLE A SMALL VOLUME OF DATA?

For anybody who is interested, the group's membership details are on disk. Using SRTV and SMSK they can be sorted or searched.
During May members around Thame and in Kent were extracted in answer to particular requests.

SMSK/SRTV work on disk and cassette and are found in infinite basic.
SMSK will allow the user to search for:-

Kent
Smiths in Kent
SMI in Kent
SM19 in Lon

The outputs can read into an array for further processing.

SRTV will sort a mixture of Alpha/Numeric or Alphanumeric element e.g. CHQ0001, CASH0002, 0331JV01, 5555ABC and similar types. It is used from basic and the type of sort is defined in basic with Alpha & Numeric in ascending or descending order. There can be a principal sort, followed by secondary sorts e.g. first by county then by name. Once sorted the result can be saved to disk and merged with similar files for building /creating larger than 48K files.

Brian Pain

Parallel/Serial Conversion

A serial data communications channel is rather like a two-lane tunnel through a mountain which links two sections of 16-lane highway. At each end, the traffic must funnel from eight lanes into one lane as it enters and fan out again as it emerges at the other end. This process will limit the speed of the traffic in the tunnel since as many as eight lanes of traffic must narrow down to one. The alternative is a 16-lane tunnel, which would of course be prohibitively expensive. Similarly, sixteen parallel wires (lanes) would be costly between two computers (or other devices) over long distances, so a two wire serial method was devised to make cheap long distnce data communication possible.

Before looking into the electrical device which makes this possible, we must stretch the tunnel example into a rather unreal scenario where all cars move in rows on the eight lane highway in unevenly spaced clusters. As each cluster approaches he tunnel entrance, it must line up in single file. The car in the far right lane leads the way, with each successive car to he left queuing up behind the car which had been to its right. In the tunnel all cars travel at the same speed, and the spacing between cars in every cluster is the same. As the cars emerge from the tunnel, the first in line moves over to the far right lane; succeeding cars line up to the left of their predeceors and move on together down the eight-lane highway. Naturallyu, such a rigidly structured traffic pattern would be impossible to choreograph with cars, but it is essential for successful serial data transmission.

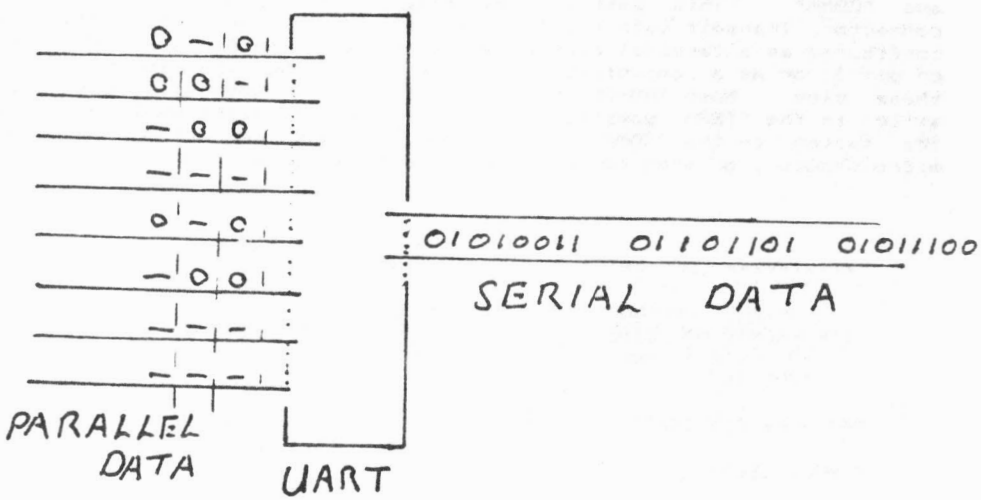


FIG 1. PARALLEL TO SERIAL

The electrical device which controls each "tunnel entrance" it actually a very capable "traffic cop". This device often called a Universal Asynchronous Receiver/Transmitter -- UART (Pronounced YOU-art) for short. It is also called an Asynchronour Communications Interface Adapter,or ACIA. More recent versions are the Universal Synchronous/Asynchronous Receiver/Transmitters (USARTs), the Protocol Controllers, and an extraordinary development known simpy as a Serial Input/Output (SIO) device. Regardless of what these devices are called, they all perform serial-to-parallel and paralled-to-serial conversions with minimal supervision by the host computer.

Because of the so-called intelligence of one of these devices, very little supervision is required. The very latest models introduced to support the new 16-bit computers are actuay highly specialized programmable microprocessors in their own right.

Like our surrealistic highway and tunnel, a UART has two separate directions of traffic. The path that converts a parallel data output to a serial bitstream is called the transmit channel. The path that converts an incoming serial bitstream back into a parallel data input is called the receive channel. A very elaborate set of sensors and controls keep the data traffic in precise syncopated rhythm.

The TRS-80 Model I computer has an optional RS-232-C interface board that connects to the Expansion Interface through a 42-pin connector inside a special compartment reserved for this board. The board has eight DIP switches on it, which together are called the sense switches and are normally used for entering the settings of baud rate, parity, number of data bits and number of stop bits that the user desires. You may choose to use these, or you can ignore them ad configure the UART with your own software.

Also on the board is a large two-position switch marked "TERM" and "COMM". This switch is for swapping pins 2 and 3 of the RS232 connector, Transmit Data and Receive Data, so that your TRS-80 may be configured as a terminal device, which transmits on pin 2 and receives on pin 3, or as a communication device, reversing the functions of these pins. Most TRS-80 users connecting to a modem will leave this switch in the "TERM" position. The only time you might want to place the switch in the "COMM" position would be when connected to another microcomputer, or when connected to a terminal or printer.

********** LDOS PATCH FOR VIDEO-GENIE **********

ANYONE OWNING A COPY OF LDOS 5.1.2 FOR USE ON A VIDEO-GENIE MAY FIND THAT THE PR/FLT WILL NOT WORK.
IT IS A SIMPLE MATTER TO CORRECT THIS , AS FOLLOWS.-
TYPE IN

```
PATCH PR/FLT.GSLTD:0 (X'5540'=D3 FD 00 C9 DB FD 00)

S HALL LEEDS
```

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PRINTER CABLE	24.38	3.66	28.03
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LOAD-80	8.65	1.30	9.95
JAN LOAD-80 To APRIL	7.78	1.17	8.95
LNW-80 EXPANSION BOARD	42.60	6.39	48.99

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01-693-8975

****

My one line programme is :-

```
1 FORA=1TO25:B=26-A:C=29+A:LPRINTSTRING$(B," ");STRING$(C,"1"):NEXT:FORA=1TO25:L
PRINTSTRING$(55,"1"):NEXT:FORA=1TO100:LPRINTSTRING$(25," ");STRING$(30,"1"):NEXT
:FORA=1TO25:LPRINTSTRING$(80,"1"):NEXT:LPRINT:LPRINT,,"The  Vast  One":LPRINT:
LLIST
```

Enclosed is an entry for the one line competition, inspired by the well known programme "The Last One" and the lesser known Campbell Systems programme "The Fast One", my programme is "The Vast One".

This programme has to have a printer, no VDU screen is big enough to do it justice! The printout of the programme run is in the enclosed envelope. [AVAILABLE TO ANY MEMBER]

Dick Gays.

Decimal Numerical Sort Problem
(Help wanted for a contract to clean the Augean Stables!)

The following NUMERICAL SORT PROBLEM in a task I foolishly set myself is defying my attempts at hooking the "NOSORT" library or Users Group routine into my attempt to write a change gear ratio book for machine tool operational use.

The problem is to get the TRS 80 MODEL 1 48K TO AUTOMATICALLY sort in ascending order before print-out the decimal ratios and their equivalent gear-sets using gears with a minimum of 24 teeth and a maximum of 80 and not using any gear twice in one set.

The program so far is thus:

```
100 cls
200 For J = 24 to 80
300 FOR K = 24 TO 80
400 FOR L = 24 TO 80
500 FOR M = 24 TO 80
600 IF  J = K THEN 1700
700 IF  J = L THEN 1600
800 IF  J = M THEN 1500
900 IF  K = L THEN 1600
1000 IF K = M THEN 1500
1100 IF L = M THEN 1500
1200    I = J/K * L/M
1300 PRINT I;
1400 PRINT,"GEARS ARE ";J;"/";K;"*";L"/";M
1500 NEXT M
1600 NEXT L
1700 NEXT K
1800 NEXT J
1900 FOR GODS SAKE, LPRINT THE *!*!* B RATIOS IN ASCENDING ORDER!
2000 WRITE LETTER TO AGONY COLUMN OF TRS 80 USERS GROUP.
```

A further refinement would be to ask the printer nicely if it would'nt mind printing the ratios (in ascending order) one A4 size page at a time.

Trevor Ward,
9a The Riddings,
Earlsdon,
Coventry CV5 6AT

INNOVATIVE

TRS 80-GENIE SOFTWARE

from the professionals

MEMDISK

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Memdisk is an absolute boon for the single drive user. Files may be copied from his single drive to the drive in memory, disks changed and then copied back. To coin a phrase — the applications are only limited by the imagination of the user whether you have one drive or more — after all, you always need another!

There are, of course, some limitations. Chiefly, that the maximum size of storage is 27K usable. The other side of the coin is that this space is user selectable from 1.5K to 27K. Tracks may be set up in 1.5K or 3K blocks.

Memdisk may be used with Double Density drives without any problem, although the memory drive itself, of course, cannot be double density. To assure reliability, Memdisk tests the RAM area which it is going to use before it installs itself.

Best of all, a Memdisk drive is faster than any floppy drive available and it is even faster than many hard disk drives. Memdisk involves no additional hardware of any sort. There is nothing to align, nothing to clean and nothing to break. It's all software.

Memdisk is available for all Genie machines and the Tandy Model 1 and Model 3. It requires a minimum of one drive 48K RAM and LDOS.

Memdisk ..... £29.45 inclusive

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National TRS-80 Users Group

Newsletter

VOLUME 3 ISSUE 12 JUNE 1982

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INFORMATION ON THE GROUP

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

Details of the Group accounts and the constitution of the Group are obtainable from the Secretary.

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

Workshops are arranged from time to time in various parts of the country.

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

The Group runs 80-NET, a computerised bulletin board service that is available to all users of microcomputers (not Just TRS-80s or Video Genies).

The Group maintains two software libraries (Model I and Model II) which are free to members. Library lists are obtainable from the Secretary (price £1). The medical and educational sub-groups maintain their own libraries.

A membership list is available from the Secretary (price £1).

Back numbers of the Newsletter are available.

Please send all contributions for the Newsletter to the Editor.

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EDITORIAL

I am afraid I have not had time to produce the Prestel article I mentioned in the last issue. It will be in the next one.

It is subscription renewal time again. A renewal form is enclosed.

A form for membership of the Amateur Computer Club is enclosed. I have belonged to the ACC for several years now and I feel that the intention of the ACC to act as an "umbrella organisation" for the many groups and clubs is to be supported. We maintain close links with the ACC, which brings, I feel, benefits to both our organisations.

Leon Heller.

GUIDELINES FOR CONTRIBUTORS

1. Send material in machine-readable form (Scripsit or Pencil disk/cassette) if possible.

2. Ensure your ribbon is in reasonable condition if using a printer.

3. Printer output should be on A4 paper if possible.

4. If you send in handwritten material, write legibly.

5. Do not fold the sheets when posting them. Use a large envelope and keep them flat.

Leon Heller

* * * FOR SALE * * *

I am now selling my printer - Mike Gibbon's old Black Box in fact. Slow at around 10 cps, and a bit noisy! capitals only but an impact printer head. Complete with PSU, good value at £120.

And my friend Tony Beer (Tel: (0530) 413974) is selling his Video Genie - the one with the VU meter and arrow keys - complete with cables and manuals in maker's original box, excellent condition, with some tapes (machine code utilities and games) and books - £240. Tony is selling in favour of a BBC micro - I told him it would be better value to join the TRS-80 UG but he is determined!

Trevor Jordan,
Eardley House,
84 Market Street,
Ashby-de-la-Zouch,
Leicestershire.
Tel: (0530) 413828

MEMBERS' LETTERS

From David Washford

Thanks for another good Newsletter; I am very grateful to learn that the July weekend has been reinstated - I'll be there!

Laurie's letter struck home; he gave me some invaluable advice which I now detail in the hope that it may be of help to other members. I was concerned with the recording of sales values against 105 product codes, for up to a 1000 lines per day related to any of 400 customers; the customer files were already set up as random access data files. In my ignorance, I had written 105 "if x$=xx$ then..."lines, and this naturally took time to execute!

Laurie's suggestion, which I have very successfully implemented, was to:

> Put my 105 codes into data statements and, on initialisation, to read them into an array
> Use a for-next loop for the matching sequence
> When a match is found, set another variable (say K) equal to the current loop counter, and close the loop
> Have a sequence of "ON K GOTO...." lines to direct the data to the required point

This improvement saves me about twenty minutes on the daily input session!

I had written previously about my tedious hassles with typing in all the LSETs and CVIs etc which related to the above program, and how the Newdos 80 v2.0 IGELs were not only easier but also saved on execution time. In an attempt to reduce the overall time even further, I have experimented with compiling this program under Accel2 - imagine my dismay when I found that Accel will not accept IGELs! I had to re-write all those horrible LSETs etc - but it was well worth it, and I have totally disproved the theory that there is no point in compiling a program that depends on a lot of keyboard input. Another, otherwise possibly irrelevant, point about compilation, is that I now hope to market my sales analysis programs - and whilst a compiled program can be copied, it can't be legibly listed. Thanks to Laurie, I now have what I consider to be professional programs that I wouldn't like to give away too easily!

Finally, Laurie will be pleased to know that no rip-offs of Zen came my way following my February letter so I will buy one with the proceeds of my first sale !

David Washford

For Sale :- TRS-80 16K, level II, Model I computer. Encluding Moniter, CTR-80 Tape Recorder, Dust Covers, manuals and $100 worth of software, $425 o.n.o.
Also Tandy Parallel Printer Interface, £30 o.n.o.
Tel. Winkfield Row 3105 STEVE ATHERTON.

From David Washford

Having just been given a copy of 40track TRSDOS it was obviously very desirable to transfer over the TRSDOS programs to this more spacious media. (Before someone asks why TRSDOS, this amateur can't get some M/C programs to run under anything else !). I experienced two problems, the solutions to which may help someone else as green as me !

Firstly, there was the simple oversight of checking existing disks for Invisible files ! It is very easy to get rid of this invisible status - if only the file isn't also password protected, and THAT was the second problem. I struggled with books to see how to get rid of passwords, and in simple language, this is what I learnt:

Use Superzap, or similar, to look at track 17 (directory). If you page through the sectors you will see that each directory entry occupies two lines of coding. The second line is the one for this subject, the first two entries are the update password, and the second two are the access password. In all my files, the second pair of figures were already set to '96 42' - which the clever ones already know means no password at all, so nothing needed to be done there. If the FIRST two entries on that second line are NOT '96 42' then change them to read that, and the password problem has gone for good !

Now we can get rid of the invisible tag. Simply copy the file to another disk (you can now that there's no password to worry about), kill the original, and then copy it back again ! Do a DIR and there is the file name without any IP appendage !

Two words of warning. Experiment only with a spare backup copy of the disk, and be warned that at least Super2D and Tandymail do not like 40track disks. I've covered the simple bit - how about someone else explaining how to overcome that last point ?

David Washford,
Bournemouth

From M.C. Matthews

I was a little surprised to see Mr. Taylor's letter in the current issue of the Newsletter. I have for some time been using an Epson MX80, tabbing right across with one limitation. This is that I cannot tab beyond 127 on a 132 character line. I get over this quite simply by putting the requisite number of spaces after the tab.

I can only assume that my machine has a different version of disk basic to the one used by Mr. Taylor.

I notice Mr. Rowe uses disk-drive cleaning kits. I have been advised on my Model 1 with double-sided disks not to use a disk-cleaning kit as it may make matters worse. Touch wood, I have so far had no trouble and the drives have been in use for about 15 months, fairly busily, but I would be interested to hear other peoples' views on cleaning.

M.C. Matthews

From John Gale

It's my opinion that Trevor Ward (Decimal Numerical Sort Problem in the May newsletter) is pulling our legs. I estimate that his incomplete program, as published, will run for more than 15 days before it even gets to the point of attempting to sort about 9½ million 8-byte records and printing them in sorted sequence on 150,000 sheets of A.4 weighing something like half a ton.

Nevertheless Mr Ward's letter enables a moral to be drawn which is important to all programmers at some time - if a problem seems intractable then step back, look at it from some different angles, and see if you can't transform it into a slightly different problem which has an easier solution.

To illustrate this point through the gear ratio problem - presumably Mr Ward wants to sort the compounded ratios into ascending order so that he can look up a desired ratio and select a set of four gears which produces it. So why not write a program which will accept a ratio as input, and calculate various gear sets which will do the job? Here is a quick and crude version of such a program :-

```
1999 REM   FIND A REQUESTED GEAR RATIO
2000 CLS: INPUT "ENTER REQUIRED RATIO";I: B=I:
     IF I<(24*25)/(79*80) OR I>(79*80)/(24*25)
     THEN PRINT "INVALID RATIO": GOTO 2000
2010 PRINT "OK": R1=SQR(I)
2020 FOR J= 24 TO 80
2030 K=INT(J/R1 + 0.5): IF K=J OR K<24 OR K>80 GOTO 2130
     ELSE R=J/K
2040 Q=I/R
2050 FOR L= 24 TO 80: IF L=J OR L=K GOTO 2120
2060 M=INT(L/Q + 0.5): IF M<24 OR M>80 OR M=J OR M=K OR
     M=L GOTO 2120
2070 E=(J*L/K/M - I)
2080 IF ABS(E)<B THEN B=ABS(E):
     PRINT I;"=";J;"/";K;"*";L;"/";M;"WITH ERROR";100*E/I;"PERCENT"
2090 IF E=0 THEN END ELSE IF INKEY$="" GOTO 2120
2100 PRINT "GOOD ENOUGH?   HIT  Y  OR  N"
2110 K$= INKEY$: IF K$="Y" THEN END ELSE IF K$<>"N" GOTO 2110
2120 NEXT L
2130 NEXT J: IF B=I PRINT "NO SOLUTION FOUND"
2140 END
```

The program inputs a gear ratio (line 2000). It searches for possible solutions of the type where the two sub-ratios, J/K and L/M, are approximately equal to each other (and therefore to SQR(I)). This usage of R1 as a "first guess" of the value of J/K, in lines 2010 and 2030, cuts down the potential running time by several orders of magnitude , compared with an exhaustive search through all the feasible values of J,K,L and M.

The program prints the first solution found, and then each successive new solution if it is better than any found so far (line 2080) and also prints the error E (calculated in line 2070) as a percentage of I. If E is zero, which means an exact solution has been found, the program ends in line 2090. Otherwise you can interrupt the run by hitting any key, then inspect the solutions to date, and either terminate or carry on searching for better ones.

It runs for no more than a minute or two, and sometimes finds an exact solution in a matter of seconds. It's not very good at finding solutions very close to the minimum and maximum possible values of I, but could no doubt be improved in this respect. If it is absolutely essential to print out a table of results for later reference, the program could easily be modified. Replace line 2000 by something like FOR I=0.1 TO 10.5 STEP 0.1:after NEXT J you can LPRINT the best solution followed by NEXT I.

John Gale
Hemel Hempstead 0442-53643

From Derek Trayler

I have an American Pen Pal who writes and reviews for Computer Mags in the States. He has sent me one or two items that may be of general interest.

Jerry says that Newdos 80 version 3 will be available in a couple of months and will contain an improved string handler. As an example a Basic program with 8,000 strings took 122 minutes but under Version 3.0 it took 33 seconds the probable cost will be $170.00. He has reviewed a print buffer for the Epson MX-80. It cost $159.00 dollars but acts like a hardware spooler and can hold 16k. As an example it will allow several pages of text to be printed while the computer is free for normal input. This would be very valuable for an application I have, where minutes are valuable. A review will be published in a few months time but the bottom line is that it works.

There is a program called DDSD/CMD which will allow NEWDOS80 to do 'auto density recognition' like LDOS, which is almost ready. It is advertised as available but Jerry has had to stop using it until some bugs are fixed. As he puts it "it sometimes plays hell with the Directory" He is more enthusiastic about MULTIDOS which will be reviewed in 80-Microcomputing May edition. He warns that the review by Paul Weiner is a little confusing because some of the paragraphs have been printed out of order. MULTIDOS has the" boot on a double density disc" ability of Newdos and "auto density recognition" of LDOS. It will read the directory on any Model 1/111 TRS-80 operating system that is currently on the market. MULTIDOS is available as a package with a program called Super Directory. Jerry has had trouble with the latter and recommends only purchasing MULTIDOS. At $79.95 he reckons it could be the best value for money on the market.

I have a sports program that Jerry wrote and it is very effective at sorting entries. It makes use of a program called ENHBAS and as this is not very well known I asked Jerry to give a short free of charge review. If any one is running a sports event with around 600 competitors and wants the results printed out with overall and group winners selected then contact me.

Derek Trayler.

DATE CONVERSION ROUTINES.

Regarding the routine published by proxy in this month's Newsletter, I feel that in order to be of any real use to members you should perhaps publish the attached program which incorporates the routine published, plus some refinements and has been presented as a demonstration program.

It would be as well to remind possible users that the "no. of days" in variable E can be stored in Random Access files as an integer thereby saving 4 bytes per record.

The debugging of the section that produces "day of the week" was carried out by John Phelan - this solved a lot of my problems, as a lot of my programs require to skip Saturdays, Sundays and Holidays. This can all be done based on routines in enclosed program.

```
10 '*****************************************************************
20 '
25 '            DEMO PROGRAM FOR DAY/DATE CONVERSIONS.
26 '
30 '*****************************************************************
50 CLS:CLEAR 1000
200 DEFFN MOD(X,Y)=X-Y*INT(X/Y)
210 ' SET ARRAY FOR DAYS OF WEEK'
220 FOR R=0TO6:READ DAY$(R):NEXT
250 PRINT@320,::INPUT"TYPE IN DATE FOR CONVERSION - DDMMYY";D$
260 GOSUB500
270 PRINT@384,"NO.OF DAYS = ";E
280 INPUT"TO CONVERT NO. DAYS BACK TO DATE - (EN)";X
290 GOSUB 570
300 DY=(D*10000)+(M*100)+(Y):DY$=STR$(DY):
      DY$=RIGHT$(DY$,LEN(DY$)-1):
      IF LEN(DY$)=5 THEN DY$="0"+DY$
310 PRINT "DATE =";DY$
320 INPUT"TO FIND DAY OF WEEK - (EN)";X
330 GOSUB680
340 PRINT"DAY OF WEEK = ";DAY$(DAY)
445 'DATE TO DAYS CONVERSION'
490 END
500 D=VAL(LEFT$(D$,2)):
    M=VAL(MID$(D$,3,2)):
    Y=VAL(RIGHT$(D$,2))
520 E=INT((Y-73-(M)2))*365.25)+INT((M-3-12*(M(3))*30.6+.4)+D-305
530 GOSUB690
540 RETURN
547 '
548 '
549 'NO.OF DAYS TO DATE CONVERSION ROUTINE'
570 D=E+26725:'STARTS 30.12.72
580 Y=INT((D-122.1)/365.25)
590 M=INT((D-INT(365.25*Y))/30.6001)
600 D=D-INT(365.25*Y)-INT(30.6001*M)
610 M=M+12*(M)=14)-1
620 Y=Y-(M(=2)
627 '
628 '
629 '
630 '
647 '
```

```
648 '
649 ' DETERMINE SUFFIX FOR DATE'
650 DT$="  STNDRDTHTHTHTHTHTHTHTHTHTHTHTHTHTHTHTHTHTHTHTHSTNDRDTHTHTHTHTHTHTHTHST":
      DT$=MID$(DT$,D*2+1,2):DT$=STR$(D)+DT$
660 D1$=DT$+" "+M$
670 RETURN
677 '
678 '
679 'DETERINE DAY OF WEEK'
680 REM SUNDAY=0 MONDAY=1
690 '
700 E1=E-1
710 DAY=FNMOD(E1,7)
720 RETURN
800 DATA SUNDAY,MONDAY,TUESDAY,WEDNESDAY,THURSDAY,FRIDAY,
      SATURDAY
```

Charles Davies

MDBS

I have just started to use the latest version of the MDBS I data base management system. Whilst the full package is quite expensive at £1250 (my client paid for it), you do get rather a lot for your money. The system will be running on a Model II with three additional drives, under CP/M.

The package includes the data base software, data definition language, a query/reporting system allowing non-programmers to generate ad hoc queries and perform analyses of the data using an English-like non-procedural language, a recovery/transaction logging system allowing recovery from a total system failure, and a data base re-structuring utility which enables the programmer to modify the data base after it is on-line.

The latest documentation is superb, and the new U.K. distributors, I.S.E.-Pactel, extremely helpful.

I have some information on the new MDBS III package. This is even more expensive, starting at £2500 for the single user version, but can be upgraded for multi-user operation under an appropriate operating system such as MP/M or UNIX/XENIX. It is available for the Model II under TRSDOS and CP/M, but really needs a hard disk. A version is available for the 68000 processor, so it will be ideal for the new Model 16 when it puts in an appearance.

MDBS III has all the features of MDBS I except the re-structuring utility, plus things such as an interactive data manipulation language (enabling non-programmers to set up a data base), a screen definition language (for setting up screen formats and input editing), and, coming in a year or so, DbNet, a networking scheme enabling mainframes, minis and micros to communicate with one another, whilst supporting distributed multiple users of the MDBS III system.

Please give me a ring if you would like more information on these products - this software really is excellent!

Leon Heller

SUPERSCRIPT

This is a document prepared using the enhanced version of Scripsit, it is called Superscripst

As you can see you can switch underline on or off as you wish

It can produce a number of special characters namely :-
[,] , { , } and ^

Superscripst can perform super and sub scripts

An example of Sub_{Script}

An example of $Super^{Script}$ *or* ^{o}C

An example using both super and sub scripts:-

$$X^2 + Y_2 = Log_e PI$$

Also superscripst can perform Boldfacing
An Example Of Superscript's Boldfacing

Steve Atherton.

Video Snow Shovel

By Brian Smith, Burnaby, Canada.
Re-written by Wherner Barnes, Blackpool.

Getting rid of those black streaks on your graphics.
You will require a 74LS02 IC (to be called Z36A)

The Problem

The TRS 80 display is memory mapped by the CPU - but also continually scanned by the video circuitry.

Since the CPU and the video circuitry cannot access the display memory at the same time the CPU is given priority.

When the CPU reads or writes part of the display memory the video circuitry is locked out producing a black streak on the screen.

This is especially noticable with programs that white out large portions of the screen.

The Solution

The video circuitry must be given higher priority than the CPU.

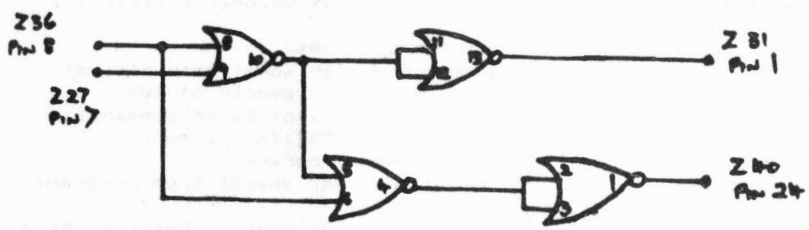
This is done by only allowing the CPU to read or write to the display memory during a blanking period (a blanking period is when the electron beam of the display is "off screen").

By using the WAIT* input the CPU access is blocked and the CPU is put into a wait state. When the video circuitry enters a blanking period then the CPU is released and allowed to continue.

Note :

This will not slow down fast graphics games etc. as even the most intensive graphics program spends little time accessing display memory.

Circuit Diagram



How to do it

Step 1 - Open the keyboard case, remove the circuit boards and place on a flat surface, component side up.

Step 2 - Locate Z36 on the board.

Step 3 - Bend all the pins except 7, 8 and 14 on Z36A horizontal.

Step 4 - Piggyback Z36A onto Z36 and solder pins 7, 8 and 14 on Z36A to the corresponding pins on Z36.

Step 5 - Join pins 2, 3 and 4 on Z36A.

Step 6 - Join pins 5, 10, 11 and 12 on Z36A.

Step 7 - Join pins 8 and 6 on Z36A.

Step 8 - Solder a wire from Z27 pin 7 to Z36A pin 9.

Step 9 - Cut the trace between Z36 pin 8 and Z31 pin 1. (do this where the trace dogless between Z35 and Z36)

Step 10 - Solder a wire from Z31 pin 1 to Z36A pin 13.

Step 11 - Solder a wire from Z40 (CPU) pin 24 to Z36A pin 1. (Z40 pin 24 is accessed at the bottom of R51)

You should now be de-glitched.

If you don't get a normal display on power up then SWITCH OFF IMMEDIATELY and check your wiring.

Any graphics game should show whether it works or not - it will !

Note :

If you have any other modifications that use the WAIT* input then a tristate buffer should be added between Z36A pin 1 and Z40 pin 24.

If you need to do this then give me a call on BLACKPOOL 56245 and I'll tell you how.

J. W. Barnes

AN OPERATING TIP FOR EPSON MX-80 USERS

1409 Evergr)Circle Midwest City, OK 73110 U.S.A

Here is a tip for those of you with the Epson MX-80 printer with the Graftrax-80 option (if you don't have it, get it, you are only crawling without it). You with the Graftrax option can now stop patching, filtering, or otherwise fooling around with either your software or hardware in an effort to get the MX-80 to properly print the TRS-80 Model I graphics codes. On page 11 of the Graftrax manual is documented the (apparantly not well known) command "<CTL><:>". That is hex 1B and 3A or decimal 27, 58 or a BASIC LPRINT CHR$(27);":" OR LPRINT CHR$(27);CHR$(58); or a POKE &H37E8,&H1B:POKE &H37E8,&H3A or however you figure out to get it to the printer. No matter what method you use to send the two byte sequence to the printer the results will be the same - the printer will now do the proper shifting of the graphics codes from the Model I value to the equivalent Epson code. The added benefit you get is that no other printer functions are lost. You no longer have those command codes listed in the original manual on page 82, but those are all duplicated below 20H anyway.

Using this method of controlling the printer will in no way affect any other printer functions in effect when the codes are sent. It does not reset the printer. The function will be destroyed if the printer is turned off, or if the reset code (1BH,40H) is sent to the printer. If you use NEWDOS80 2.0 and have installed Zap #46, it should be removed before using this method of graphic code shifting.

If you need to shift back to the normal Epson graphics codes a <CTL><;> will do it. The semi-colon is a 3B hex, or 59 decimal. This returns the graphic code interpretations to their power up values.

I hope you Epson users can make use of this hint. Enjoy the extra memory and disk space courtesy of Epson and I.
J.L. Latham

AN OPERATING TIP FOR LDOS 5.1.x USERS

1409 Evergreen Circle Midwest City, OK 73110 U.S.A

The <BREAK> key cannot be disabled properly in LDOS 5.1.2 with a simple POKE instruction. Bit 4 of location 430FH tells the system whether or not to honor the <BREAK> key. To disable the key, this bit must be a 1, to enable it, it must be set to 0. You have to do this on a bit level because all 7 of the other bits are used by the system and you don't want to destroy them. The (L)BASIC command to disable the <BREAK> key is "POKE &H430F (PEEK(&H430F) OR &H10". To enable the key (even if its status is unknown) use the following line in your program: "IF PEEK(&H430F) AND &H10 = &H10 THEN POKE &H430F,PEEK(&H430F)-&H10)". For you who insist on thinking in decimal, &H430F is 17167 and &H10 is 16 decimal. This routine will work with LDOS 5.1.1 and should work with earlier versions of LDOS if they kept their "upward compatability" as they say they do. Those who subscribe to the magazine "The Alternate Source" will see this tip repeated there. But I didn't know how many copies you would see in England, so thought I would pass it along in this newsletter.

J.L. Latham

USING THE GROUP'S RS232C AND MODEM

I AM JUST ABOUT TO RETURN THIS EQUIPMENT WHICH I PICKED UP FROM BRIAN AT M.K. A MONTH AGO. I PROMISED TO DELIVER A FEW NOTES AS A MATTER OF GENERAL INTEREST AND POSSIBLY TO SERVE AS A STARTING OFF POINT FOR FUTURE BORROWERS.

THE RS232C BOARD IS AS PER THE STANDARD TANDY BOARD AND FITS INTO THE EXPANSION INTERFACE. THE MODEM IS A HARDWIRED TYPE AND REQUIRES A SIMPLE WIRING OPERATION. I HAVE LEFT IN A TERMINAL BLOCK WHICH MAKES CONNECTION DETAILS MORE OBVIOUS. DOCUMENTATION ON THE HARDWARE COMES WITH BOTH ITEMS AND IS VERY HELPFUL ALTHOUGH THE MODEM BOOKLET WAS HEAVY GOING FOR ME.

THE CONNECTIONS TO THE MODEM ARE A MAINS CONNECTION PLUS TWO WIRES (5 AND 6) TO THE TELEPHONE INSTRUMENT, TWO (11 AND 12) TO THE LINE, AND THE 25 PIN RS232C PLUG. THE THE RS232C SCREWS DOWN TO A CONNECTOR IN THE EXP INT AND THE SUPPLIED FLAT CABLE CONNECTS TO THE EXP INT VIA A 40 PIN EDGE CONNECTOR.

I RECEIVED A GREAT DEAL OF HELP FROM JOHN WOOD VIA THE PHONE AND EVENTUALLY HAVING ASSEMBLED THE GEAR I BEGAN EXPERIMENTING WITH THE TANDY 'TERM' PROGRAM BY WIRING TOGETHER PINS 2 AND 3 (SEND AND RECEIVE) OF THE 25 PIN PLUG. HOWEVER THE SCREEN FILLED WITH VERTICAL BARS INDICATING A FAULT. I HAD READ IN THE NEWSLETTER ABOUT PROBLEMS WITH THE 'INVERTER' (WHICH SUPPLIES + AND - 12 VOLTS) ON THE RS232C SO I TOOK THE BOARD INTO OUR ELECTRONICS LAB WHERE THEY REMOVED IT AND PRONOUNCED IT DEAD. I RANG 'ASTEC' WHO SAID THE COMPONENT WAS NOW OUT OF PRODUCTION BUT THEY COULD SUPPLY A LARGER SIZED VERSION. LEON OFFERED TO SEND A 15 VOLT VERSION BUT AT JOHNS SUGGESTION I RIGGED UP BATTERIES TO SUIT.

SUCCESS..... AFTER SOME EXPERIMENTING ON MY OWN USING 'TERM' I TRIED FORUM-80 AT HULL AND I ONLY HOPE I HAVE NOT CRASHED THEIR SYSTEM. I COULDN'T GET COMMUNICATION GOING. SO, JOHN WOOD AND I SETTLED DOWN TO AN EVENING ON THE PHONE. SOME RESPONSE WAS ACHIEVED USING 'TERM' AND 'HOST' AND BEST RESULTS CAME WITH MY MODEM FIXED IN THE 'ANSWER' MODE. NEXT WE TRIED DOWN-LOADING PROGRAMS USING 'COMPROG'. I TRIED SENDING FIRST BUT WITHOUT MUCH SUCCESS. THEN WE PREPARED FOR JOHN TO SEND TO ME. AFTER ONE OR TWO PROMISING EFFORTS, QUITE SUDDENLY ----- HERE IT CAME. ACKNOWLEDGEMENTS, STATUS MESSAGES AND WONDER OF WONDERS A COMPLETE PROGRAM DELIVERED. IT WAS LIKE A SUCCESSFUL LANDING ON THE MOON.

FOR REF THE RS232C SWITCHES WERE SET (S1 TO S8):-
OPEN,OPEN,OPEN,OPEN,CLOSED,OPEN,CLOSED,CLOSED.
TERM/COM SWITCH SET TO TERM.
MY MODEM SET TO ANSWER MODE.

SO, THANKS FOR A VERY INTERESTING INTRODUCTION TO COMMUNICATIONS.

MAC RANDLE.

THE GNOMIC FEATURE ROM "B"

I reviewed the General Northern Microcomputers ROM "A" in an earlier news letter and at the end of the review I said that, should I have the opportunity, I would give details of the feature ROM "B" when it became available. Well, I have now recieved the ROM B and it certainly lives up to expectations, giving instant "help" to the Basic programmer.

ROM B plugs into the same board as ROM A and is activated by the same procedure. It is accessed after activation by pressing shift-break, you are then presented with a menu as below.....

0 To Abort	(Cancels commands)
1 Keyboard Invert	(Upper case when lower case active)
2 Basic Renumber	(Renumber in increments of 10)
3 Single Key Commands	(Shorthand entry of Basic commands)
4 Cursor Flash	(A flashing CHR$(176) cursor)
5 Basic Program Merge	(Merge Basic programs)
6 Basic Program Compress	(Remove unwanted spaces from program)

The renumber section of the program will renumber a Basic program from the first line onward in increments of 10 with all GOTO's GOSUB's etc being up - dated.

The single key commands are as ROM A, making life easier when typing in a program. Being idle, I like this feature !

The flashing cursor is a small graphic block with a fairly fast repeat rate. A "blinking" cursor is something you either like or you don't, this one is more acceptable than most.

The Basic program merge is a DOS facility in Level II. It loads a Basic program from cassette and merges it with the resident program, regardless of line numbers, and then renumbers the complete program.

If you have REM statements and excess spaces to remove from your program then option 6 from the menu will do the job quickly and neatly. As GNOMIC point out in the instructions, if the program references the REM in a GOTO, or similar, then removal of the REM will cause an error. So it is worth a check through the program before using this feature.

The ROM B will work with DOS except for options 2 and 5. It certainly adds some excellent facilities to the TRS80 or Video Genie for Level II operation. As I said in my earlier review, one of the really nice features of the Gnomic Roms is the fact that they are always there, no having to load in odds and ends of software or wasting time looking for that renumber program which you know darn well is somewhere in the middle of that C60 !

At the end of the instruction sheet for ROM B, Gnomic ask for your ideas on what you would like to see in a future feature ROM. Knowing the service provided by Gnomic I can assure you that your suggestions would be seriously considered.

Ken Grey.

Double Density Boot for Ldos Using SOLE from Misosys

One of the problems of running double - density with the model one is the systems inability to boot the system disk. The reason for this is the Level II Rom which requires that the boot track being in single density. Double density Dosplus has it's track zero formatted in single density and the rest of the disk in double. Ldos, as it stands, when in double density has all track / sectors in double density.

Sole from Misosys overcomes the Ldos problem and formats track zero in single density enabling a cold boot for a double density Ldos system disk.

The program comes on a 35 track single density disk with comprehensive, easy to understand instructions. There is also a technical explanation for the reasons behind the need for a single density track zero (that's for the curious) and details on back up proceedures etc.

There is now no longer any need to boot up with a single density disk and then insert the double density one or when the system hangs up it is not necessary to replace the disk in use with a single density one. This makes life much easier and more convenient.

Sole can be obtained either from Misosys in the USA at a cost of 28 Dollars including airmail post or from Molimerx for 20 Pounds 12 Pence plus post. As Misosys's advertisement says "Why not add a Sole to your boot".

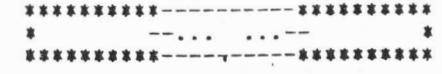
Ken Grey

CQ CALLING ALL RADIO AMATEURS WITH TRS80's & VIDEO GENIE's

I would like to hear from any radio amateur or short wave listener who uses, or who would like to use, their computer us part of their hobby of radio.

My Video Genie is used for RTTY, QRA calculations, log keeping, QSL records and OSCAR predictions. As computers are becoming common place in the "shack" there are more and more applications for which it can be used. If you have an idea for using your computer in connection with amateur radio then please drop me a line, if I can help I will.

Ken Grey G3WNR (QTHR)
6 Dame Flora Robson Ave
South Shields
Tyne & Wear
NE34 9RE



Model 2 Software Library

I enclose herewith the first offering of software for the Model 2 User library. I hope all is clear, and that by making a start (however modest), a useful library can be built up. Talking to the Model 2 users of the Bristol group, they explained that modules (particularly in Fortran) would be very useful.

This gave me the idea of a software requests system, which with the help of the National newsletter, could put people needing particular software in touch with those who have already written suitable software, or could do so without too much bother. I don't mean big programs, just particular bits and pieces.

Anyway, just an idea ! As regards the library, could you ask the business users group, if you are in touch with them, for any scraps they may care to throw my way ! Many thanks.

Jim Hutton,
Stroud Microoomputers,
25 High Street,
Stroud,
Gloucestershire.

MODEL 2 SOFTWARE LIBRARY BUSINESS PAGE

CLUB ACCOUNTS For treasurers of clubs, societies, etc, to maintain a simple ledger of income and expenditure. Can produce analysed balance sheet as required. With plenty of annotation to enable adaptation to most clubs. J.Hutton.

CLUB ACCOUNTS 2 An even simpler version. Can store,amend, and print out a list divided into income & expenditure, with totals. Used for a school PTA at present, but non-specific. J.Hutton.

MAILING LIST PROGRAM Creates a mailing list, to produce mailing labels etc. 128 characters per record of name, company, address, tel. no., and a 6 digit key heading. Search sequential by any field (INSTRING), or on key field (giving a simple 'selection' facility). Includes useful INKEY facility. Simple but effective. P.Smith.

SHARE PORTFOLIO MANAGEMENT Maintains a record of 100 share holdings (name of company, no. of shares, high/low/current values, total value of holding, total of all holdings). Updating any entry causes automatic recalculation of any other value affected. Expandable almost to a mini- Visicalc. J.Hutton. **

TANK CALIBRATION 2 programs to calibrate water/fuel tanks. 1. rectangular, 2. cylindrical. Enter dimensions and the program gives volume (litres and gallons) for each vertical inch. If total (calculated) volume is different from known volume, then correction factor can be applied, and tank recalibrated. G.Stock (Bristol User group)

** A program so marked requires the use of Snapp Inc. Automap utility. Can only be used on a disc with Automap installed.

MODEL 2 SOFTWARE LIBRARY GAMES PAGE

Biorhythm - needs a 132 col printer. A very impressive printout, ideal for demonstrations etc. Will produce charts for any number of days, from any date, giving Emotion, Intellect, Physical, and Average. The best biorhythm program around.

Snoopy poster - to screen or printer (80 col).

Blake 7 - pilot a space craft, uses Newtonian physics, and polar co-ordinates. Very intellectual.

3 Dimensional Noughts & Crosses, with very neat graphics. 2 levels, easy or nearly impossible. With demo game if required (produces a draw).

Wumpus - too familiar to need description.

Seabattle - you are the captain of a submarine, with missiles, torpedoes etc. Played on a map.

Lander - the usual, but with four possible planets.

Various other (not very good) games.

MODEL 2 SOFTWARE LIBRARY EDUCATIONAL PAGE

Multiple choice quiz - offers up to four answers to a series of questions (stored on disc). One or more correct. Percent marks. Prints out any question which is answered incorrectly. Includes a 'random card draw' routine to select questions. Also includes a matching quiz-setting program. J.Hutton.

Various 'maths practice' games. J.Hutton.

'Animals', a computer learning game. The computer will try to guess the animal you are thinking of. Incorporates a 'tree' structure data-base with many other applications. J.Hutton.

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ENHBAS An Evaluation by Jerry L. Latham
1409 Evergreen Circle Midwest City, OK 73110 U.S.A

ENHBAS (pronounced "EN"-"BASE") is an enhanced BASIC program written by Philip Oliver of The Cornsoft Group (TCG) (6008 N. Keystone Ave., Indianapolis, IN 46220 USA). The program is available in tape and disk versions for the TRS-80 Model I and Model III computers. The last time I found an advertisement for ENHBAS the price was $59.95 U.S. plus shipping charges.

If you are currently using the TRSDOS operating system or NEWDOS+, or NEWDOS80 version 1.0 or then new MULTIDOS, or operating without disks completely, then you will find that ENHBAS will load and run on your system with no problems at all. Users with LDOS and NEWDOS80 2.0 may experience some difficulties getting the two systems to work together in total harmony.

ENHBAS provides several powerful and useful functions for BASIC programmers that are not available in one package anywhere else. I will be writing about the Model I version of the program from here on out. Some of the functions are not used in the Model III (such as PAGE) because a similar command already exists on that machine. Let us now take a quick look at some of the features that ENHBAS provides.

The manual (30 pages with good examples of all features) is divided into six main categories which describe different functions provided by ENHBAS.

The direct commands (entered from the keyboard only) are FIND and RENEW. RENEW will let you reclaim a BASIC program that you accidentally "NEW"ed even after returning to TRSDOS and back to BASIC. This command will not function with NEWDOS80 2.0.

The FIND command lets you locate a named label in your BASIC program. ENHBAS lets you give names to subroutines and goto line numbers. More about this under the JNAME command. FIND does for JNAME what LIST nnn will do for a line number in a program.

JNAME lets you give meaningful names to subroutines and entry points in your program. It makes reading the code easier later on. The name is expressed as a literal enclosed in quote marks, and it must be the first statement on a program line, although other functions may follow it on the same line.

CSUB and GTO are the commands to access JNAME'd subroutines and lines. Doesn't it make more sense to CSUB"CONVERT TIME AND SPEED TO DISTANCE" than just to "GOSUB400"?

But, you cry out, what about space in the program. Yes, all of those labels take up space, but the actual commands themselves (CSUB, GTO, SORT, PLAY, and all the rest) are turned into TOKENS just like the BASIC commands GOTO, PRINT, and FOR/NEXT. JNAME is nice if you have the memory for it and want a more readable program a year from now.

Also, You can GTO a computed line number. Those of you who speak FORTRAN know something about computed GOTO's. This will save you memory. Which takes more space:

ON X GOTO 100,200,300,400,500,600,700,800

or

GTO X*100

As long as X is between 1 and 8 you will get the same results with the second example as with the first with ENHBAS. CSUB may be used the same way.

RDGOTO and RDGTO are two commands that allow you to RESTORE data at any given line or label. This can be a big saver if your program has repetitious data statements.

You can PEEK and POKE entire 16 bit words with ENHBAS and the WPEEK and WPOKE commands. No more of that LSB in the low byte and MSB*256 into the low byte +1 stuff. Do a "PRINT WPEEK(&h4029)<ENTER>" and you will get the decimal value of the protected memory value (-5120 on a 48K system with ENHBAS in memory).

You can do true WHILE/WEND looping with ENHBAS along with the familiar FOR/NEXT loops.

ENHBAS has several commands that are graphics related. ENHBAS has a form of "turtle" graphics, accessed with the DRAW command, which I personally find cumbersome to use, but the ability to draw, rotate, expand and shrink shapes is there. There is also the PLOT command which is used to SET or RESET a line between two points, or to make rectangles VERY FAST. These are machine language routines, after all. The INVERT command takes all graphics characters on the video and inverts them. Some video displays will shake and shimmer when this command is used, just depends on you circuitry. Non graphics, like letters of the alphabet are ignored. The LEFT command shifts the entire video LEFT 1 position. Useful for drawing horizontal graphs.

Limited printer forms control on the Model I is available with the CLM (set printer width) and PAGE (set page rollover length) commands.

Sound effects are available with the PLAY command and an external speaker attached to the AUX plug of the tape recorder. Also, when each key is depressed an audible click is sent to the speaker and also when some error occurs you are warned with a two tone beep. These effects can be enabled and disabled with POKEs that are described in the manual.

If you have data to scroll on the video, but want to keep a title line or two you can use the SCROLL command to protect from 0 to 13 lines of video from disappearing. The limit is from 0 to 7 on the Model III.

ENHBAS An Evaluation by Jerry L. Latham
1409 Evergreen Circle Midwest City, OK 73110 U.S.A

Two math functions are added to the computers with ENHBAS. They are PI and EN. PI returns the value of PI to 5 or 15 decimal places, and EN returns the value of "e" (base of the natural log) to 5 or 15 decimals depending on whether you ask for a single or double precision value.

For those who need to do quick conversions from decimal to binary or hex there are the BIN$ and HEX$ string functions which convert integer values to either a 16 bit binary string or a four digit hex string.

Here is another memory saver, the WINKEY$ command. It replaces those "100 A$=INKEY$: IF A$="" THEN 100" type of input lines. Instead, you would use "100 A$=WINKEY$". The program will wait at line 100 until some key is depressed.

For those who like to call machine language routines from your BASIC programs you can have an unlimited number of USR addresses available with the CALL function. You do not have to pre-define a USR address, and your routine does not have to worry about setting up the HL registers to get the parameter and pass it back. A command like "X=CALL &H9000,44" will pass the value 44 to the routine at &H9000 and return the value from the routine in variable X.

Want to find out how big your BASIC program is? Instead of doing a ?MEM<ENTER> do a ?SIZE<ENTER> and you can do just that. ?MEM is still available, of course.

For debugging there is the ZSTEP command which will start and stop single step program execution.

OK. We've covered the cute stuff, now let's get down to business. The real power of ENHBAS is located in one command and one function that TCG chose to tuck away under "miscellaneous". In addition to these two miscellaneous items, there are five commands associated with sorting that are yet to be equalled on any operating system on the market today, more than a year after ENHBAS was introduced. We'll look at the miscellaneous items first.

Ever think about writing an intellegent program that could modify itself? The EXEC command will let you do just that. EXEC causes any string literal to be executed just as if it were a BASIC statement in the regular program flow. So, if A$ were set equal to "PRINT X*100+40/Y" then the command EXEC A$ would print 80 if X=2 and Y=3. That is a trivial example, but the application possibilities are endless.

The EVAL function is equally as powerful as the EXEC function, and could have very good use in a Computer Aided Instruction (CAI) environment. Give a student a problem requiring a formula evaluation as an answer. Once the student thinks they have the answer have them type it into the program (from an INPUT A$ type of input) and then have the program do "A=EVAL A$: PRINT A" and the

formula that was typed in will be computed and the results displayed on the screen. Again, I think the potential here is staggering, especially in educational applications.

To (almost) end this discussion of ENHBAS, I'll take you for a quick tour of the sorting abilities of this enhanced BASIC program. There are 5 commands related to sorting. Four of them are used to set up for the sort, and the SORT command itself gets the ball rolling. The SCLEAR command clears the internal pointers in preparation for doing a sort. The KEY command tells the SORT command what order to sort which arrays. The TAG command tells the SORT command that certain arrays are not to be used as sorting parameters, but that this information needs to remain with other data when it is sorted. The ATOP command is used to limit the sort to a specific number of items in a group of arrays to be sorted; so you won't be sorting a bunch of zero's at the high end of an array that only half filled. After setting up the KEY and TAG elements and the ATOP value the SORT command is given. This routine is FAST as only a machine language routine can be. What limits does it have. How about: maximum number of KEY arrays is 15 and so is the maximum limit for TAG, giving you 30 arrays that can be manipulated at one time. The size of the arrays is of course limited by your machines memory, and all arrays must have been DIMensioned equally initially. With this ability you can easily find all the red headed males on the south side of London who have three or less children while still maintaining their shoe size and wife's maiden name but without sorting based on shoe size and wife's maiden name. The sort itself uses a modified Shell/Metzner technique and is very efficient.

Tape users will find that with ENHBAS they now have access to the disk functions MID$ (left side of equal sign), INSTR, and LINEINPUT"prompt"; features that are usually found only on disk systems.

I hope this gives you some idea of what ENHBAS can do for you. It really was just a quick overview. There are a few drawbacks, based on the version (2.4) that I have. Number one is that ENHBAS is not relocatable. There are 16K, 32K, and 48K versions available, but each must reside in its own little location in memory. The disk versions reside in high memory, the tape versions down low. The Cornsoft Group has not advertised ENHBAS for quite some time, possibly because the better (NEWDOS80, LDOS, DOSPLUS, and MULTIDOS) operating systems provide many of the functions that ENHBAS does. Also, making such a program compatable with all operating systems is a monumental task. Derek Trayler has been in recent contact with TCG and perhaps he can add comments about their support, or lack of it, for you here. In summation, if you don't have disk drives yet, or are using TRSDOS or NEWDOS+ or NEWDOS80 1.0, then I would highly recommend the program. It is more powerful and more convenient to use than, say, NEWBASIC, and I have never discovered any flaw in it after using it on and off for about a year and a half.

Reassignment of Scripsit control codes.

Although I strongly feel that Scripsit is still the best word processor available for the TRS-80, several friends have voiced complaints about the non-mnemonic nature of the control keys. I'm quite happy with them the way they are but can envisage that it can be confusing if one is using several different programs on a regular basis with differing control commands. Therefore for those of you who fancy a mnemonicised Scripsit , have a go at the following program modifications. This can be carried out in two ways, on the disc itself with a suitable zapper or in memory with a monitor program. If you are using a zapper, don't forget to do it on a copy!. The instructions apply directly to disc Scripsit on a model 1, but I will include 4 search bytes for each modification which should allow you to carry out the modifications on other versions of the program. The four instructions I propose to reassign are as follows :-

Instruction	Present Key	Future Key
Block	CTL/Q	CTL/B
Line	CTL/X	CTL/L
Paragraph	CTL/C	CTL/P
Insert	CTL/S	CTL/I

For those of you who are interested a few words follow about the changes we are going to make. For those of you who want to get down to the nitty gritty, jump to the modification section. The ASCII characters A-Z are coded as the hex digits 01H - 1AH when used as control characters in the program. Put simply, all we have to do to reassign the control keys is to substitute B (02H) for Q (11H) etc. at the required places in the program. The secret is in knowing where to find them. The first task is to modify the appropriate bytes in the main jump table for control sequences. This table contains 25 entries and is situated near the end of the program at 7993H. Once we have modified the required entries in this table half the work is done. As you know, the control sequences in Scripsit can be strung together to form more complex commands such as CTL/Exchange - CTL/Block. These other occurences of the control characters must be found and altered. These consist of two small jump tables for the exchange and delete commands, and two modifiers of the insert command. Once these are altered the program should work as required. For those of you who aren't sure what a jump table is, it normally comes in two parts. The first is a series of bytes which represent the list of options, in our case the various control characters. The second part of the table is a series of addresses which mark the start of routines to carry out each of the options. The program contains routines to see if there is a match in the list of options and then jump to the appropriate address. Enough of this theory, insert your disks and get to work.

Modifications.
In the following lists the bytes surrounded by square brackets are those that are actually changed.

1) Modify main jump table.
Search for 11H,05H,12H,01H
This should be at 799DH in memory or FRS 40, byte 3DH on disk.

Sequence is: 11 05 12 01 13 04 06 18 03
Change to :[02] 05 01 01 [09] 04 06 [0C][10]

2) Modify Delete jump table.
Search for 05H,06H,18H,03H
This should be at 79DFH in memory or FRS 40, byte 7FH on disk.

Sequence is : 05 06 18 03
Change to : 05 06 [0C][10]

3) Modify Exchange jump table.
Search for 03H,11H,1AH,03H
This should be at 7A0BH in memory or FRS 40, byte AFH on disk.

Sequence is : 03 11 1A 03
Change to : 03 [02] 1A [10]

4) Alter modifiers to insert command.
Search for 18H,28H,08H,FEH
This should be at 568BH in memory or FRS 4, byte 9FH on disk.

Sequence is : 18 28 08 FE 11
Change to : [0C] 28 08 FE [02]

That just about completes the changes, if you are working in memory, save yourself a copy of the new program using your monitor or DUMP etc. The addresses should be 5200H, 7AA4H, 5200H. If you've been using a zapper, then you're ready to go. If anybody is interested in an upgrade to Scripsit including DOS commands from within the text, output of printer codes including graphic characters, special commands for the EPSON printer, Himem respected, output of extra ASCII characters, and text recovery after crashes, then I've got just the program for you for the paltry sum of £15.00 . Give me a ring on 01-560-0754 after 6.00pm for further details.

Geoff Smith

MODEL III BUS SIGNALS

Unlike the Model I, the Model III bus is really an Input/Output bus. Here are the pinout details:-

Pin 1	DB0
Pin 3	DB1
Pin 5	DB2
Pin 7	DB3
Pin 9	DB4
Pin 11	DB5
Pin 13	DB6
Pin 15	DB7
Pin 17	A0
Pin 19	A1
Pin 21	A2
Pin 23	A3
Pin 25	A4
Pin 27	A5
Pin 29	A6
Pin 31	A7
Pin 33	IN*
Pin 35	OUT*
Pin 37	RESET*
Pin 39	IOBUSINT*
Pin 41	IOBUSWAIT*
Pin 43	EXTIOSEL*
Pin 45	NOT USED
Pin 47	MI*
Pin 49	IORQ*

All even pins are ground * active low

To initialise the I/O bus you must first write to port 0ECH with bit 4 set. During input, EXTIOSEL* must be brought low. It is high for output.

From TRS-80 Microcomputer News, Vol. 1, No. 1
P.O. Box 58,
Walsall WS1 1LA.

COMPLETE ACCOUNTS PACKAGE

I thought you would be interested to have for the newsletter and the business users in the group a preliminary report on some new software for the Model III.

I am referring to the Complete Accounts package from Quickmet of Blandford Forum, incidentally not connected with O & J House.

This suite of interactive Basic programs on TRSDOS covers the whole range from invoicing, purchase ledger,cash and journal input to producing a trial balance, P & L account, quarterly VAT return and on the way, customer statements, aged debtors analysis and cash matching of receipts to invoices. The system is supplied set up for a maximum of 300 accounts and up to 2000 documents can be posted to the personal ledger before the ledger has to be cleared and balances brought forward. All the data is written to drive 1 and it comes as no surprise that a full 48K system is required with a 132 character per line printer.

I thought our production reporting program created with Laurie Shields' help over the last 2 years was powerful as indeed it is, but the density of coding of this package makes the former look like a cassette game!

My problem so far has been to set up a sufficiently meaningful set of accounts on the ledger to be able to test all the facilities. Accountants jargon in some of the sub-menu options has succeeded in keeping me away from printing statements, cash matching or ageing the debtors, or is it so clever that until I enter some cash received, one cannot match it to an invoice?

It is easy to get carried away with the potential power of this system, but will it ever earn its' keep? I think it will once the menues have been dejargonised, some of the printouts improved and a few non-financial extras have been added peculiar to us. There are some irritating delays as one moves out of one large program into another and Newdos 80 file handling would work wonders. As part of the learning curve I shall reconstruct last years' accounts of the orchestra in which I play and am Treasurer before attempting to load any serious business data.

The sting in the tail? £795 + VAT. A lot of money, but you do get a lot of program. Mr. Metcalf, an accountant and joint proprietor of Quickmet demonstrates the system and has a working example in a London hotel group. His partner Mr. Quick is the programmer and will customise to specifications set by the user. Has anyone else in the User Group splashed out, I would be most interested to hear? If so we could have an Accounting forum at the next Business User Group meeting.

Meanwhile, watch this space whilst I work out a new title for such as "Credit purchases credit notes" !

Nigel Hyde

INSTANT SEARCH AND SORT

The review of INSTANT SEARCH and SORT published recently mentioned the limitation of the 64 cols. The new version 3.0 will allow twice the previous number which makes it much more useful especially when used with a printer. The printout is much improved in that the records are no longer splits up into 16 line blocks and it is possible to print out selected lines. I have found that ISS Version 3.0 is a worthwhile improvement on V 2.4. Any beginner would find it a useful program to get some idea of what can be achieved. My only complaint is the large number of keystrokes necessary to update a field and that while a file can be subdivided, two files cannot be merged.

I would like to thank A.J Hardings for their support of this program. I started off with version 1 on tape with my 16k machine and found that it is one of the few programs that will really work effectively with only 16k. As it took a ling time to load from tape, I put it on to my Exatron Stringy Floppy. This makes it an excellent system but V 2.0 was rather limited because it is vital to get the columns in the right order. V 2.04 allowed changes without starting from scratch. Hardings allowed the updated version to be obtained with only a small charge. By the time I added discs there was a disc version available and I upgraded again. Then came V 3.0 and again for a small sum I have now got the latest version. This way I have kept up to date and by using and showing the program I have in turn helped to advertise its uses.

Derek Trayler

16-BIT RIGHT SHIFT

I recently needed to divide a 16-bit quantity held in the DE register pair by two. The quickest way to divide by two is to perform a right shift of the register contents, but, unfortunately, Zilog did not provide the Z80 with 16-bit shift instructions. After a bit of head scratching I came up with the following pair of instructions that did the trick:-

```
SRL     D
RR      E
```

The code for the other register pairs and for the corresponding left shifts should be easy to deduce

Leon Heller

SEATING PLAN TEASER

In response to the request for a 'teaser' in Newsletter vol 3 no. 10 p. 35, here is one which reflects a problem I have every year.

Puritanian Components Inc. has a factory in each of the 10 EEC countries and in the US. Every year, to oil the wheels, there is a company dinner at H.Q. in Strelsau. The company invites the Trade Minister and a senior ministry official from each country. The factory managers from two of the countries also attend, the two being chosen in rotation. The Company Chairman sits at one end of a long table, the M.D. at the other, the Company Secretary and the Production Manager sit towards the middle but not opposite or adjacent to one another, and there are also four board members from H.Q.; i.e. a maximum of 32 people.

The problem is to arrange the seating plan so that no-one sits next to or opposite someone from his own country, or next to or opposite someone he sat next to or opposite the previous year; that no company employees (including factory managers) sit next to or opposite each other; and that the H.Q. people are as evenly distributed among the foreigners as possible.

Write a Basic program to cope with the following contingencies:
(1) The first year of the dinner everyone turns up including factory managers from Britain and Belgium.
(2) The second year, there have been changes of government (so new ministers) in Belgium, Holland, and Italy; the French minister gets flu at the last moment; the British official sends a deputy; and the factory managers are from Greece and Holland.

Is there a general solution to such problems?

C.R.J. Currie

(* General solutions to problems of this type are discussed at some length in a book, probably long out of print, called Mathematical Recreations and Essays, by W.W. Rouse Ball, rev. by H.S.M. Coxeter (Macmillan, 1962). London University Senate House Library has a copy. I have some recollection of Rouse Ball discussing Kirkman's school girl problem, which I think was very similar to the above.

Incidentally, this book, written about 80 years ago, long before electronics, let alone computers, really started, is full of problems and algorithms that would form extremely interesting projects for solution on a computer. Some of the topics I remember are mazes, magic squares, and chess problems. LFH *)

E.U.G. CORRECTION

ON PAGE 25 OF VOLUME 3 ISSUE 11 IS A LISTING TO ALTER A PROGRAM IN THE EDUCATIONAL USER GROUP LIBRARY. THE LISTING IS ACTUALLY A SUBSTITUTE BLOCK FROM LINE 1200 TO LINE 1300 FOR THE PROGRAM "ADDITION AND SUBTRACTION" NOT FOR MY PROGRAM "ARITHMETIC PRACTICE". I APPOLOGISE FOR ANY INCONVENIENCE THIS MAY HAVE CAUSED. THE CONFUSION OCCURRED AS THE LISTING BECAME DETACHED FROM MY ORIGINAL LETTER TO DAVE FUTCHER.

KEN ROBINSON
(0908 75479)

REMOVING TRAILING SPACES - AN AMENDMENT

Charles Davies has pointed out that the function I published in the May issue leaves one trailing space. This was intentional as it saved me re-inserting the space when printing out someone's full name (eg. MR JOE BLOGGS). Charles suggested the insertion of -1 between the final pair of brackets to remove the last space:-

```
DEFFNLJ$(A$)=LEFT$(A$+" ",INSTR(A$+" "," ")-1)
```

Incidentally, this function also seems to remove leading spaces, and can pick out the first word in a sentence!

Leon Heller

* * * FOR SALE * * *

New, unused, Holmes 32K expansion board - £60.

C.T. Dempsey,
Flat 2,
57 Woodlands Road,
Ilford,
Essex.
Tel: 01-514 0733

COUNTING THE NUMBER OF WORDS IN A SCRIPSIT FILE

It is often desirable to know how many words there are in a text file. For instance, academic theses are supposed to be so many words, depending upon whether the thesis is for a master's degree or a doctorate, and some journals stipulate an approximate number of words for articles. One problem with Scripsit is that, unlike Electric Pencil, it does not tell the user how many words are in his or her document. Of course, if like me, you have both word-processors, you could create the document with Scripsit and read it into Pencil to perform the word count. I decided to write a stand-alone program to perform this function.

One of my favourite books is 'Software Tools' by Kernighan and Plauger, and they have a program written in Ratfor (Rational Fortran) to count words. I merely translated the program into assembler and found that it ran first time.

The Ratfor program is discussed first.

Following Kernighan and Plauger, a word is defined as a sequence of any characters except blanks. Every time there is a transition from not being in a word to being in a word, another word is counted. The variable inword is used to record which state the program is in at any given time; initially it is 'not in a word'.

The following Ratfor program should be fairly easy to follow. Ratfor is very similar to C, a superb systems language, and is somewhat like Pascal, without the verbosity of the latter.

```
#wordcount - count words in standard input
        character getc
        character c
        integer inword,wc

        wc = 0
        inword = NO
        while (getc(c)¬= EOF)
              if (c == BLANK | c == NEWLINE | c == TAB)
                    inword = NO
              else if (inword == NO){
                    inword = YES
                    wc = wc + 1
                    }
        call putdec(wc,1)
        call putc(NEWLINE)
        stop
        end
```

Translation of the above program into assembler was quite

```
easy:

;       * * * WRDCNT/MAC * * *
;
;USES EXTERNAL LIBRARY - LIB/MAC
;
        ASEG
        EXT     ERROR,CLOSE,DOS,CLR,PRINT,LINPUT,OPEN
        EXT     DSPLY,READ,PDEC
;
ERRTST  MACRO   LBL             ;ERROR TEST MACRO
        JR      Z,LBL           ;JUMP IF OK
        OR      0C0H            ;DISPLAY ERROR MESSAGE
        CALL    ERROR
        LD      DE,DCB          ;CLOSE FILE
        CALL    CLOSE
        CALL    DOS             ;RETURN TO DOS
        ENDM
;
;ALL EQUATES HERE
;
START   EQU     7000H
LRL     EQU     1
CR      EQU     0DH             ;EMBEDDED CONTROL CODES
NPARA   EQU     0EH
NPAGE   EQU     0CH
BOPEN   EQU     17H
BCLOSE  EQU     1BH
COPY    EQU     0BH
;
        ORG     START           ;START OF PROGRAM
        LD      SP,START        ;INITIALISE STACK
        CALL    CLR             ;CLEAR SCREEN
        LD      HL,MSG          ;GET FILENAME FROM USER
        CALL    PRINT
        LD      HL,DCB
        LD      B,32
        CALL    LINPUT
        LD      HL,BUF          ;OPEN FILE
        LD      DE,DCB
        LD      B,LRL
        CALL    OPEN
        ERRTST  MOK             ;CHECK FOR OPEN ERROR
MOK:    LD      HL,0            ;INITIALISE WORD COUNT
        XOR     A               ;NOT IN WORD
        LD      (INWRD),A
AGN:    CALL    GETC            ;GET A CHARACTER
        AND     7FH             ;STRIP MSB
        OR      A               ;TEST FOR EOF
        JR      Z,DONE
        CP      ' '             ;NOT WORD IF BLANK OR CONTROL
                                ;CODE
        JR      Z,NOTWRD
        CP      CR
        JR      Z,NOTWRD
```

```
        CP      NPARA
        JR      Z,NOTWRD
        CP      NPAGE
        JR      Z,NOTWRD
        CP      BOPEN
        JR      Z,NOTWRD
        CP      BCLOSE
        JR      Z,NOTWRD
        CP      COPY
        JR      Z,NOTWRD
        LD      A,(INWRD)       ;TEST IF IN WORD
        OR      A
        JR      Z,WRD           ;JUMP IF YES
        JR      AGN             ;NEXT CHAR IF NO
WRD:    LD      A,1             ;INWRD <- 1
        LD      (INWRD),A
        INC     HL              ;INC. WORD COUNT
        JR      AGN             ;GET NEXT CHAR.
NOTWRD: XOR     A               ;INWRD <- 0
        LD      (INWRD),A
        JR      AGN             ;GET NEXT CHAR.
DONE:   CALL    PDEC            ;PRINT COUNT
        LD      DE,DCB          ;CLOSE FILE
        CALL    CLOSE
        CALL    DOS
;
GETC    EQU     $
        PUSH    HL              ;SAVE REGISTERS
        PUSH    DE
        LD      HL,UREC         ;POINT TO UREC
        LD      DE,DCB          ;POINT TO DCB
        CALL    READ            ;GET CHARACTER IN UREC
        ERRTST  GOK             ;CHECK FOR READ ERROR
GOK:    LD      A,(UREC)        ;CHARACTER IN A
        POP     DE              ;RESTORE REGISTERS
        POP     HL
        RET
;
MSG:    DB      CR,CR
        DC      'FILENAME: '
;
INWRD:  DS      1

DCB:    DS      32
UREC:   DS      1
BUF:    DS      256
;
        END     START
```

Apart from GETC, all sub-routines used by the main program are in a general sub-routine library I have established, together with several other useful sub-routines that have been thoroughly tested, which is held on disk as a relocatable object module. Using the MACRO-80 linking loader these sub-routines are linked to the main program

module to form a single executable object module.

PDEC prints the value in the HL register pair as a five digit number, with leading zeroes if necessary. The leading zeroes could easily be deleted.

A copy of this program will be placed in the library.

Leon Heller

COP16K

I was interested to read in April's Newsletter about the "Feature ROMs" for the Video Genie. I was surprised to read the reviewer extol its ability to copy 16K programs in 16K of memory.

Has not the National Club heard of COP16K ? This little beauty copies everything, even those elusive Adventures. COP16K does not use 2 cassettes (I have been stung by programs like that before) or fancy ROMs.

The program is menu driven and allows the copying of SYSTEM format tapes with full checksum checking.None SYSTEM tapes can also be copied.These tapes (SYSTEM or none SYSTEM) can then be verified then dumped on tape.A copy with full verification can be completed with 4 keystrokes! If the machine should hang up, say due to a volume hassle, then just press RESET and your back with the menu - magic!

The documentation is excellent; and the author, Mike Keegan, has left his phone number on the copyright page. I took the oportunity to give him a call and was greeted with friendly helpfullness. He even told me how to copy the Acorn protected tapes: it couldn't have been easier. He tried to explain how the program appeared not to occupy any memory, but I am afraid it was all over my head.

I honestly believe it to be the best program sold by Molimerx. By the way Laurie it will concatenate program modules so now you can get EDTASM+ out again.

Dave Parry-Jones

x x x LIFT TO LUTON x x x

David Washford, from Bournemouth, intends to attend the full three day workshop at Luton in July. Driving up early Friday morning, he will be pleased to give a free lift to any member from the Dorset/Hampshire area. Anyone interested should 'phone him any weekday between 8.30 a.m. and 6.30 p.m. on (0202) 671122, or after 8.30 p.m. on (0202) 423064.

MODIFICATIONS TO SCRIPSIT FOR THE VIDEO GENIE

The following modifications to Scripsit are to make the program suitable for use with the Video Genie. Using Prozap or Superzap. the printer in / out addresses are modified from the TRS80 37E8H address to the Genie port FDH.

Relative file sector	0000H
Bytes	48H,49H,4AH
Current	32H,E8H,37H
Change to	D3H,FDH,00H
Relative file sector	000DH
Bytes	9BH,9CH,9DH
Current	3AH,E8H,37H
Change to	DBH,FDH,00H
Relative file sector	0014H
Bytes	93H,94H,95H
Current	3AH,E8H,37H
Change to	DBH,FDH,00H
Bytes	A4H,A5H,A6H
Current	3AH,E8H,37H
Change to	DBH,FDH,00H
Bytes	B2H,B3H,B4H
Current	32H,E8H,37H
Change to	D3H,FDH,00H
Relative file sector	0015H
Bytes	7AH,7BH,7CH
Current	32H,E8H,37H
Change to	D3H,FDH,00H
Relative file sector	0029H
Bytes	3BH,3CH,3DH
Current	32H,E8H,37H
Change to	D3H,FDH,00H
Bytes	42H,43H,44H
Current	32H,E8H,37H
Change to	D3H,FDH,00H

Ken Grey

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TUTORIAL NOTE ON RUNNING SUB-GROUPS

At MKMUG in Milton Keynes we have had a right autocrat running the club for over two years. Then along came a democrat wanting to change, bring in a committee, bring in outsiders to talk. TRASHEIGHTY has to go, leave systems at home, my ideas are better than the autocrats. Morale has dropped, numbers have dropped, short talks have dropped, fewer systems are seen, a crisis vis a vis the club is now with us, with the democrat not even putting in regular club sessions to assist in the solving of the crisis.
A Keen Clubman(name & address supplied)

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re. 80-NET Bulletin Board.

I am writing to you for information about the new 80-Net Bulletin Board as I am hoping to be able to contact this service before long. I have received some information from F.Brown Esq. about the Forum-80 system which he runs in Hull.

My system consists of a Model 1 TRS-80 microcomputer plus expansion interface with RS232 interface installed. I have a dual disc storage with 48K of memory, and a Centronics 737 Printer. I am contemplating purchasing a modem and associated software for use in communication. Do you think there are any particular advantages to be found in the Minimodem 3001 from Modular Technology, compared with the Modtech M103-C for this purpose. I am also hoping to be able to use my system next year to log onto the OU computer and would either of these modems prove useful for this purpose.

The software which would appear to be preferred is the ST80-D, would this be suitable for 80-Net and would it also be useful for my projected hope of logging onto the OU computer next year. I would appreciate it if you could let me know of any other software or hardware which you feel may be preferable or just as suitable, for this purpose.

I look forward to receiving any help which you feel able to give me in this field which I have found a little confusing.

BRIAN TONGUE 0584-810015 (WORCS)

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WORKSHOP REPORTS
LONDON SOUTHALL June 12

From a personal viewpoint the day was especially enjoyable as Mark my eldest son came along, and enjoyed himself so much that he wants to go again. The catering was by courtesy of two local takeaways, and the lectures courtesy of Leon Heller, John Newgas and Leo Knaggs.
Leon did the first session on using MON3, enjoyed by some new faces, and as usual the questions & answers were the best part.
John's session on FORTH went on well past the start of lunch, which may indicate that there is a growing interest in the variety of languages available and the willingness of members to sit and have a good think with others, on their merits.
Leo was invited to do a long slow leisurely session on TRSDOS and its successors. Again when I joined the questions and answers members were enjoying the luxury of a relaxed Leo and a small group going over those points causing them problems. BRIAN PAIN

BIRMINGHAM June 5 POLYTECHNIC OPPOSITE BOTANICAL GARDENS

Here the aforementioned eldest son met utopia-2 pool tables, fish fingers, chips and coke. The facilities at the Poly are the best we have, and I am now endevouring to interest other groups to join in with us. The contributions were by Tony Packer and Laurie Shields and were different from other sessions done in Birmingham.
Tony went through a program that he had recently purchased and found not up to his requirements. The time up to lunch just flew, as everybody had something to say about this program or about others they had bought and considered to be of questionable value. Tony also had a problem of backup from the suppliers, and this also kept the pot boiling without any trouble, which I hope shows that for those members who still have not made a meeting, you are missing some really interesting contributions.
Laurie switched from the advertised session to SPECIAL DELIVER, a business program bought and modified where a particular purpose had been found. He also mentioned two other programs bought and much modified for specific applications - PAYROLL and STOCK CONTROL. One particular application that came up is a non-financial stock control program and both Tony Packer and Eric Frankland agreed on this with Laurie a little surprised that it would be of any use.
Both of the above sessions were due to the enthusiasms of the users, and similar presentations will take place on 23rd JULY (Friday 9 hours) at LUTON.
BRIAN PAIN

ROBOT ATTACK - BRIAN PAIN STYLE
At the request of potential users a further feature has now been added to the ROBOT 'G7', that of NOV5 type rockets When the robot reaches a certain position in the playground the blue touch paper will be ignited and one or two rockets will be launched. Targets will be the tuck shop, canteen, and favourite person's cars.
The targets in the library will be that person who keeps talking, does not pay fines, smokes, and assaults librarians with questions Discussions are being held with urban guerrillas with a view to supplying armour plated versions to counter uncivilised police measures, like handcuffs, verbal warnings and wooden truncheons
Brian Pain

****
* 80US-MKSS *
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YORK April 25 ERPRISE CLUB

Watch the traffic wardens in York, they are very sharp even even at 9.00am on a Sunday. The catering was by Neal Guppy of the club, and Ken Thomas must be thanked for finding the premises. We had Jeff Miller from London and Tony Jones from Winchester making that very long drive, but it does seem to be worth it. A bonus for the next one in August is the promise by the Scottish members is to have a go at joining us at this particular spot, as the facilities are excellent for members to bring others who might like see York while the computer freak enjoys the day.
Leon Heller went over DIY addons, briefing the members on joysticks and information required to understand how these work. Mention must be made of the front row(bench)- David Hemingway & Rod Souter - David understands & can explain hardware, Rod is similar on software. The questions & answers really motored and what a shame we cannot put Dave & Rod on video.
I did a session on the MYSTERIES books, following on from Gloucester and once this was underway another HULL member, Arthur Firth gave all of us some first class assistance on the use of the books. Eric Frankland had just received the CUSTOM issue and the whole series was now on show. Although very expensive for most of us, they are really tools for those always using the TRS80, and a constant reference.
Laurie Shields very kindly went through his Notes Part 2, and as usual answered all questions impressively, asking some of his own, which were not answered so well. Laurie has agreed to do 8 hours on machine code programming at the London meeting in October, so why not come along and get some questions ready for that date?
Brian Pain

HULL May 9 CENTRE MOTEL

The countryside is flat, the BRIDGE quite beyond description, but breathtaking, astonishing and worthy of just standing still, and letting the eyes rove from end to end endlessly.
The journey was exactly 3 hours arriving at 9.00am, and Fredk. was late!-beating the local members on their own patch is always a bit of fun.
Catering was beer & sandwiches with me making a pig of myself and enjoying the company around the table. The sessions were by Leon Heller, Eric Hartley and Alan Redhouse with the systems in the most roomy comfortable ballroom imaginable.
Leon went over various languages that run on the TRS80, and here Rod Souter helped with the odd lapse of Leon's. Leon's notes on BASIC, PASCAL, ALGOL, COBOL, FORTRAN, FORTH are available if enough members are interested, and they would make an excellent teachers guide for use in the classroom or as a handout.

Eric Hartley brought along his RS232c board that works on the 16k & 48k system explaining the background to the work going into it, also agreeing that it will fit the ZX81.

After lunch Alan Redhouse went through his own DIY add-ons with such ease & panache that I called him a computer 'snob'. The latter was due to the fact that he turns up with everything in a battered suitcase, loose wires everywhere, blows a regulator while chatting and the beer inside me! If anybody wants a tutor on this area then Alan has quite a mastery.
Brian Pain

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AJEDIT was introduced as a new word processor some months ago, having been written with ease of use as a prime design requirement. Since then it has achieved market success, so much so that it has gone through two additions, together with the introduction of a Manual specifically aimed at the first user. The documentation now totals about 60 A4 pages.

Arrangements have now been made with Logical Systems, Inc. of the United States, the authors of the LDOS disk operating system, for the inclusion in AJEDIT of a stripped-down version of this disk operating system, called smal-LDOS. This gives to AJEDIT a number of major benefits. For instance it now incorporates "type ahead". This means that if you are typing into the word processor whilst the machine is looking at something else, input is stored and then accepted by the program at its own convenience. One of the major advantages of this, of course, is that it is now pretty well impossible to outstrip AJEDIT in speed, particularly at the most critical end of line time, when the program is very busy tidying up. A further improvement given by the marriage between AJEDIT and smal-LDOS is the key repeat function. If the user's finger is kept on a key for longer than a certain time, then that key will repeat on the screen or, if it is a control key, its function will repeat. Both the delay time before the repeat starts, and the rate of repetition is adjustable. Yet another improvement is the addition of a screen print facility so that at any time the operator may (for instance) print out his source file from the screen, complete with all control characters.

To some users these additional functions and others, such as double density support, will not be of the greatest importance and as the smal-LDOS version of AJEDIT is higher in cost, we will be continuing the previous version.

Both versions of AJEDIT contain close to 100 commands, covering most word processor requirements, including two sets of dedicated printer commands for the Epson MX series and Centronics 737 machines. Three principle advantages of AJEDIT over some other word processors are the ability to access DOS commands from within AJEDIT, the facility to mail merge (whereby a names, addresses and salutations file can be married up to a standard letter), and most important of all, the fact that AJEDIT commands are so constructed that they are easily remembered by intermittent users.

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Memdisk is an absolute boon for the single drive user. Files may be copied from his single drive to the drive in memory, disks changed and then copied back. To coin a phrase — the applications are only limited by the imagination of the user whether you have one drive or more — after all, you always need another!

There are, of course, some limitations. Chiefly, that the maximum size of storage is 27K usable. The other side of the coin is that this space is user selectable from 1.5K to 27K. Tracks may be set up in 1.5K or 3K blocks.

Memdisk may be used with Double Density drives without any problem, although the memory drive itself, of course, cannot be double density. To assure reliability, Memdisk tests the RAM area which it is going to use before it installs itself.

Best of all, a Memdisk drive is faster than any floppy drive available and it is even faster than many hard disk drives. Memdisk involves no additional hardware of any sort. There is nothing to align, nothing to clean and nothing to break. It's all software.

Memdisk is available for all Genie machines and the Tandy Model 1 and Model 3. It requires a minimum of one drive 48K RAM and LDOS.

Memdisk..... £29.45 inclusive

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