

NATGUG *NEWS*

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OFFICIAL JOURNAL OF THE
National TRS-80
& Genie Users
Group.

INFORMATION ON THE GROUP

Membership of the group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. Membership of the group is open to anyone with an interest in computers but special emphasis is placed on equipment in the TANDY range.

Details of the Group accounts, and the constitution of the Group, are available 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 in the Newsletter from time to time.

The Group maintains two software libraries (Models I and II) which are free to members. Library lists are available from the Secretary.

For confidentiality reasons, the membership list is not generally available, but members may ask the secretary for a list of members in their area, and mailshots to all members may be arranged.

Back numbers of the Newsletter are available from the Secretary.

Please send all contributions for the Newsletter to the Editor, on disk if at all possible (5.25", NEWDOS-80 v2 or Montezuma Micro CP/M preferred, any combination of density, sides or tracks, but please say what it is). Your disk will be returned.

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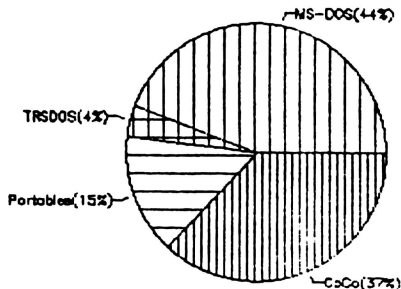
EDITORIAL

I'm writing this editorial in the second week of December, I doubt that this issue will get to you before Christmas but if it does then Happy Christmas to you all, and it doesn't then a Happy New Year will have to do. The reason for the delayed publication is that we've had no contribution's for 6 weeks, it's not easy to produce a magazine if no one has anything to say.

There have been one or two rumour's floating around that Brian Pain is on the point of resigning as publisher and secretary. I've asked Brian about this and he says quite categorically that this is not the case. At the moment he still has a great deal of enthusiasm for the group and intends to stand for re-election at the AGM. While talking to Brian we discussed the results of attempts to attract Amstrad users into the Group. The two adverts placed in Amstrad magazines resulted in three (yes 3) enquiries and no takers. Not a very good return on our not so plentiful funds.

I've included a pie chart taken from 80-micro (redrawn with supercalc-4) which describes Tandy's sales totals by operating system for the first quarter of 1986. As you can see the TRSDOS machines really are in the minority - 4% represents 3,900 machines as opposed to 42,000 MSDOS machines.

TRS Computer Sales (1st Quarter, 1986)



I've also included a press release sent to me from Tandy in mid November, which shows just how hard they are pushing their MSDOS lines. Any new Tandy members that we get are going to be MSDOS people. So as a last resort we've decided to try the other suggestion made at last years AGM, ie. go straight for the MSDOS hacker and place one or two strategic adverts.

If this policy is successful it may mean that we become more of a general computer interest group rather than Tandy specific. If this excites you or upsets you, then write in and let us know and above all come to AGM in the Spring and vote on the issue.

Kermit News. I've found a bug in the CPM 4.03 Kermit which causes it to occasionally remove 1AH bytes from a transferred file. This happens if the 1AH is the very last byte in the internal buffer and you are using DEFAULT file transfer. Since the buffer is 16K you might think the chances of it happening are remote but it's happened twice to me - that's how I found it. Columbia University are aware of the problem and will attempt a fix but for the moment if you know that you are going to transfer binary files then select FILE-MODE BINARY then there will be no problem.

There is a new MSDOS version that employs a sliding window technique that enable ACK's and NAK's to be sent back while packets are being received. I'm rather hazy on the technical details but it apparently speeds up transfer quite significantly. Also I've got a copy of a CPM / MSDOS kermit written in Turbo Pascal, which makes for somewhat easier patching and hacking.

Greg Wonderly, the author of the TRSDOS 6 kermit for Model 4 users has finished his latest upgrade and it is a very powerful version, nearly up to the MSDOS versions in terms of capabilities, ie, being able to act as server etc. He's expressed an interest in converting this version to Model 1/3 systems but requests some aid with finding the appropriate DOS routines to take place of the SVC's used in TRSDOS 6. If anyone is interested in helping then let me know and I will attempt to put you in contact.

Finally in view of the interest being shown in the in Amstrad PC 1512 we have two mini reviews on this beastly. One from our very own Leon and one from a friend of mine who originally produced the short report reproduced here for the benefit of the MRC research laboratories for whom we both work. His evaluation (and it is preliminary) is more directed towards use in that environment rather than as a home micro

STOP PRESS Notes for your Diary.

The next Swindon meeting will 13/14/15 March 1987 at the Wiltshire Hotel, Fleming Way ; Phone 0793-28262 Please drop us a line if you would like a Particular topic covered, or just a chat about the group and/or workshops.

FASTSORT for the PC.

I have bought this recently and am currently playing with it at college. It's a m/code routine which is called from BASIC, with several Parameters Passed to the routine. It is fast but not as flexible as CMD"O" and SRTV from INFINITE BASIC.

Brian Pain.

Tandy Press Release

This is a document produced by Tandy Marketing Division and should be read with that fact in mind however it does make quite interesting reading- Ed.

Tandy Announces Price Reductions on IBM Compatibles and Launches Drive to Attract New Dealers with up to 25% Margin on Single Units

With effect from Monday 10th November 1986, the Tandy 1000HD (hard disk) IBM PC-compatible and Tandy 3000 AT-compatible micro-computer systems are reduced by between £300 and £650. Following a fundamental change in marketing policy, the company is also to launch a major campaign to attract new dealers, including national high street stores and specialist computer retailers.

The price changes, specific to the UK and specially negotiated with Tandy/Radio Shack in the United States, are a result of the continued success of the Tandy 1000 series throughout the world. Linked to the drive to attract more dealers, the price cuts are the first step in a consistently aggressive campaign by Tandy to compete with the leading suppliers of IBM compatibles in the UK.

Tandy's previous policy limited dealers to locations not competing with its own stores and did not permit the appointment of companies which would be regarded as competitors. Tandy is now looking for a wide variety of resellers, from small independent retailers to VARs, distributors, systems houses and national high street stores or specialist computer chains.

Tandy is unique amongst other PC compatible suppliers because it owns its distribution, currently consisting of 215 Tandy/Computerworld stores, giving it a strong base for expansion. The company also has a direct sales operation and 150 dealers and has well established systems to supply and distribute merchandise.

Said Ted Russell, director of Tandy Computers: "Certainly, we can now compete directly with the likes of Amstrad, Tandon or Zenith. However, they cannot possibly match what we can offer our dealers in terms of support, product range or margins. Dealers need sensible margins and machines that are available now, from a reputable supplier. We are offering up to 25% on one-offs; our products, including the new low cost IBM compatible Tandy 1000EX, are in the stores and we have all the software and peripherals to go with them - a single source of products from a company that has been successfully selling large quantities of micros since 1978. I don't think anyone else has such a proposition."

He continued: "In the UK, Tandy has often been referred to as 'the sleeping giant', but we are committed to selling micros here. Now that we have a range of products to meet the needs of the customers at both ends of the spectrum, we shall develop the business to maximise our strength and buying power".

Mr Russell concluded by saying: "We know we can retail computers in this country. Computer sales in our stores are contributing more and more to the business and we are, after all, here to make a profit. But we want to move forward more quickly. These announcements are not an isolated step; we will maintain an aggressive marketing stance and put pressure on our competitors".

For further information, please contact Clare Bainbridge, Public Relations Officer, Tandy UK. Tel: 0922 477778 ext 298.

**New Prices For Tandy 1000HD and Tandy 3000 Computers
All Products Available Now**

Model	Old Price Ex VAT	New Price Ex VAT
Tandy 1000HD IBM PC Compatible (All with MSDOS 2.11, BASIC, 'Deskmate')		
Tandy 1000HD, 256K RAM, 1 x 360K floppy drive, 10Mb h/d, mono monitor.	£1195	£ 895
Same model, colour monitor.	£1395	£1095
Tandy 1000HD, 640K RAM, 1 x 360K floppy drive, 20Mb h/d, mono monitor.	£1695	£1055
Same model, colour monitor	£1895	£1249

Tandy 300 IBM AT Compatible

Tandy 3000 basic system with 512K RAM,
single 1.2Mb drive DISCONTINUED

Tandy 3000, 512K RAM, 1 x 1.2 Mb floppy, dual display adaptor, 20Mb hard disk, MSDOS 3.1/3.2 and 'Deskmate' software	£2495	£1995
Colour version of above	£2995	£2375

Please Note:

Tandy 1000EX prices (announced September 1986) are unchanged:
256K, single drive mono system with MS DOS 2.11, BASIC, 'Personal
Deskmate', 1 hour's free training with 1 year's hotline support:
£499; Colour version is £549.

Tandy 3000HL (80286 IBM XT compatible) prices are also unchanged:
512K single 360K floppy drive unit is £995;
As above with dual display adaptor, 20Mb hard card, MSDOS 3.1 and
'Deskmate' is £1795.

The new computer prices are the major price changes announced with effect from 10.11.86. amongst additional new prices on various peripherals are the following software price reductions:

Microsoft Word	(inc. VAT)	£458	£102.35
PFS: Write	" "	£136	£ 39.95
PFS: File	" "	£102	£ 39.95
PFS: Report	" "	£125	£ 39.95
PFS: Graph	" "	£136	£ 39.95

These products are now added to the range of low cost business and games software available from Tandy.

for further information, contact Clare bainbridge, PR Officer, Tandy UK on 0922 477778.

**** NB ****

The above hardware and software is of course also available from Os House at BLANDFORD COMPUTERS (0258) 53737.

THE AMSTRAD PC1512 - I

I thought it was about time I jumped on the bandwagon and got a PC of some description, so I recently lashed out on one of the new Amstrad PC1512s. Not being interested in colour, and hoping to save a bob or two by putting in my own hard disk, I ordered the cheapest mono, single-floppy model from my local Dixons emporium. This is also the easiest model to obtain at present, so I only had to wait about a month before it arrived.

What do I think of it? Since my main interests are software development and word-processing, I haven't any time for GEM and the associated rodent, but as a cheap machine on which to run the masses of good quality software that is available for the IBM PC and clones, it takes some beating. I've been doing a lot of work recently with a genuine IBM PC XT and a Tandon PC (both fitted with hard disks) and I much prefer the Amstrad, although I have yet to fit a hard disk to it. With a full 8086 and 8 MHz clock, the Amstrad is very much faster than the other machines, and I don't really miss the hard disk at present, as I use a RAM disk for all my word-processing and software development.

The Amstrad keyboard, although it feels a bit tacky, seems to suit me much better than those on the IBM and Tandon, and the machine only takes up about half the space on my desk. The only software I have that doesn't work properly on the Amstrad is a comms program supplied by ICL as part of their development package for the One Per Desk. I actually use the Amstrad for software development (editing, cross-compiling and linking) and only use the Tandon for downloading the resultant hex file to the OPD for testing.

Since I needed a bi-directional parallel port with handshaking for some work I'm doing for my own amazement with an Immos Transputer (more details in the next issue), I invested in a Taiwanese parallel interface card (with two 8255s and an 8253). The parallel ports seem to work OK, but I haven't yet got around to testing the 8253. I might have problems, because the clock on the Amstrad could be bit too fast for it. I only need the parallel ports, anyway, so I won't be upset if the 8253 doesn't work properly. Most hardware for the PC should work in the Amstrad, although since it includes many of the things that are extras on other machines, such as colour, serial and parallel ports, a mouse, etc., you won't need to buy very many additional bits and pieces.

All things considered, I'm quite pleased with the PC1512, and recommend it to any members who want a cheap machine to run PC software.

Leon Heller,
30 Baldslow Road, Hastings, . Sussex, TN34 2EY. (0424) 714790

The Amstrad PC1512 - II

Computing Services have an Amstrad PC1512 under test. There is interest in its possible use as a wordprocessing workstation or terminal replacement. A thorough trial will take some weeks, but we have learned some facts about these machines which will need careful consideration before we can give even a qualified endorsement to them. The machine under test is a 10Mb hard disk, single floppy, monochrome display, 512K version.

The first feature we noticed is the two wire mains lead, lacking the earth connection favoured in the UK. As such, this is not dangerous, we have tested the insulation, and presumably the machines pass the UK requirements for two wire mains operation. However, while there is no metal exposed in normal keyboard work at the machine, the ports at the back for printers and communications do have metal parts accessible. The lack of a connection to earth of this metal was found to interfere with communications (via Kermit) to the DEC 20. Fortunately, there is a convenient place at the back of the monitor for an earth connection, and when we made this modification the communications worked correctly. This modification should only be made by qualified engineers.

The PC1512 is cheaper than the IBM PC equivalent, and is correspondingly less well built, so it is likely to prove less robust than the IBM product. All machines with hard disks in them need to be protected from knocks and jolts, particularly when the disk is spinning, and even more so when the program is reading or writing data to the disk. The Amstrad has its power supply in the display monitor with cables at the back joining it to the system unit. If these cables were accidentally pulled out while the machine were on, a total loss of data from the hard disk is possible.

So far, the PC1512 seems to run all the software we have tried; that is, the packages we normally use. Most observers point out the poorer quality of the screen characters as compared to the more expensive IBM machines, and it is thought that the Amstrad colour monitors have even poorer text. However, some of the staff preferred the Amstrad screen text. The machines run software a bit faster than the original IBM PCs, and have a graphics capability equivalent to the IBM colour card standard (640 Horizontal, 200 Vertical), but with grey levels instead of colour on the monochrome monitor. All software must be tested to see if it will run, for the machine cannot be electronically identical to the IBM PC.

On the hard disk version there is a choice of operating system, DOS PLUS or DOS. DOS PLUS is a version of Digital Research's Concurrent Dos, and runs the impressive GEM Desktop icon-based operating system interface. However, few PC DOS software packages use this, and some will even fail to run under DOS PLUS, so we use the DOS option (F2) which gives the normal PC DOS system.

It needs also to be kept in mind that the PC workstation standard is not static, but must evolve to encompass advances in hardware and software. Early next year a new expanded PC-DOS operating system is expected. Unconfirmed reports suggest that this operating system will allow DOS to break free of the present 640K memory limit which is causing difficulties for the larger software packages. There is also expected to be a facility to run several programs concurrently, but only for one user. To be able to run this new operating system ('CP-DOS'), the workstation must have the correct hardware configuration. This is thought to include an 80286 processor and 1Mb or more of memory and appropriate graphics. The Amstrad machines have the 8086, so are unlikely to be able to run the new DOS. This is not a catastrophe, as PC-DOS will serve well for many years yet, and the new DOS will have a high degree of compatibility with the old in respect of text and data files. There may be an emulation mode under the new DOS to run old DOS programs. New programs will appear to take advantage of the new DOS, and these new programs will mostly not run on old systems, but it is probable that reduced versions for the old DOS will be available.

To summarise, it seems that with careful planning, we can take advantage of a range of mutually compatible workstations of increasing power. Each task can be satisfied with a machine of just the right level of processing power.

A. Telford. CRC Computing Services

Hints and Questions from Ken

Software Suppliers For the TRS-80

I see from the latest flyer from East Sussex that the greatest software supply house in Europe (did you doubt it?) has now decided that there is no future in the TRS-80 and is going to concentrate on MS-DOS. I am not aware of any other sources in the UK or even in Europe who stock a wide variety of software for the old guard but would like to make a recommendation for an American alternative.

I have been purchasing almost all my requirements (apart from Allwrite and fonts for Dotwriter) from DiskCount Data, 2701-C West 15th, Suite 612, Plano, TX 75075. I have always found them to be more than helpful and willing to do a little extra, and their prices are invariably lower than any others advertised in 80-Micro. They do not publish a catalogue but have a two-page spread in 80-Micro every month which should give an idea of the wide range they carry. Payment is no problem as they accept all credit cards, their response is usually prompt and you can expect delivery in 2-3 weeks.

Incidentally, they are now the only source for "The Programmer's Guide to TRSDOS6" by Roy Soltoff, which together with the Technical Reference Manual, is essential reading for serious Model 4 programmers.

Publications for the TRS-80

First the bad news. "Northern Bytes" has ceased publication for lack of support. Even given Jack Dekker's fixation with NewDos 80 and his prejudices towards LDOS and TRSDOS 6, his little journal was packed with interest and many of the programs have subsequently appeared on the public domain disks put out by The alternate Source.

The good news is that Roy Soltoff, author of LDOS/TRSDOS 6, has started a quarterly publication under the title "The Misosys quarterly". The title is obviously derived from the name of his software company Misosys Inc. which has been responsible for so many of the good utilities available for the Model 4, most published with the prefix "PRO-". Misosys has now taken over the retail software business of Logical Systems including all the "LS-" range and including "Little Brother" and "LSDOS". (Note that TRSDOS 6 is sold by Tandy).

The publication is obviously geared towards the company's own products but since the range is so wide it should be of interest to every Model 4 owner. There is the usual correspondence about bugs and quirks and many pages of patchers for a wide variety of programs and background about some of the software. There is advance notification of the release in early 1987 of LDOS 5.3 for the Model III (and presumably Model I). This will include an extension of the directory date to 1999, include time stamping as

well as date stamping of files and unspecified improvements to LBASIC. A full text editor will be included.

At the same time Tandy will be releasing TRSDOS 6.3 (still developed by Logical Systems Inc.) and this will also have an extended date range and time stamping. Some of the missing utilities, (so ably filled by "6 PLUS"), will be included, probably based on LSI's "BEEP" with single-key abbreviations together with a cross reference facility and the ability to invoke SVC's from Basic. Misosys will be providing a full-screen text editor based on "TED", one of the applications offered for "PRO-NT0". Incidentally, the latter has been renamed "PRO-WAM" - Window Applications Manager - to overcome some copyright problems in the US.

There is a lot of dialogue downloaded from the Misosys LDOS/TRSDOS Special Interest Group on Compuserve. It shows how the TRS-80 world could have developed here if there had been more support and encouragement from Tandy. More interesting are examples of public domain software developed for various programs such as PRO-WAM which are now offered on this SIG for all and sundry. There are notes on using Model 4 ports under LDOS and some facts about the Model 4 inverse video which explain the peculiar effects which sometimes appear in this mode. There are hints about the mythical SYS13/SYS, and notes on obscure quirks which may beset anyone applying extended directories. A possible bug with double sided formats under 6.2 is described and a patch provided. A patch is also provided to allow screen dumps to be printed from program control via a new @VDPRT SVC.

AS you can see from these few examples, this quarterly seems like a worthy entry into an almost one-horse competition, particularly for the serious MC programmer, but also for anyone who uses any of the Misosys or LSI packages. Subscription is \$35 a year from Misosys Inc., P.O. Box 239, Sterling, VA 22170.

Help Wanted

The following routine is from Northern Bytes and allows a BASIC expression to be INPUT and then evaluates the expression. It in fact does what BBC BASIC does in one command - EVAL. This routine works in Model III mode but I wish to use it under TRSDOS 6. Is there anyone out there who can help to translate this program or provide an alternative??

```
1      'Expression Input Routine by Bill Coulter
      Northern Bytes 5/5:22
2      'Enter any valid BASIC expression via INPUT prompt.
5      US$ = "0123456789"
10     PI = 3.14159265: E = 2.7182818
20     U = VARPTR(US$):U = PEEK(U+1)+256*PEEK(U+2):DEFUSR = U
30     FOR I = U TO U+9:READ U:POKE I,U:NEXT
90     ON ERROR GOTO 2000
100    LINE INPUT "X Value?";U$:X = USR(0)
101    PRINT TAB(10+LEN(U$))CHR$(27)" = "X
110    LINE INPUT "Y Value?";U$:Y = USR(0)
111    PRINT TAB(10+LEN(U$))CHR$(27)" = "Y
120    PRINT STRING$(30,131):GOTO 100
1000   DATA 42,187,74: 'LD      HL,(40A7H)      ;HL=>INBUFF
1010   DATA 205,192,27: 'CALL   1BC0H          ;TOKENISE
1020   DATA 35:         'INC     HL              ;FIX POINTER
1030   DATA 195,55,35:  'JP      2337H          ;EVAL & RET
2000   PRINT"*** INPUT ERROR - TRY AGAIN ***"
2010   IF ERL = 100 THEN RESUME 100
2020   IF ERL = 110 THEN RESUME 110
```

Ken Arntsen, 52 Midway Drive, Truro, TR1 1NQ.

More Anonymous Thoughts

Congratulations to the editor on the quality of the print (Thank you - Ed). It would be interesting to know how many members does the group have and, if not too difficult, what is the breakdown by models.

At the COMPEC, I have discovered a UK wide maintenance firm which does repair Models III & 4. The firm is Boffin Computer Maintenance Ltd located in, guess where, Milton Keynes - telephone 0908 322688. I wrote to them to enquire about their prices and they said that they are prepared to offer the following terms to our group members only:

- a. 48 hrs response covering all parts and labour Models III and 4 £130 and model II £140,
- b. collection and return within 4 working days including all part and labour Models III and 4 £100 and Model II £110,
- c. if the equipment is delivered at user's cost repair and despatch within 4 working days at fixed cost of £80,
- d. equipment sent to Boffin at AD-HOC basis at £20 per hour labour plus parts.

So there it is if anyone is interested.

I was told that, as a result of my articles, there were visitors to System Science. Maybe I can explain the size of the enclosure for HSC16 (Anon doesn't actually say, but I get the impression that it's HUGE - Ed). To start with, 1/3 of the length of the box is taken up by the power supply and the fan. The 8086 gets pretty hot and, if enclosed, it needs the fan. Secondly, the box has place for any further expansions. At present there are only the extra memory, 8087 and clock available but there may be some others in the future. I understand that the makers are now concentrating on the 68000 board for IBM. But the enclosure is not essential. My board rested happily on a piece of paper and fed off the Model 4 power supply for quite a while. It was only when the dropping manuals etc almost landed on the board that I decided to provide it with protection. And what protection it is - solid iron or steel and fairly heavy.

I have been playing with my 16bit Turbo Pascal. There is a very comprehensive installation module but, in spite of that, I could not manage to get the initial letters of the menu in reverse video. In fact what I get is the initial letters in normal video and the rest of the words in reverse. This probably is due to the fact that, in the installation, I have reversed @N and @O but, if these control codes are used as they are meant to, the whole screen appears in reverse video. I have tried compilation of some specimen programs and phew - the speed of it. When I recall the ProPascal or RM Cobol (I have still got both but do not use them) I cannot imagine how I could have lived with their compilation.

Also I have tried my hand at a short program which did nothing. Of course I made a typo and, in compilation, there it was the error message and the message to press <ESC>. Having done so I was back in the editor with the cursor on the error. Error corrected, the compilation re-started automatically. I think that I will be happy with the Turbo Pascal - once I learn more about it and Pascal language.

I have got the Montzuma bundle and WS 3.3 really whizzes along (memory mapped), dBASE 2.43, is installed for Model 4 but not Borland's Pascal 3.0. I had a bit of fun with the Pascal though this was not funny at the time. I tried to run Tinst. Disk started spinning, cursor moved one line down and all froze up. After several tries I came to an obvious conclusion that the disk was corrupted during the transit. Off I went to see my supplier, got the disk re-recorded, came back, tried again and the same thing happened. Only the time gap prevented me from ringing Montezuma and I carried on trying. In desperation I run MOVCPM without any parameters and tried again - and it worked!!! I wonder why.

As if I did not have enough to do I decided to start the communications racket again. I got myself Miracle Technology WS3000 with auto-dial and auto-answer options. This is very neat, small instrument packing really large number of facilities. Whilst still learning about it and getting used to it I cannot say great deal but the specifications look really impressive.

To start with WS3000 is an intelligent modem and it accepts commands from the keyboard. All such commands must begin with AT (in capital letters). It has a battery backed memory which stores the default settings and also last settings configured by the user. The manual lists 31 registers, most of them read/write, and most of them alterable by the user. The registers can be read with ATSn? command and their value can be changed with ATSn=n command.

Apart from being able to set the registers there are also other commands available which can be used to dial the number, drop the line, pick up the line, go into full/half duplex, switch on/off local echo and so on.

The trouble with intelligent 'objects' is though that they think for themselves and never mind the poor user. As you may gather from this remark that WS3000 and I had at times different ideas how it should be set. My slight difficulties originated (how about that?) no doubt in my lack of experience and so sometimes I found myself in an 'answer' mode whilst I wanted to be in 'originate' and I could not set it in half duplex 1200bps both ways..

The settings, which WS3000 can accept, are 300 full duplex, Bell 103 300 full duplex, 600 and 1200 half duplex, 75S/1200R full duplex and 75R/1200S full duplex. In addition the modem is capable of buffered operations if the computer is not capable of split

rates. The buffered options are 75S/1200R, 75R/1200S and Bell 202 1200 half duplex. On beginning the session and after issue of the first AT command the modem senses RS232 setting and configures itself to these settings.

WS3000 has also a store which can hold up to sixty telephone numbers. One can use those to dial from the keyboard. In fact though there is a jack for the telephone on the back of the modem, telephone is not necessary. Plugging the modem into the standard type 431A jack is all that is required. Of course one would not be able to speak but one still would hear the ringing or voice through the internal modem speaker. This can be left on all the time by using the M command.

The modem sends reports to the VDU. These reports can be either numbers or text. These are OK (command executed), CONNECT (carrier detected), RING (ringing signal detected but modem not set up to answer), NO CARRIER (frequent one and to my mind sometimes unreasonable), ERROR (in command line). Choosing an extended reporting option one can also be told CONNECT 1275 (1200R/75S) or CONNECT 7512 (1200S/75R).

Auto-answer is controlled basically by two registers -S0 and S24. If S0 is greater than 0 then the modem will answer the call on the ring stored in S0 (S0=6 - modem will answer on the sixth ring). The register S1 does the counting. If S24 is set to more than 0 then the modem will go through the values in registers S26 to S30 to analyse the signal and set itself to the speed of the incoming call. Sometime this analysis may lead to an incorrect decision.

Auto-dial is simple in theory. You just type AT D n and the modem will ring and seize the line unless the command was completed with ';' in which case the modem holds the line but returns to the command mode. This puts the modem automatically into an originate mode. The only trouble is that the maximum time which can be set for the modem to detect the carrier is 59 seconds (register S7). I find that 59 seconds is not enough for the relays to operate after dialing and the modem returns into the command mode with ERROR report. Then one does hear the ring through the modem internal speaker (rather faint one) and one has to tell the brute to seize the line. As there are four different commands which cause this (ATA, ATD, ATO and ATH1) one has quite a choice and therein lies the trap - such as choosing ATA which will put the modem into an answer mode.

Now few words about the manual. The manual is actually quite good, well laid out though without an alphabetical index. All commands are described fully, a great deal is said about auto dialing and each register, whether available to the user or not, is also covered though to my mind more could be said about their use to obtain the desired setting. This in fact is only a temporary manual (WS3000 being a new product approved by BT in September). The makers invite comments on the manual. The proper manual will be supplied to the registered users when ready.

Having described the modem now few words about my experiences with my first attempts. At present I have five communication programs - STerm, DFT3, MDM730 and COMM/CMD which comes with Model 4 and a Prestel program from Blandford Computers. By the way of elimination - COMM/CMD made the lights go out on the modem (apart from ON light) and that was that, MDM730 (which is supposed to be customised by Montezume for Model 4) works quite well in chat mode but the file transfer is not on. DFT3 worked with a great difficulty in Chat Mode. STerm performed best of all. I used it to chat to my friend in NI and he even could send a file to me though I could not send one. I also linked to two bulletin boards (using proper RS232 settings) and I got a lot of gibberish. I don't think that I managed to recognise even one character. This however has been cured since and occurred for reasons which will be evident below.

Then there was a panic some months ago - as soon as the RS232 cable was connected to the computer all the lights on the modem were going out and the modem refused to communicate with the computer. I was all for either -

- sending computer to Tandy for repair,
- buying RS232 and installing it myself,
- buying RS232 and getting someone to install it,
- buying another computer. (Have done so since)
- buying Ferranti PC,
- sending back the modem,

which can be summarised by saying that I was at my wits' end. A friend however volunteered help with his Tandy 100 and, guess what, the modem worked perfectly - so it appeared that the problem was in my computer. This same friend arrived with a clever box which permits switching off lines to RS232 and, after switching off the test lines 9,10 and 25 the thing worked perfectly. So the problem was in the cable and in fact, after reading the manual, I discovered a warning about connecting these test lines unless one does know what one is doing (which excludes me) as one may do damage. Obviously the modem was protecting itself against the current from RS232 by switching off - clever beast isn't it?

So do beware - if you should be buying WS3000 you require the following pins:

1	frame ground	
2	transmit data	SD
3	receive data	RD
4	request to send	RS
5	clear to send	CS
6	data set ready	DR
8	carrier detect	CD
20	terminal ready	TR
22	ring indicator	RI
23	data speed	-

If you upgrade to V22 version or V22bis version (1200/1200 and 2400/2400 full duplex) you also require pins:

15	transmit clock	-
17	receive clock	-
24	external transmit clock	-

Since the new cable arrived things returned to normal or better. There is one big puzzle - why the thing worked on 25 pins ribbon cable to start with (though I could hardly ever get a good contact) and then suddenly stopped working altogether? I said that things became better in so far as I get very good contacts now using MDM730. I had a bit of a problem with TUG to start with but this was my fault. I managed to get a contact but rather distorted one and I could not read the starting menu questions (terminal etc) but I managed to get the question whether my terminal requires lines feeds and, like a the dilettante I am, I answered 'No'. Imagine the result - after signing on and giving my password (no it is not ANON) I was receiving everything on one line! Anyway I managed to leave a message with SYSOP who put the things right for me. Did any of you try TUG? It is run for TRS micros. Liverpool TBBS is of course run by Peter Tootill and is very much worth visiting (if you can get in - as the thing is always engaged). Incidentally, Peter, I would suggest dBASE II for your data base but it is not exactly cheap - and I don't know whether it could read your ASC files. Blandford board also performs well and BYTE has now their board in UK and you can get (is it getting up- or down- loading?) all the programs published in BYTE and all that. The BYTE programs (all 140 from September 1984 to November 1985) can be got from COMPULINK FIDO (Woking) 04867 6535. SYSOP is Frank Thornley. Speeds supported are 300, 1200 and 2400 (according to Nov 85 BYTE).

Incidentally I am now on Prestel and my MBX number is 474873644. I would be pleased to hear from any Group members.

ANON.

Using CPM's BDOS calls.

This will be a very brief introduction to the idea of CPM's BDOS calls, together with a trivial but none the less quite useful little assembler program employing some of the BDOS calls.

In some ways assembly language programming in the CPM environment is easier than the old Model 1/3, due to the fact that Gary Kildall was experienced enough (or just plain clever) to include the concept of BDOS calls in his operating system and it is part of the reason for the portability of CPM. This idea has also been extensively employed in the LDOS / TRSDOS 6 operating system under the name of supervisor calls, and again in MSDOS as the so called 'interrupt vectors'.

Well, just what are we talking about ? Basically the designers set out a number of functions that they deemed would be necessary / useful for the operation of the machine at the machine code level. They then designed the operating system so that programs could access these functions in a completely standard way through a common interface that hides the machine specific code or BIOS. The functions are such things as reading the keyboard, writing to the screen, disk I/O etc. Thus the programmer knows that if he uses these standard calls, then his programs will run on any machine.

Access to these functions is exceptionally simple. The function number is loaded in register C, any value to be passed to the function is loaded into DE and then a CALL made to location 5H. If a value is returned, it will be found in A or HL. It is always best to save register contents before doing a BDOS call, since some contents may be destroyed. The list of 36 BDOS functions is given below. The first 12 are NON-Disk, the remainder are disk related functions.

Function	Operation	Value Sent	Value returned
0	System reset		
1	Console Input		A: = ASCII char
2	Console Output	E:= ASCII char	
3	Reader Input		A:= ASCII char
4	Punch Output	E:= ASCII char	
5	List Output	E:= ASCII char	
6	Direct Con IO	E:= FFH for input or char for output	A:= char or status
7	Get IO byte		A:= IO byte value
8	Set IO byte	E:= IO byte value	
9	Print string	DE:=> String Addr.	NB. string ends in \$
10	Read Con Buff	DE:=> Buff Addr.	
11	Get Con Stat.		A:= Console status
12	Ret Ver. No.		HL:= Version number
13	Reset disks		
14	Select Disk	E:= selected disk 0=A etc.	
15	Open file	DE:=> FCB Addr.	Directory Code.

16	Close File	,,	,,
17	Search First	,,	,,
18	Search Next		,,
19	Delete File	,,	,,
20	Read Sequ.	,,	,,
21	Write Sequ.	,,	,,
22	Make File	,,	,,
23	Rename File	,,	,,
24	Ret. Log Vector		HL:=> Login Vector
25	Ret Curr. Disk		A:= Current disk
26	Set DMA Addr. DE:=> DMA Addr.		
27	Get Addr.(Alloc)		HL:= Alloc Addr.
28	Write Prot Disk		
29	Get Read-Only vector		HL:= vector value
30	Set file atrib DE:=> FCB Addr.		A:= Directory Code.
31	Get Addr DPB		HL:=> DPB
32	Set/Get User Code FFH = get		
33	Read Random DE:=> FCB		A:= Ret code
34	Write Random	,,	,,
35	Comp. File Size	,,	
36	Set Random Rec.		
37	Reset Drive DE:=> Drive vector		
40	Write random with zero fill		

The following program is a very short assembler program, using several of the non-disk BDOS calls, that turns your micro into a typewriter with a 1 line buffer. I find it useful for doing just one or two labels or envelope addresses where I don't want or need to fire up a full blown word-processor. It came originally from an article in Practical Computing, but was so full of bugs it could never have been run. I therefore feel no compunction about reproducing my working version here. (At least I hope it still works !).

```

REBOOT: EQU 0H
BDOS: EQU 5H
CR: EQU 0DH
LF: EQU 0AH
      ORG 0100H
      JP START
      DB CR,LF,LF,
      DB '***** Typewriter version 1.0 *****',CR,LF,LF,'$'
START: LD SP,STACK
      LD DE,SIGNON
      CALL MESSAGE
;
PRON:  CALL GETCHR      ;Hang around 'til CR pressed
      CP CR
      JR NZ,PRON
REDRAW: LD DE,RULER      ;Print the ruler
      CALL MESSAGE
MAINLP: CALL RDCON        ;Call buffered console input
      LD A,(BUFFNC)      ;Get No. chars in buff
      OR A
      JR Z,GOTCR        ;If zero then blank line

```

```

        LD B,A                ;Else put char count in B
        LD HL,BUFF           ;Point to buffer
        LD C,0H              ;Zero counter
OUTPUT:  LD A,(HL)             ;Get first char
        INC HL                ;Inc pointer
        INC C                 ;and counter
        CP 09H               ;Tab
        CALL Z,TAB           ;Do it
        CALL PRINT           ;Print char      ;Print char
        DJNZ OUTPUT          ;and go for next
GOTCR:  LD A,CR               ;Do a carriage
        CALL PRINT           ;Line feed
        LD A,LF              ;Line feed
        CALL PRINT           ;Alternative way to do it
        LD DE,CRLF           ;Alternative way to do it
        CALL MESSAGE         ;Redraw ruler
        JR REDRAW
;
;
GETCHR: PUSH HL              ;Do BDOS console input
        LD C,1
        CALL BDOS
        POP HL
        RET
;
;
PRINT:  LD E,A               ;Do BDOS print a single char
        PUSH HL
        PUSH BC
        LD C,5
        CALL BDOS
        POP BC
        POP HL
        RET
;
;
MESSAGE: PUSH HL             ;Do BDOS print a message
        LD C,9               ;ending in $
        CALL BDOS
        POP HL
        RET
;
;
RDCON:  LD C,0AH             ;Do buffered console input
        LD DE,BUFFMX
        CALL BDOS
        RET
;
;
TAB:    PUSH HL              ;Expand tabs assuming set at every 8
        LD A,C               ;Use bit mask
        AND 07H
        LD C,A               ;Calc number spaces
        LD A,8               ;Print to make up to 8
        SUB C

```

```

        LD C,0H
        PUSH BC
        LD B,A
NXTSP:  LD A,' '
        CALL PRINT
        DJNZ NXTSP
ENDTAB: LD A,' '
        POP BC
        POP HL
        RET
SIGNON: DB 1AH,'Typewriter program - switch on printer and press'
        DB ' NEW LINE',CR,LF,LF,'$'
CRLF:   DB CR,LF,'$'
NSPACE: DB 0
RULER:  DB CR,LF,'j-----j-----j-----j-----j'
        DB '-----j-----j-----j-----j-----j'
        DB '      '1      10      20      30      40'
        DB '      '50     60      70      80'
        DB CR,OBH,OBH,OBH,18H,CR,'$'
BUFFMX: DB 50H                      ;BDOS function 0AH requires max length
BUFFNC: DB 0                        ;buffer in pos 1 and pos 2 will
BUFF:   DS 50H                      ;equal no. chars read
        DS 64H
STACK:  EQU $
        EXEC 0100H
        END

```

Geof Smith