The Newsletter of the National Dragon Users Group

DRAGON UPDATE

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CHAIRMAN: Paul Grade. 6,Navarino Road, Worthing, Sussex. Phone:0903-207585.
EDITOR: Stephen Wood. 52,Downsway,Springfield,Chelmsford,Essex. (0245-467049)
S/W.EDITOR:Richard Boston.257,Upper Elmers End Rd.Beckenham,Kent.BR3-3QR.
##########

The Gaffer's Bit.....

Right, I'm back in business again, so we'll have no more of this slacking!!!. I expect a one page article from each of you by the end of the week, and NO excuses, please!!!!. I KNOW you aren't all "experts", but nor am I, yet you expect ME to churn out the usual quantity of garbage each month, so I don't consider that lack of "expertise" is a valid reason at all. What's wrong with an article on being a NON-expert, for example, or anything else vaguely related to owning and using Dragon or Tandy machines in the hostile world of ST owners?!. If you can write, you can write an article that will be of interest to someone, so why not surprise yourself and get into print?. I'm quite sure that a lot of you think that I'm pushing this line too hard, that we aren't really that short of material, and that in any event, someone is sure to send us enough, etc. Much as I would like to confirm your suspicions, I can't, they couldn't be more wrong. Since I started this group almost four years ago there have been at LEAST eighteen other Dragon groups and/or magazines start and die, and with two exceptions the cause has always been the same, lack of active support and material. The Dragon scene is a small one, and getting smaller as idiots with more credit cards than sense rush out to buy their ST520FM or whatever, which means that there are fewer people left to supply the SAME amount of material for those who remain with the Dragon. Think about it ..... I could hardly send you a four page Update using the fact that our numbers have been reduced as an excuse, could I?. You still want to receive the same amount for your money, right?, BUT WHO DO YOU THINK IS GOING TO PROVIDE IT?!. I can keep the group going with fewer members, but I can't publish a full size newsletter without enough material to fill the pages, can I?. I suppose I could let it go the way of many others, via "High score" lists, faked up "interviews", five page listings which don't work, and bitchy comments between various members, but I'm damned if I will!. I'll keep on nagging you until I DO get enough material, whether you like it or not. OK?. Anyway, I wont delay you any longer as I know you're dying to finish reading this piece and get on with writing your own. Paul.

Paul.

The Editor's Bit.....

Firstly, a BIG thank-you to those of you who wrote to thank/congratulate me on acquiring this job, or to wish me luck (do I ever need it!). There were too many of you to name names. Oh, if you insist!: Chris Jobson, Malcolm McLaughlin, Chris Jolly, David Marsden, Tommy Strand, Bob Smith, Gerald Hale, Ken Smith and many others - apologies if I've missed you out.

Next thing I suppose had better be - yup, you guessed it! I've managed to scrape together slightly more then 3 articles, but many were 'from stock' and consequently issue 45 now looks like being the slimline issue as promised by Paul! So, you know what to do...PLEASE!

As well as wishing me luck, David Marsden also sent me a snippet about a Dragon which he saw on TV!! If any of you were watching the Open University sometime in February (27th), especially the DT200 course on I.T.,you will have seen a Dragon being used as a demo home micro. David says that it was only being used for a game, but at least it was there! Thanks, David.

Finally, before I go and leave you with the interesting stuff, contrary to what you may have read in Dragon's Roar, I am NOT 16! Well, not yet anyway!....Stephen.

Henceforth 7...Bob Smith

As a final addition to the toolbox, we need some words to put double precision numbers into storage. These are:-

2CONSTANT 2VARIABLE D! D>R INPUT

All these,except INPUT, are the double length number equivalents of standard FORTH words and operate in the same way. INPUT, however, is slightly special:- if you type a number on the keyboard with a decimal point then the number is pushed onto the stack as a double length number (INTEGER) and the decimal point is stored under DPL. It can be a bore having to type a point for every number if we are only typing in whole numbers, or if a program requires numbers with a constant decimal point. INPUT reads a number from the keyboard and pushes it onto the stack as a double length number. If we insert a decimal point, DPL will register this, otherwise DPL will be given the value -1. The thing to remember is that INPUT will push a double number onto the stack whatever value we key in.

2CONSTANT d1 --- defines(compiles) a double length number constant having the value d1 which can be recalled using the name following as:- 'd1 2CONSTANT cccc'. When cccc is used the address of the double length number d1 will be stored on the stack.

2VARIABLE d1 ---
defines (compiles) a double length variable, with the name cccc, which may be used to hold temporary values thus:- 'd1 2VARIABLE cccc'. When cccc is used the address of the double length number d1 will be stored on the stack. The number can then be fetched using D@.

D! d1 addr ---
stores d1 at address addr

D>R d1 ---
fetches a number pair from the return stack to the parameter stack. Remember that, as with 2R>, the double length number is stored 'backwards' on the return stack.

INPUT --- d1
fetches a number from the keyboard and stores it on the stack as a double length number. Note that the number does not need an explicit decimal point.

This completes our toolbox of double length words, and it is about time we got down to the nitty-gritty of writing some programs using double precision. Next time, we'll be looking at a program to multiply two double length words leaving a double product on the stack.

```
SCR #211
 0  ( double precision words )
 1  ( d1 --- )
 2 : 2VARIABLE <BUILDS 4 ALLOT ;
 3  (  d1 --- )
 4 : 2CONSTANT <BUILDS , , DOES>
 5 DUP 2+ @ SWAP @ ; -->
 6
 7
```

```
SCR #212
 0  ( double precision words )
 1  ( d1 addr --- )
 2 : D! DUP 2 + 4 ROLL 3 ROLL ! ! ;
 3  ( d1 --- )
 4 : D>R R> ROT ROT >R >R >R ;
 5  ( --- d1 )
 6 : INPUT CR ." ?" QUERY 32 WORD
 7         HERE NUMBER   ; ;S
```

Whoops!

Okay,okay, there WAS an error in my first issue! However, Bob Smith is prepared to take the blame for the boob which occured in Henceforth 6 last month, as he contacted me just too late to do anything about it. Anyway, the offending piece is line 4 of SCR #157. It SHOULD read:-

2PICK 2 * DUP >R PICK R> PICK ;

Apologies to anyone who got stuck with it, and thanks to Bob for spotting it. I don't know what the consequences would have been, but Bob says (no, NOT 'Opportunity Knocks') that his FORTH disc became corrupted, so I hope no one had any major disasters...Stephen.

The RS232 port...Geir Hovland

The RS232 port was not covered very well in the Dragon 64 Supplement, so I shall try to shed some light on some new information about the port itself. The chip which controls the RS232 is the one marked MD65SC51. This device provides an interface between the 8-bit processor and a modem. The table below shows the register address decoding:

TABLE 1 - Register Address Decoding.

ADDRESSES	WRITE	READ
$FF04	TRANSMIT DATA REGISTER	RECEIVE DATA REGISTER
$FF05	PROGRAMMED RESET	STATUS REGISTER
$FF06	COMMAND REGISTER	COMMAND REGISTER
$FF07	CONTROL REGISTER	CONTROL REGISTER

Now, we need to look at how to control the most important of these, the CONTROL REGISTER, which is decribed in table 2. Note that a bit marked with an 'X' can be either a 0 or 1, it doesn't matter which. Only those marked with a 0 or 1 are important. I think most of you know how to put a 0 or 1 into a bit.

TABLE 2 - Control Register Description.

CONTROL BITS 7:6:5:4:3:2:1:0	CONTROL FUNCTION	RESULTING FUNCTION
0:X:X:X:X:X:X:X	STOP BIT	ONE STOP BIT
1:X:X:X:X:X:X:X	CONTROL	TWO STOP BITS
1:0:0:X:X:X:X:X		ONE STOP BIT (PARITY ENABLED)
1:1:1:X:X:X:X:X		ONE AND A HALF STOP BITS (PARITY DISABLED)
1:1:0:X:X:X:X:X		ONE STOP BIT (PARITY ENABLED)
X:0:0:X:X:X:X:X	WORD	8 BITS
X:0:1:X:X:X:X:X	LENGTH	7 BITS
X:1:0:X:X:X:X:X	SETTING	6 BITS
X:1:1:X:X:X:X:X		5 BITS
X:X:X:0:X:X:X:X	RECEIVER	EXTERNAL CLOCK SOURCE
X:X:X:1:X:X:X:X	CLOCK SOURCE:	INTERNAL BAUD RATE GENERATOR

The baud rates are described well enough in the '64 Supplement, so I won't mention them any more here. And talking of the Supplement I initially had a problem with one of the example programs. To input a character from the RS232 in BASIC, you are given this program:

```
10 IF (PEEK(&HFF05) AND 8)=0 THEN 10:REM WAIT UNTIL RX IS FULL
20 CH$=CHR$(PEEK(&HFFF04)):REM ACCEPT THE CHARACTER
```

The problem with this is that the RX data register will NEVER be full, so you can only send text, not receive it. This was quite irritating until I discovered how to solve it. There is a way to disable the parity check.This can be done with the following command (in BASIC): POKE &HFF06,11. Put this command in line number 5 and you should be able to receive text properly. I have not tested this on other '64s, but my machine has always been OK, so I don't think that there's anything wrong with it. It would be nice to hear what other '64 owners with modems have experienced.

A Nation Waits...

Yes, okay okay, I'm sorry, NO Gauntlet review again this month, but Richard is apparently having problems getting a DragonDOS copy of the game to review. However, it SHOULD be here next time (but I'm not promising anything), and Richard also said that he'll have some reviews of new American releases shortly, so we'll feature them as soon as possible.

By the way, those of you who found the time to read Issue 42s Redundant info piece will have noticed the POKE for stopping the drive motor. However, Paul was obviously still under the effect of his illness (ie he made a mistake!) as it SHOULD have been POKE65352,0 not 55352 as stated.....Stephen.

What should I write?.

I had a letter a couple of months ago from D.J.Gray, who,AS WELL AS AN ARTICLE, offered some points about getting you lot to write something. As you are always using the excuse 'I don't know what to write about', I thought you might like to see it ...Stephen.

'I suspect that many subscribers have the technology and the expertise (well,we like to think we do), but need some direction and ideas on which to focus. There are likely to be subscribers with brilliant ideas and specifications but are not able to develop them through lack of training or time. If this is the case then trying to combine the two ought to generate interesting comments, articles and arguments.

I appreciate that there is probably a world of difference between giving voice to the opinion and carrying out the deed,as there is between my ideas and the real world. However, I dare to offer some thoughts for consideration:

1) Recent critical comments have been noted about education and the low standard of knowledge required for Computer Study examinations, despite this we see programs published and often commercially produced that would fail 'O' level for presentation. The use of structured programming techniques complete with aids such as REM statements, indentation and avoiding spaghetti logic should always be our aim, (you are allowed to argue). The Dragon can be made to perform properly but lacks in its BASIC a tidy way of defining and executing PROCedures.

An article is required on good programming skills to produce programs that can be easily followed. A means is also required to extend BASIC to include the use of PROCedures with local and global variables. <<Can you help, Harris Micros?..SW>>

2) The Dragon 64 has an RS232 interface and a seemingly useless command DLOAD. There IS commercial software available to operate communications units but the need for a program on the manipulation of the RS232 port to directly link two D64s might provide some genius with a project.

3) The advantage of disc drives apart from quicker loading and saving of programs is their ability to be used as backing storage for volumes of data far in excess of the Dragon's memory capacity. The BASIC commands are available to utilise this facility but little seems to have been written specifically for the Dragon on how to organise the data or develop an algorithm for random access, index linked or linked list records.

4) The upgrade board supplied by Compusense would seem to have considerable potential, however it appears to be limited to improving the operation of Flex and OS9 by using the extra memory as a virtual disc. To use this facility from Dragon BASIC would perhaps open new worlds and ideas.

5) Sprite Magic is a very impressive piece of software but very little seems to have been published utilising it to its full advantage. There must be subscribers who have enjoyed Sprite Magic and have produced interesting and attractive programs and hence developed successful techniques that would be worth sharing.

Perhaps a list could be compiled and occasionally published that would provide a spark of inspiration for prospective contributors to Dragon Update.'

<<Well, there they are - 5 potential articles for you to get cracking on. And get those ideas coming in too, because the threat of a blank issue still hangs over your heads- yes,YOUR heads! YOU can rectify the situation. How about doing what D.J. did-send in an idea AND an article..PLEASE! Stephen.>>

Crossword 30 Answers

Across:- 1A) Pursuits. 1I) Arena. 2A) Flour. 2J) Span. 3F) Misery. 4A) Bottle. 5A) Ogre. 6A) Roar. 6E) Claymore. 7A & 7G) Fairy Lights. 8A) Canary. 8I) Yacht. 9A) Anon. 9F) Train. 10J) Dead. 11D) Albumen. 13A) Subpoena. 13J) Weed.

Down:- A1) Fob. A8) Cannes. B3) Logo. B8) Angus. C3) Strain. D1) Subterranean. F9) Tube. G1) Trivial. H1) Sisal. J7) Hand. K3) Year. K8) Create. L1) Nappy. L8) Hearse. M1) Antiquated.

####Winner of Crossword 30 was Allen Miller of Leighton Buzzard ... all the rest got 13A wrong!.

Sell Your Own Software

Have you written any decent software recently? A graphics program perhaps, or an adventure. Or perhaps a utility program which you wrote for your own use. Whatever it may be, I am sure that most of you have written SOMETHING recently. But have you ever considered that the fruits of your labours may be of interest or use to someone else? Dragon owners complain about lack of software, but there's only one reason for that - no-one's releasing any! But who, one may ask, is there to release it now that most of the major software houses have abandoned the Dragon market? The answer to this is simple - YOU. No-one nowadays would bring out a piece of software for the Dragon with the aim of making mega-bucks out of their venture, but then again you might make yourself a few oncers, and there's certainly no need for you to make a monetary loss. What's more, there's a great deal of satisfaction to be gained from publishing your own software and knowing that people are using and enjoying what you have written. I speak from experience, having published the adventure 'The Thirteenth Task' under the guise of Arc Software. When I originally wrote this game, I had no intention of marketing it - the thought had never crossed my mind. However, I was persuaded (not least by our very own Paul G) to publish it, and publish it I did. As a result of this, I've made a few pounds (literally!) for myself, increased the choice of software available for the Dragon, and gained a lot of satisfaction. It's great to receive a letter from someone telling you how much they enjoyed playing your game, or asking for help because they're stuck. And even when someone complains that the program won't load properly, at least you know that they do actually want to load it in the end.

Producing and marketing a piece of software, whatever it may be, isn't as difficult as you might think. It's simply a case of ironing out all the bugs and 'polishing' it a bit, producing an inlay, instructions or whatever, sending off copies to all the reviewers you can think of, telling all the magazine news pages, and sitting back and waiting. That is basically all that's required. And it's not particularly time-consuming either - the only thing that takes more than a few minutes for me is duplicating copies of the program. Of course, if YOU don't want to market your software, then you can try and get someone else to do it for you. All you have to do is provide the finished version of the program - the others will do all the marketing etc for you, and you'll either get royalties or a lump sum (a small one, of course!) for your pains. For example, a new venture, Orange Software, have recently appeared and they're willing to do this, so there really is no excuse for not letting others have the benefit of using your software.

If you have written any game, utility or other program then I would ask you to think seriously about offering it for sale to members of the Dragon-owning public. After all, you've got nothing to lose, have you? And you'd be doing a service to the Dragon community. If you want further advice or help then get in touch with me at:- 272, Mearns Road, Newton Mearns, Glasgow, G77 5LY. Don't complain about lack of software - go and do something about the situation yourself! - Alan Cook.

The Case of the Missing Article...

NO, not another moan to get you lot to write something, but an apology (yes, I DID say apology!). The more intelligent amongst you will have noticed that part 9 of Pascal for Beginners is missing this month. (Don't bother looking through, it isn't there!). The reason is that Gary Coxhead has gone and bought himself an ST (the traitor!) and has slightly lost track of where he had got up to in the series. As a result, I thought I had part 9, he didn't know if he'd written part 9, and Paul didn't know anything about it. It turned out that I didn't have part 9, and Gary couldn't write it in time. So, it ain't here! However, it WILL be back next month (so I'm told), and after that we have parts 10,11 and 12 until the end of the series (who cheered???)...Stephen.

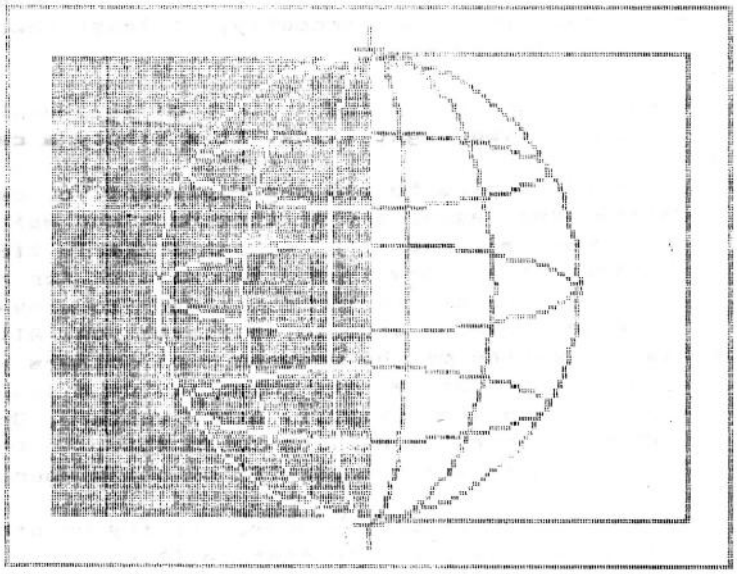
DMP2000 Screen Dump - Tommy Strand

I bought my DMP2000 about two yers ago, and the only thing I wish could be better is the open space between each dot when you printout in ordinal 'computer characters'. The graphics demo lies in lines 10 to 110, and the actual dump from 1000 to 1170. If you want to see the screen itself before dumping, use 120 GOTO 120. You can use your own picture by putting it in lines 10 to 110.

The DMP2000 MUST have the famous POKE330,2 when used under DragonDOS. Lines 1000-1020 put the value of each 'bit' into array S. This is to speed up the dump, because if you let the Dragon compute 2^I, with I from 0 to 7, it would take a lot longer.

Line 1030 sets the line feed to 24/216 inch, and then the dump begins. The dump only uses 8 of the 9 dots on the DMP2000. This is to simplify the program. To actually get the circle to print like a circle, I had to send the character for the printer 3 times (lines 1110-1150), though I suspect that if I had used quadruple density, I would have got more out of it.

```
10 '################
20 '# TOMMY STRAND #
30 '#     1986     #
40 '################
50 DIM A(100,1)
60 PMODE4,1:PCLS5:SCREEN1,0:COLOR0,5
70 LINE(40,40)-(210,160),PSET,B:LINE(50,50)-(200,150),PSET,B
80 CIRCLE(125,100),50:CIRCLE(120,100),50,,.2:CIRCLE(125,75),43,,.2:CIRCLE(125,125),30,,1.75:CIRCLE(125,100),10,,5.7
90 FOR I=50 TO 125
100 PUT(I,50)-(I,150),A,NOT
110 NEXT I
1000 POKE330,2:P=-2:DIM S(7):FOR I=0 TO 7
1010 S(I)=INT(2^I)
1020 NEXT I
1030 PRINT#P,CHR$(2);"3";CHR$(24);
1040 FOR I=0 TO 188 STEP 4
1050 FOR J=0 TO 240 STEP 16
1060 PRINT#P,CHR$(27);"Y";CHR$(48);CHR$(0);
1070 FOR K=J TO J+15:T=7:S=0:FORL=I TO I+3:FORN=1 TO 2
1080 IF PPOINT(K,L)=0 THEN S=S+S(T)
1090 T=T-1
1100 NEXTN,L
1110 FOR N=1 TO 3
1120 PRINT#P,CHR$(S);
1130 NEXT N
1140 NEXT K
1150 NEXT L
1160 PRINT#P
1170 NEXT I
```



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NOTES ON COMPOSER...Ken Grade.

Some of you who have heard Dave Cadman's music may have (ought to have!) wondered how he managed to get such a good sound and how he compiled such long tunes using Composer. I don't propose to give away his secrets, but I will describe a "quick and dirty" method of compiling longer pieces of music than is usually possible. In a later issue, I'll go into the different sorts of sounds which can be made using Composer, and which don't involve delving into machine code.

As the manual explains, the "PLAYWAVC" machine code routine can be loaded anywhere in memory, provided it is divisible by 256 - in fact the Tandy 16K versions were written to be loaded at 12288 (decimal). As the first modification, then, alter line 100 of the Basic listing to read:-PCLEAR1:CLEAR 30,&H3FFF(16383 decimal). Alter 110 to:-PL=&H4000; 120 to:-ST=&H4600 and line 220 to:- CLOADM"PLAYWAVC",&H1000,if you are using the tape version. For disc,type:- LOAD"PLAYWAVC.BIN",&H4000. This gives less room in memory for DATA statements, but means that the starting address for the tune is lower in memory, which can be used to advantage. Type in and edit the first part of the music - there should be room for about 300 DATA lines.It's best to check through the music first to find a convenient stopping point. Compile this and save it, making a note of the start and end addresses when they appear on screen.

Save the Basic too, just in case of mistakes. Do the same with the second and third sections (and fourth and fifth if they are needed). Now the music should exist complete, but made up of sections, all that need be done is to LOAD them back with a suitable offset to place the second, third and later sections higher in memory, so they don't overwrite the first section. The easiest method is to work to the nearest 'page' of memory, which occurs in steps of 1000 hexadecimal. i.e.&H4000 is the page from which "PLAYWAVC" starts,and, following it,the first section of music, so &H5000 will be the next page, and ought logically to be the beginning of the second section of the music. Now for the routine to join it all together. Type CLEAR 100,&H3FFF, and load the first section. For the second,CLOADM"MUSIC",&H1000, if from tape, or LOAD"MUSIC.BIN",&H5000 if from disc. Likewise for the third,CLOADM"MUSIC",&H2000,or LOAD"MUSIC.BIN",&H6000. Next, a little assembly work to make a routine to Branch to each of these starting addresses and finally return to Basic. I did the assembly starting from 16370, so that the routine begins before the music.e.g.ORG 16370:BSR 4000 : LBSR 5000: LBSR 6000: RTS.

A Basic "READ DATA and POKE the opcodes into memory" routine would do.The DATA line would read:-[1] DATA 8D,0C,17,10,09,17,20,06,39. The line to READ it and POKE it in:- [2] CLEAR 100,16369:S=16370: FORX=S TO S+8:READA$:A=VAL("&H"+A$):POKEX,A:NEXT. SAVE the "complete works" with 16370 as the start address; the end address of the last section of the music being the end address. For DragonDos, add one to this end address.Otherwise, when the tune is loaded back from disc and EXEC'd, it will finish with an anguished howl which can only be stopped by RESET.

The BSR instructions in the bit of machine code mean that the entire routine is position independent, within the limits I mentioned earlier. The routine could be loaded to begin at 8192, for instance,and it would run without any changes.

There is an alternative way of making up these sections which might be less awkward, particularly if you are using tape. Before starting the second section of the tune, alter line 100 again to CLEAR30,&H4FFF; change line 110 to PL=&H5000; 120 to ST=&H5600; and 220 to CLOADM "PLAYWAVC",&H2000 (for disc, change to LOAD"PLAYWAVC.BIN",&H5000). Obviously, the program must now be re-run, and it's best to save this version, switch the Dragon off and on, load this version and run it. The same program lines would need to be changed so that PLAYWAVC begins at &H6000, before beginning the next section. This ensures that the various sections are saved at convenient addresses from the start, so there is no need to worry about offsets when reloading.

If anyone gets stuck trying these ideas out, write to me (same address as Paul!) and I'll send on the routines I've got to work so far (provided you send a disc or tape as well!).

8

Selected Backup...D.J.Gray

The purpose of this program is to make a BACKUP disc but not to copy any killed sectors. This may sound quite obvious but the KILL command only changes the flag before the file title on the disc index and changes the memory map to release sectors for further use. It DOES NOT clear the data from those released sectors. The BACKUP command merely copies each sector and transfers it to the target disc without considering whether the data is valid. It is therefore possible to KILL sensitive material but then transfer that material to another disc by BACKUP and allow it to be examined by such programs as DISC DETECTIVE.

SELECTED BACKUP will make a backup copy FROM Drive 1 TO Drive 2 but only of material that is regarded as valid, as indicated by the memory map, which will include any programs called by a BOOT command. The KILLed titles will still exist in the index but the data will not. This is achieved by examining the memory map for the disc and not copying those sectors that are regarded as free. The new disc should be formatted and hence clear of any other data. To run the program, simply RUN the BASIC program which is the basic loader for the backup routine, then follow the instructions. The program is not quite in position independent code as it uses a buffer of 256 bytes between 15000 and 15256. It has been tested with SuperDOS E6 and DragonDOS V4.0.

```
100 REM************************
110 REM***   DISCBACK  BY   ***
120 REM***      D.J.GRAY    ***
130 REM************************
140 REM*  RESERVE MEMORY AND  *
150 REM*  LOAD M/C CODE PROG  *
160 REM************************
170 CLEAR200,14999
180 FOR I=&H3E80 TO &H3E82
190 READ A$
200 POKE I,VAL("&H"+A$)
210 NEXT I
220 I=&H3F8A
230 READ A$
240 IF A$<>"ZZ" THEN POKE I,VAL("&H"+A$):I=I+1:GOTO 230
250 CLS
260 IF I<>&H4038 THEN PRINT"ERROR IN CODING":STOP
270 REM************************
280 REM*   GIVE INSTRUCTIONS  *
290 REM************************
300 PRINT:PRINT"PLACE SOURCE DISC IN DRIVE 1"
310 PRINT:PRINT"PLACE FORMATTED DISC IN DRIVE 2"
320 PRINT:PRINT"PRESS 'R' WHEN READY"
330 A$=INKEY$:IF A$<>"R" THEN 330
340 EXEC 16000
350 CLS
360 PRINT:PRINT"BACKUP ANOTHER (Y OR N)"
370 A$=INKEY$:IF A$="" THEN 370
380 IF A$="Y" THEN CLS:GOTO 270
390 IF A$<>"N" THEN PRINT"WRONG KEY":GOTO 350
400 END
410 DATA 16,01,07,34,16,C6,01,E7,8D,FE,F1,E7,8D,FE,EF,C6,14,E7,8D,FE,E8
420 DATA 30,8D,FE,E8,AF,8D,FE,E2,8D,72,6F,8D,FE,DA,8E,3A,98,BF,3E,86,6F
430 DATA 8C,D5,30,8D,FE,D1,A6,8C,CE,E6,86,E7,8C,CA,C6,08,34,04,64,8C,C3
440 DATA 25,04,8D,4E,8D,5C,8D,12,35,04,5A,2E,EE,6C,8C,B2,E6,8C,AF,C1,59
450 DATA 2F,D6,35,16,39,34,04,6C,8D,FE,9F,E6,8D,FE,9B,C1,12,2F,0A,6C,8D
460 DATA FE,92,C6,01,E7,8D,FE,8D,35,04,39,34,12,A6,8D,FE,82,97,EB,A6,8D
470 DATA FE,7D,97,EC,A6,8D,FE,78,97,ED,AE,8D,FE,73,9F,EE,35,12,39,34,02
480 DATA 86,01,A7,8D,FE,63,8D,D9,BD,C1,04,35,02,39,34,02,86,02,A7,8D,FE
490 DATA 53,8D,C9,BD,C1,01,35,02,39,ZZ
```

To continue the screen dump:-

400 @DWN2 LEAX 32,x moving the address held in the X register to the next byte below.
410 LDA ,X again getting the data from the new address.
420 BITA @BIT to test this new pixel to see if it is set.
430 BNE @DWN3 if the pixel is not set, the print head need not be updated.
440 LDA @CUM because the pixel was set and the total for the printhead needs amending.
450 ADDA #48 which is the number needed to set dots 5 and 6 on the printhead.
460 STA @CUM because it may need further addition.
470 @DWN3 LEAX 32,X to get to the pixel below.This one is the 4th pixel in the column, the one for which the printhead can only set one dot this time, as all seven will have now been used.
480 LDA ,X getting the data for the new byte.
485 CMPX #9120 this is a trap to discover whether the point has been reached where only 3 rows remain to be scanned at the bottom of the screen. (cassette users need CMP #7584 here).
486 BHS @DWN9 if so, the next scan is skipped and a move is made to start printing. But if not-
490 BITA @BIT to carry on with the normal routine and examine the pixel.
500 BNE @DWN9 because the pixel was not set, the printhead need not be altered.
510 LDA @CUM because the pixel was set. This time we can only use one dot here, as the printhead's seven dots have been used up.
520 ADDA #64 which will set the seventh dot on the printhead.
530 STA @CUM which now holds the numbers required to print all the dots which have been set on the printhead, except that it also needs an addition of 128. That number would, on its own, print a blank.
540 @DWN9 LDA @CUM get the total so far.
550 ADDA #128 to get the total needed for the printhead.
560 STA @CUM from which it can be used by the print routine.
570 LDU #@CUM getting the address of @CUM into the U register, so that it is pointing to @CUM.
580 JSR @PRINT which will print the dots.
590 LSR @BIT The opcode LSR will move all the bits in @BIT one place to the right. If it contained $80 = 10000000 then it will now be $40 = 01000000. You can see that next time BITA @BIT takes place, the second pixel will be tested. Further LSRs will gradually move the set bit to right, testing further pixels until it drops off and @BIT will equal zero. At that point the whole byte will have been tested, and a byte can be counted by the B register.
600 BEQ @NEXBYT If the result of the LSR was zero then go to the sequence which gets the next byte.
610 LDX @SCREEN The next byte wasn't needed and to continue with the same byte the saved address of the first byte in the column of bytes is needed. Using this address to move down the screen for 3 bytes puts the scan at the fourth byte once more at a later stage.
620 BRA @LOOK going back to line 260 to repeat the scan on the next pixel of the same byte. This loop will be repeated until @BIT is zero.
630 @NULINE LDU #@CR When a complete print scan has been made of the column of four bytes, the printhead must be returned to the left. So the U register is pointed to the store made with the C.R. command for the printer.
640 JSR @PRINT to operate the carriage return.
650 LDB #32 To start the count of a new row of bytes.
660 BRA @LOWER That routine scans the fourth pixel, but only sets one dot if the pixel is set, and then scans pixels 5,6 and 7 with two dots if set.
670 @NEXBYTE DECB This routine was branched to when the @BIT became zero due to LSR and a new byte was needed. Decrementing the B register will count the 32 bytes in the row across the screen, and when B reaches zero then that particular scan is complete.
680 CMPB #0 To see if a new line is needed.
690 BEQ @NULINE if so.

Boot Routine.....M.Hantsch.

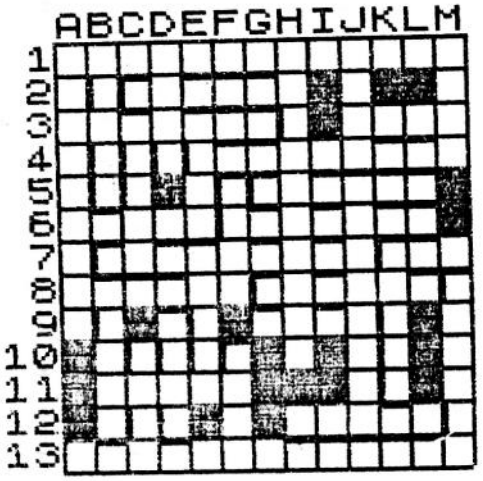
As a lot of people have asked for a BOOT routine which they can add to their own discs, I thought I ought to print this one, which was sent to me from Austria by Max Hantsch a couple of years ago. I've used it a lot and never had any problem with it at all. Paul Grade.

```
0 CLEAR2000:CLS:PRINT" BOOT V1.1 - BY MAX HANTSCH.
1 PRINT:PRINT"THIS PROGRAM ALLOWS YOU TO STARTA PROGRAM JUST BY TYPING 'BOOT'.THIS FACILITY WILL COST YOU 256 BYTES DISKETTE STORAGE CAPACITY.
2 PRINT"INSERT DISKETTE TO BE PROVIDED WITH A BOOT AUTOSTART SECTOR INTO DRIVE 1.
3 GOSUB29
4 SREAD1,20,1,A$,B$
5 IFASC(A$)AND4THEN17
6 SREAD1,0,3,A$,B$
7 IFLEFT$(A$,2)="OS"THEN12
8 PRINT"I AM SORRY ...
9 PRINT"THE BOOT SECTOR ON THIS DISKETTEIS ALREADY USED BY A FILE ON THEDISKETTE.
10 PRINT"TO OVERCOME THIS PROBLEN, FORNATA NEW DISKETTE AND PROVIDE IT WITH A BOOT SECTOR (BY USING THIS PROGRAM) before STORING ANYTH
ING ONTO THE DISKETTE.
11 GOSUB29:END
12 PRINT"THIS DISKETTE HAS ALREADY GOT A BOOT SECTOR.
13 PRINT"DO YOU WANT TO OVERWRITE IT? ";
14 EXEC48053:A$=INKEY$:IFA$=""THEN14
15 PRINT:PRINT:IFA$="Y"THEN17
16 END
17 SREAD1,20,1,A$,B$
18 MID$(A$,1,1)=CHR$(ASC(A$)AND251)
19 SWRITE1,20,1,A$,B$
20 PRINT"WHAT IS THE NAME OF THE PROGRAM YOU WANT TO AUTOSTART (INCLUDING'.BIN' IF IT IS A MC-PROGRAM) ?
21 PRINT:LINEINPUTF$
22 A$="OS"+CHR$(&H86)+CHR$(34)+CHR$(&H8E)+CHR$(&H26)+CHR$(&H0C)+CHR$(&H9F)+CHR$(&HA6)+CHR$(&H7E)+CHR$(PEEK(&H195))+CHR$(PEEK(&H196))+CHR$(34)+
F$+CHR$(34)+CHR$(0) 'GET RUN VECTOR FROM 6195/196
23 B$=STRING$(128,&H12):A$=A$+B$:A$=LEFT$(A$,128)
24 PRINT:PRINT"JUST A MOMENT, PLEASE ...
25 SWRITE1,0,3,A$,B$
26 PRINT:PRINT"THE DISKETTE CONTAINS A BOOT SECTOR NOW.
27 PRINT"TO ACTIVATE THE BOOT PROCESS, TYPE boot AND PRESS [ENTER]. OF COURSE, THE PROGRAM YOU WANT TO AUTOSTART MUST BE ON THE DISKE
TTE, TOO. SO IF IT IS NOT ON IT YET, COPY IT ONTO THIS DISKETTE AS SOON AS POSSIBLE.
28 GOSUB29:END
29 PRINT:PRINT"PRESS A KEY ... ";:EXEC41194:PRINT:PRINT:RETURN
```

Crossword 31.

ACROSS: 1A.Famous book by Jack London. 2C.Centre. 3A.Extinct large elephant. 3J.Rich fertile soil. 4E.To filter through (as in a coffee machine). 5G.One of the Channel Isles. 6A.Womans name. 6F.To offend, insult, or confront face to face. 7B.One way of reaching 5G. 7K.Remove a letter from a mixed up ball point to obtain a sphere. 8A.Type of tyre. 8G.A moderately strong wind. 9G.To knock senseless. 11B.See E7. 12N.Detection device for locating submarines. 13A.Gas essential for plant well being.

DOWN: A1.Type of personal computer. B1.To modify, make fit, etc. B8.A very young oak tree. C3.To join together. C10.Extremely bitter. D1.An arm or leg, for example. D9.Retain a program for future use. E3.A musical composition. E7 & 11B.Four wheel drive vehicle, something of a status symbol. F5.Another way of spelling jail. F10.Silly smile. H1.From time to time a series is Update. J1.A source of water, usually in adventures. J5.A cylindrical coil acting as a bar magnet when a current is passed through it. K7.Invigorating seaside air. M1.Coin equal to ten cents. M8.Stone found near volcanoes.



Is any SOFTWARE out there???

One of the common complaints I hear from Dragon & Tandy people is the lack of decent software for their machines.

I have a solution to this, but no-one seems to be INTERESTED!!!

The Dragon/Tandy P.D. Software library has been running for 3 months now. We have a good quality C.A.D. system, some VERY professional software written by Mr R.A.Davis, and an incredible graphics demo from S.C.G. (Germany). What response have I had?? 1 letter! (Thanks Stephen Cotterell) and the rest of you aren't interested, I assume.

TRY AND PROVE ME WRONG. READ MY ADVERT IN THE CLASSIFIEDS AND PHONE ME NOW!!!

Lee Cooke, TECHBASE.

The Late, Late Bit.....

Two thirds of a page to fill, and I haven't a clue what to write about yet!. It's all your fault!. If you'd only send in enough material to make up a full issue each month you wouldn't have to read this garbage and more to the point, I wouldn't have to write it.

Anyway, to get on to more interesting matters, does anyone know what has happend to either the Belgian Groupe 6809 or Richard Ball's NTS group?. I haven't heard anything from either of them recently, which on the case of Dragon groups is usually an ominous sign, so if anyone knows the answers please let me know too. There ARE rumours circulating about Dragon User as well, but I am assured by those who should know that although there will be some serious reorganisation shortly obituaries are NOT in order and Helen Armstrong will NOT be dusting off the old begging bowl just yet. Further details cannot be released "in the interests of national security". (Well, if that line is good enough for Our Glorious Leader, it will have to be good enough for YOU!). I see from one of our few articles this month that the old subject of "Structured Basic" is back again. I'll leave the task of composing a suitable reply to Alan Cook, who has the ability to PROVE his arguements, but personally I wish someone would bury the concept of structured programming, at least in Basic, once and for all!. What's the point anyway?, I still believe the most efficient program is a short program, one which uses the least possible memory to do the job required. This makes it faster and doesn't clutter up the machine with a lot of unnecessary rubbish. "Short and Dirty" programming usually produces far better results, and in any event, I thought programs (at least commercial ones) were intended to be RUN, not played about with?. Unfortunately economic programming is unfashionable at the moment, mainly, I think, because hardware manufacturers want an excuse to sell you faster machines with bigger memories, and who would buy the latest in 1040K + 50M drives if they could get programs to do the same job at the same speed on a 16K machine?!. Long, sluggish programs make for big expensive computers and even bigger profits for manufacturers, at YOUR expense (what!?, you HAVEN'T rushed out to buy your PC Compatible or ST yet?. How quaint!). Well, it will be interesting to see what YOUR views on the matter are (if any?), but for the moment I think I'd better sign off because I've a feeling that I must be getting close to the end of the page by now and I HATE discovering I've typed two words too many to fit the page!.

One last thing though, I would like to say thank you VERY much to Philip Stoneman, and I'm sorry I wasn't at home when you called here today, Philip. Nice work this month, Stephen, only five typo errors for me to correct (I don't know how many I've added!), and a very good layout. Are you SURE you don't want to be Chairman / Publisher as well as Editor???. Paul.

Don't forget the Ossett Show!!!.

Classified Ads page.....

NDUG FORTH OPERATING SYSTEM: Written by John Payne and available ONLY through the Group. New version for DragonDOS V1.0 and SuperDOS includes an assembler as well as the original Turtle Graphics facility, 80 col. u.p, etc.
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CIRCUIT DIAGRAMS: Available for D64, D32, Dragon DOS controller, and Cumana DOS controller. All the same price 1.00 each inclusive.
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BRAMEZEE: One of the best graphics utilities available. Written by R.A.Davis, simple to use, outstanding results. Available on cassette for only 2.50 inclusive.
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NEWCOPY: Machine code tape utility for the production of backup copies of any m/c programs. Allows loading and resaving of both headed and headerless programs, plus many other facilities. Written by Stuart Mills. 2.50 inclusive.
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DRAGONART LIBRARY: The Group Graphics library has a vast range of screens available at a nominal cost, so why not take advantage of them?. It also wants YOUR graphics screens, and there's a prize offered every month for the best original picture submitted!.
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DOS EPROMS: Your 2764 EPROM reblown to patched or standard V1.0 specification, or to translated and debugged V4.1. Price for ANY version is just 3.50 inclusive.
Peter Williams, Computil, 24,Jays Road, Wotton-under-Edge, Glos. GL12-7JS.

P.D.UTILITY LIBRARY: A good range of original programs and routines available and wanted!. For details contact:-
Lee Cooke on Worthing 41633 (evenings).

THE OS9 BOOOK!: "Everything you wanted to know about OS9 but didn't know who to ask". 150 pages of hints, tips, and articles for the Level 1 OS9 CoCo and Dragon user. Includes a disc of source files. 18.95.
COMO9: Easy to use, full feature OS9 comms program, together with source, Xmodem (CRC & SUM), function keys, disc monitor. Send messages direct from disc!. Suitable for ANY OS9 system. 5.00.
PB-PPAK: Selection of useful PB OS9 utilities on one disc. Includes BBCOPY.
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Text, Data, and Dream source code files please enquire for details. ALL tapes or discs (Superdos compatible ONLY) must be accompanied by a suitable stamped addressed envelope for tape/disc and printout.
Zennan Green, Aberllywd, Insh, Kingussie, Inverness-shire.PH21-1NT.

OS9 MODEM PROGRAM: Up and downloading of files, any Baud rate from 50/50 to 9600/9600 (NOT split rate). Up & download buffer from 4 to 32K or program will adapt to largest capacity available. All 6551 options supported. 8.00.
Phone Barry Knapp on 0932-242800 (evenings only).

WANTED FOR YOUR REPAIRS!!!!!: Scrap dead and/or dying Dragons and CoCo's wanted for spares to help keep the price of members repair jobs down to absolute minimum. All varieties of dead and dying printers also required for the same purpose.
Computer details to Alan Butler on 0371-4234 (evenings only please), and printer details to Paul Grade on 0903-207585.

BACK ISSSUE UPDATES: Back issues of Update reprinted to order from original master copies. Now only 75 pence per copy!!. Price includes postage etc.
Orders to E.Hall, 32,Thackeray Hall, Fareham, Hants.PO16-0PQ. Cheques made payable to BACK ISSUES DEPT.(NDUG).

DELTA DOS UTILITY: m/c utility to copy ALLL Basic and m/c files from disc to tape in one operation. Basic listing of loader and Hex dump 1.00 or on cassette for 2.50.
J.C.Bushell, 33,Tennyson Avenue, Clevedon, Avon.BS21-7UJ.

OS9 PROLOG!.Complete implementation of this 5th generation language. Now 24.95 with printed & bound manual or 14.95 with manual on disc."C" source code included. "Chris Jolly's Prolog is an essential acquisition".(Update Sept.1987).
Ketasoft. 4,Pinehurst Walk, Orpington, Kent.BR6-8BB.

ORIGINAL PROGRAM: Gives facts on the countries of the world. Areas, Capitals, Populations, Currencies and Languages. Includes analysis facility and map showing position of the country required. Available on Dragondos, Deltados, or tape at 4.00 inclusive.
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Cheques and orders to Graham Strong, 78,Coleridge Crescent, Goring-by-Sea, Worthing, Sussex.

NEW PROGRAMS FROM THE GROUP: Two new programs which are an absolute essential for those who own both Dragon and CoCo computers, and for most Dragon owners as well!. C2DML will convert any m/c CoCo formatted disc to Dragon DOS format (V1.0) and C2DBAS will do the same for any CoCo formatted disc containing Basic programs, so now you CAN buy CoCo discs and run them on your Dragon!. The programs were written for the Group by Randy Longshore and are available on disc at 3.00 each or both on one disc for 5.00 inclusive.
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DRAGON MUSIC SELECTIONS: These selections of musicc on either disc or tape are arrangged and produced by Dave Cadman. There are several selections to chose from, Marches, Classics, Rags, Standards, Miscellaneous, and this month Classics 2 will be ready for release. All selections are the same price and contain several full length tunes. Prices are 3.50 on tape and 4.00 on DragonDOS disc, inclusive.
Cheques and orders to Dave Cadman, 32,Breedon Hill, Derby.DE3-6TG.

Dragon 32, in full working order and complete with tape recorder and two joysticks plus lots of software and many books. 50.00.
Phone Robert on Bristol 027581-2378.

CONTACTS WANTED!!!!. College teacher with Tano Dragon 64 wants contacts with other Dragon owners. Interests experimental, programming, D64 comms with other computers, TRS80 conversions, etc. Please write to Roy Williams, 6710 Virgilian Street, New Orleans, LA 70126, U.S.A.

DRAGON PACKAGE: Dragon 64, Dragon DOS cartridge, two drives (1 SS and 1 DS) plus 40 discs full of software including FLEX and OS9 etc. 225.00 the lot, or would consider sensible offers for individual items.
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Alan Butler, 16,Barnston Green,Barnston,Great Dunmow,Essex.CM6-1PH.
Phone 0371-4234.

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FOR SALE: Gemini Database (offers). WANTED: Instruction manual for DREAM assembler.
Richard Beakin, 55,Heron Street, Rugeley, Staffs.

WANTED: Printer routines, screen dumps etc, for OKI Microline 92 printer. If you can help please contact
Bob Reid, 9,Mountside,Pontymason Lane, Risca.NP1-6JG.

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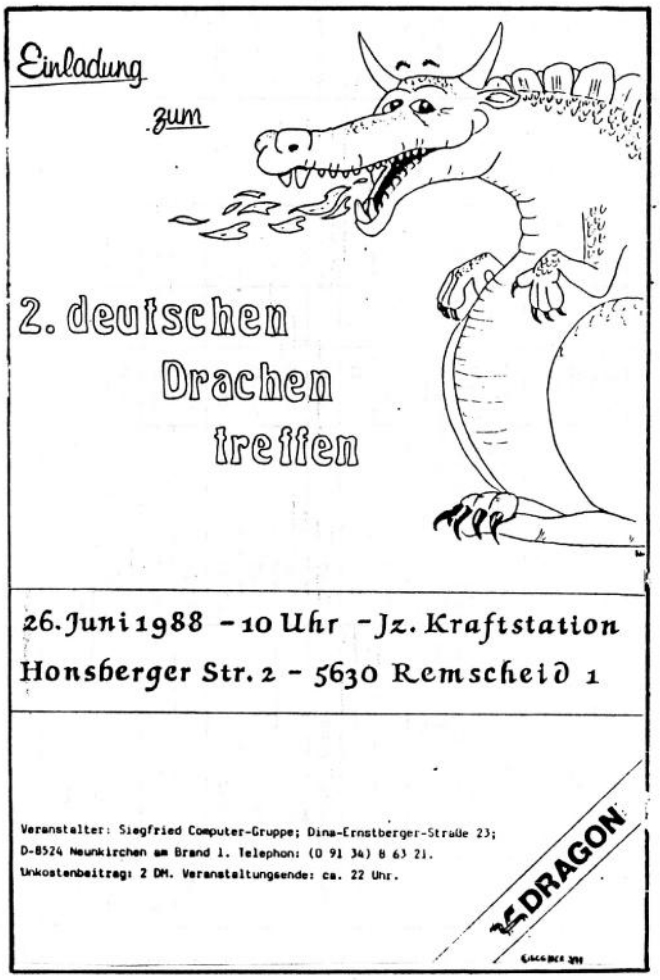

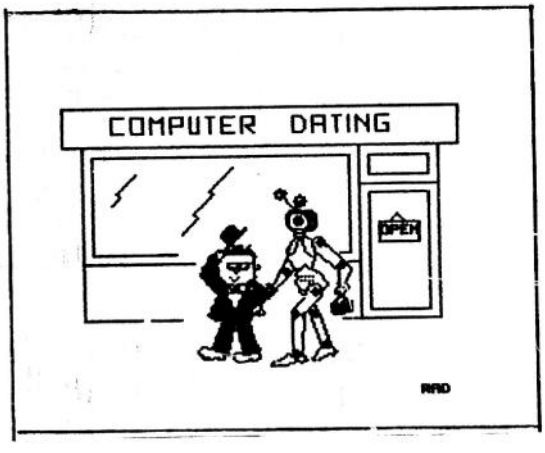

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