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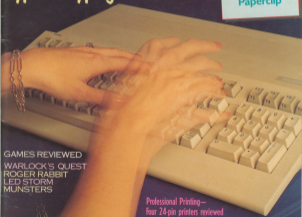
COMMODORE

TURBO TOUCH

Type-in Typing Trainer

REVIEWED

Publishing
with
Paperclip



GAMES REVIEWED
WARLOCK'S QUEST
ROGER RABBIT
LED STORM
MUNSTERS

Professional Printing—
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NUMBER 8



The Witches



Super Rabbit



Doctor Burger

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 Originator: Alamy
 Printer: Chase Webb

Your Commodore
 incorporating Your 64 in a
 monthly magazine appearing
 on the first Friday of each
 month. Argus Specialist
 Publications Limited, Editorial
 and Advertisement office, Your
 Commodore Argus House,
 Boundary Way, Hamd
 Newstead NP3 7NT,
 Telephone (0442) 6051.
 Subscriptions rates upon
 application to Your
 Commodore Subscriptions
 Department, Infonet, Ltd, 1
 River Park Estate,
 Newhamstead, Herts, MK5
 1HE, U.S.A. Subscriptions
 Agents: Wise Owl Publications,
 Publications, 434 4 West 20th
 Street, Toronto, ON M5W
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ISSN 0269-8277



Data Statements

Telecomsoft Sale

Telecomsoft, the company that boasts the Rainbird, Firebird and Silverbird labels, is up for sale. Rumours have been riddling at our ears for a while and even now, with the probing tongue of confirmation beating on our eardrums, the reality of a sell-off is hard to bear. But well, I'm starting to sound like one of Rainbird's novellas.

During the past five or six months, while suggestions of a sale were being repeated by the company's upper echelons, Telecomsoft's general man-



ager, Paula Byrne, and her team were putting their weight behind a management buy-out. Unable to reach a suitable agreement, the team has now conceded defeat and the company has been offered for sale on the open market.

Bids are obviously being kept a close secret, but the Mirror group, Activision and NEC have all been named as prospective buyers. A high



price is expected for Telecomsoft, whose turnover amounted to almost £8 million last year, which is what one might expect from a company that boasts such a healthy presence in the budget market.

The only fly in Telecomsoft's omelette is the loss of a major part of Rainbird's software selection and development teams. As reported in last month's Data Statements, Birdard and company have defected to Micropross, which must leave their old label in a vulnerable position when a buyer is announced.

Thoughts of a split are being discounted by Ms Byrne, who recently claimed that the three labels together represented a winning formula in the best software house in Europe.



A Star is Bought

CompuLink has announced that it will be stocking the Star Micro-Link LC18 printers following successful field trials. The Loughborough-based mail order company already stocks Citrus and Panasonic machines, but the price and quality of the LC18 (mono and LC18-C colour printers) have proved impossible to ignore.

In keeping with CompuLink's standard practices, a starter pack worth over £30 will be offered with each printer sold. The pack comprises 1,000 sheets of paper, an interface cable for the purchaser's computer, and a spare ribbon.

Contact CompuLink, Jubilee Drive, Loughborough, Leics LE11 6NS. Tel: (0509) 610444.

Pumpkins with Garlic

Palace Software has signed a deal to distribute the software from a new French company, Delphine. Owned by millionaire playboy, Paul de Senneville (France's answer to Richard Branson), Delphine is an

offshoot of an extremely successful music company of the same name.

Part of the attraction of the new software house is the reputation of its owner who, if reports are to be believed, is known as Goldfinger to the French national press because everything he touches turns to gold (funny

I thought that was King Mithra!).

The first products from Palace's new signing should be appearing just before summer.

Contact: Palace Software, The Old Forge Business Centre, 7 Colindale Road, London N1 8DN. Tel 01-279 0751.

Enhanced Expert

Trilogic have just released an enhanced version of the Expert Cartridge operating system. For users of the cartridge and a disk system, the latest improvements mean that the cartridge can be reprogrammed while the original program is still in memory.

Some of the cartridge facilities have been improved, such as on-line and picture editors, which can interrupt a game and then return after the changes have been made, function key commands and instructional scrolling for the code monitor, and fully documented on-line updates plus faster save routines.

The Expert Enhancement Disk V4.1R costs £9.99.

Contact: Trilogic, Unit 1, 123 New Works Road, Bradford BD12 6QP. Tel (0274) 691115.



Slaying Competition

A word just off the M42 may seem like a strange venue for an American civil war, but that is what happened recently when Microprose engaged Electronic Arts in a duel to the death.

Casualties were low as the opposing factions dashed from tree to tree armed with paint guns and goggles, and at the end of the day, Microprose was covered in glory while EA was covered in paint.

The 'friendly' war was played out in the battle zone owned by the Combat Game company, who assured that no real harm came to the combatants. Perhaps EA's sadist but unsuccessful shooting may have been due to an unconfirmed report that Microprose's ex-USAF boss, 'Wild' Bill Stealey, was preparing to do a superannuated strutting run to ensure victory.

Of course, all this warlike activity couldn't possibly have anything to do with the fact that Microprose have bought the rights to *Universal Military Simulators II*, the updated and improved version of the battle simu-



The combined forces of Microprose and Electronic Arts

lator which was recently released by Rainbird.

Contact: Microprose, 2 Market Place, Tetbury, Glos GL8 8DA. Tel (0866) 5436.

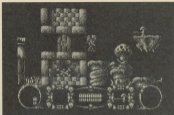
Electronic Arts, Langley Business Centre, 11-49 Station Road, Langley, Berkshire SL3 8YN. Tel (0753) 49442. The Combat Game. Tel 021-430 4049 or (0866) 619113.

Gribbly's Back

It's like meeting an old friend - Gribbly Gribbly has returned to the Hewson fold after an absence of five years or so. In Gribbly's Special Day Out, our non-floated Madgapanter hero travels where he has tread before, but this time he's a real smoothy. For this Rack II re-release, the scrolling routine has been updated to make it ultra smooth. This game is a real cutie for £2.99.

Also fresh from Hewson are *Stairwood*, *Cyberbyte Warrior* and *Mafrosania*. Raffaello (Roulo) Cozzo has set the scenario of his latest game, *Stairwood*, in a world of endangered faeries. Imprisoned by the evil Queen, Stairwood has to free the peaceful fairy folk before they are all wiped out.

Cyberbyte Warriors is a rogat droid round-up for bounty hunters, and *Mafrosania* is an action puzzle which requires skill and coordination.



Hewson's Stairwood puts us in search of a queen and some faeries

Contact: Hewson, 366 Milton Park, Milton, Abingdon, Oxon OX14 4RN.

Tel: (0235) 832039.

Spirit Away

In the USA, the Feet Spirit software house has been working away releasing several new products. MACH is an arcade game in which the player takes the role of a Manoeuvreable Armed Computer Human equipped with deadly hand rockets and protective armour plating.

On the serious side a graphics programming package, Basic 8 for the C128 should soon be appearing over here. The package operates in 80-column mode and adds 30 new graphics commands to allow programmers to produce effects such as

windows, fonts, patterns and brushes. The package also includes a run-time library so that programs can still be used even without Basic 8.

To complement Basic 8 there is also a Basic 8 Toolkit. This extension adds a point and click operating environment to the host package and adds disk commands to the Basic extension vocabulary. There is also a program which allows Point Shop graphics to be loaded and enhanced.

On the slightly more offbeat side, there is ESP Tester which tests the ear for powers of clairvoyance, precognition and telepathy. At the moment no British prices are available, but they'll no doubt be appearing soon.

PC Bundle

Commodore has announced that its MPS1230 printer is to be bundled with the PC10 III for the bargain price of £589 plus VAT. This is part of the new pricing structure (price cuts, to you and me) that the company announced recently, and shows £180 off the previous cost of the PC10 III without the printer!

Similarly the entry level PC68 is now £558 cheaper at £1389 with

proportional cuts upwards throughout the range. Students are to gain extra benefits as Commodore continues to chase the education market. In a special deal, National Union of Students members will get a free copy of Timeswatts Publisher Ltd DTP package with every PC20 III sold through Electra Distribution.

Contact: CRM (UK), Commodore House, The Switchback, Gardner Road, Moulsham, Berks SL6 7XA. Tel: (0628) 730888.

Up, Up and Away

Star Microsics are sponsoring an attempt to fly a hot-air balloon over the world's highest peak, Mount Everest. The attempt will be made in autumn by Per Lindstrand and Chris Remington.

Remington is no stranger to the 29,029 ft high mountain after his successful attempt at becoming the first man to climb its south-west face in 1953. Lindstrand is a vastly experienced balloonist whose most celebrated feats have been the first transatlantic crossing in a hot air balloon (with Richard Branson in 1987) and gaining the altitude record the following year, reaching a height of 63,808 feet.

The third member of the team is cameraman Mark Jerrold, who will be recording the incredible feat for posterity.

Contact: Star Microsics UK, Crown House, 40 Underhill Road, Ealing, London W5 2BS. Tel: 01-879 2299.

Wrong Data

In the March edition of *Your Commodore*, we mentioned MEDS Industries' PC Trolley which is designed so that a computer mounted upon it can be pulled over any standard height desk. Unfortunately, the phone number got slightly mangled. Our apologies to MEDS and here is their correct number (0442) 21102.

This year's British International Toy & Hobby Fair was held at the Earls Court Exhibition Centre, and it needed a venue of that size to comfortably accommodate the vast number of stands.

Everything you'd expect was there, ranging from Early Court Characters to Japanese super-heroes and, of course, hi-tech executive toys. There wasn't as many electronic gadgets as I'd expected, but the ones that did appear were of a high quality indeed.

Bandai, as expected, had a veritable squadron of radio-controlled cars, and some of them wouldn't have looked out of place on the Star Wars set! Apart from these cars, there were also quite a few hand-held games. These were principally sports games and included soccer, volleyball, car racing and tennis. In style, they ran along the lines of those game-watch toys that you get at Sunday markets for a couple of pounds. I preferred their Car's/Mouse game, though I doubt that Warner Brothers would appreciate how much the car resembled Sylvester. There were three shooting games, too: Space Force, Tank Shooting and Defferer Gun. I didn't get to play them, but the only difference appeared to be what you used to shoot with, and what you shot at.

Much more exciting was Bandai's Video Challenger. This set contains a futuristic-looking gun and a video cassette. Just put the tape into your recorder and off you go. This included one of the Captain Power toys - interactive television, they call it. The tape shows a jet zooming all over the place, and surprise, surprise, you have to shoot it. Try as I might, my score stayed firmly at zero. Your score doesn't appear on the screen but is a small panel just below the sights on the gun. The video itself seemed to be almost laser disc quality. I'd really like to see this take off, one pun intended, as the idea is well executed and, for so sophisticated unfortunately who aren't able to watch Captain Power, it's an admirable substitute. To make it successful, though, Bandai will need to expand the range of tapes. There are, apparently, two more tapes to be had: Menace Maze and Chase. I couldn't find them, so whether they're up to the standard of the first one remains to be seen.

As the VTech stand the emphasis was firmly on education. There was a wide range of pen-schooled toys on

show, bright and colourful, with lots of noises and buttons to push. Small Talk is a brightly coloured telephone with different pictures on each button. By pushing the relevant button, the caller is put through to the person shown. All the obvious ones are there, such as Mummy, Daddy and Policeman, as well as those who might not spring to mind so easily (have you ever talked to an astronaut?). These characters will call back when the receiver is replaced. There are also buttons with animals on that make the relevant noises and a small musical keyboard. I'm sure parents are going to love their kids playing with that during the fits they've been waiting to see.

Sticcof Air comes with eight blocks which fit into the side of the bus. The bus asks a question and

a plastic steering wheel on the end of a plunger. In the middle of the wheel was a red button. When pushed, it let out a faint squeak. You could stick the whole thing on to a chair and drive round all day without leaving the room. VTech have updated this idea and improved it no end. Talking Little Bicy Driver allows the little dears to listen to eight tunes on the car radio and five types of siren. There are working indicators, a gear stick and, for puppy yuppies, a carphone. Add this to the alphabet and shapes that are on the dashboard and you've got enough to keep even the most easily bored kid happy on a long journey. The whole thing can be attached to a high chair or side of a cot by two Velcro straps. Why didn't we have them in my day? It is rather expensive

*We sent our toy boy out to scout around the Toy & Hobby Fair
By Alan Butcher*

Toys for Tomorrow

Junior has to put the correct blocks in the holes. The questions are the standard numbers/letters/animals sort.

Each Board is for slightly older children, and it's shaped like the old Speak one! Speak! toy. Again it asks the usual questions, but you also get an electronic boardgame to play.

Yet another talking toy is Mocker Goose Gibbon. It comprises a Wild West-style engine and a truck. The Mocker Goose bit refers to the four nursery rhyme characters that can be put into the engine's hood. Each plays a different tune and there are four blocks, similar to the Richard Bus ones, to complete the set.

When I was a boy we used to have

thought, at just under £80. That's almost a pound in old money. They don't know they're born today.

Wizards and Miss Wizards are 'follow me' type games. Who remembers Simon from a few years back? These, however, have a maze game incorporated into the fun.

Naturally, there had to be at least one sports game and VTech deliver three. Talking Rallycar, Soccer and Baseball, to be precise. They all look good and all have effective, if simple, graphics. Soccer and Baseball boast a realistic announcer's voice. Rallycar has 'use to life' sound effects.

Football Wizard, SpaceMaster and Scribble Command also have the 'Talking' quality. Football and Space-

Below: 1991 - an ingenious new puzzle



TIME

RUNNER



Below: The Per-Computer 8000 - definitely the business!



Below: The Acme Multi-System Light Gun - a must for all embryonic psychopaths!

Levers are logical choices for this type of game - but *Knowledge?* My doubts, like my ships, were soon laid to rest. A good game for those with some spare cash.

Pre-Computer 1989 is the business! The top half contains a narrow screen, and just below that a range of buttons which are used for selecting your chosen subject including science, geography and history. Below these is a QWERTY keyboard - just choose your subject, pick a level and off you go. The questions are by no means easy. On level three I got only half the questions right, so a feature I appreciated was the HELP button. You start off with two lives and each time you ask for help, the computer gives you one letter of the answer. On the third help, it tells you the solution. There are to be a further five question cartridges. I can't wait for my specialist subject, *Fantasy Trivia*, to appear. The others are *General Knowledge 2*, *Bible Knowledge*, *Assorted* and *Spells*. This was my favourite item in the Show.

There were also had a number of music keyboards and something called *Socrates*, which connects to your TV and uses animated graphics to teach basic essentials to kids aged five and above. Unusually for this type of thing, there were touch pad and mouse versions to add on. Three extra cartridges will also be available: *Pre-school*, *Brain Trainers* and *Answers*. A cute robot is your friend and guide through these adventures.

The *Konix Multi-System* was looking good. For all those who miss the hydraulic fun of *Super Monkey* at your local arcade, the *Power Chair* is for you! It sits, bunks and generally moves in synchronisation with your joystick. It comes with a seatbelt, and you mount your monitor on the chair, presumably so that when you have a crash, you can still see the screen. This is all well and good, but how many people have got the space for one of these? The *Light Gun* is much more sensible. Resembling something Dan Dare might use, it has a recoil action and auto-fire. Surely anyone who sees auto fire will be bounced all over the room like a squash ball? Anyway, there's a neat add-on to convert it into a rifle, if you want.

Two weird little games from Efun Design caught my eye. The first is a plastic sphere with a small gap at the base. Inside the shell is a ball with a mass engraved on its surface. The idea is to manoeuvre the ball so as to get it

into red light from one end of the mass to the other. Having seen someone try and fail miserably to complete it, I wasn't keen to make a public fool of myself. It will keep you busy during those cold summer evenings and is excellent fun.

Two-wheeler. What a name! What a game! It looks like a cube, roughly six inches square. On each side there are six silhouettes of ships. They're repeated randomly on each side. When turned on, a set of lights shows the order that the shapes must be touched to win. When the first one's completed, it's onto shape two, and so on. There's a time limit, naturally, and it seems generous until you realise that a mistake means starting over. In this case, mistake means not only touching the wrong shape, but repeating a move. Unless it's switched off, it will remember the fastest time. While I was there, one of the Efun Design people

completed it in what seemed like only seconds. For an mortal it'll take much longer. I lost this so much I wanted to marry it.

Ever heard of *Navet*? Neither had I but soon you will when *Loony Levers* appears in the shops. It's an animated word game. You get a video tape containing various letters. They appear every five seconds, and when letters have jumped up you have fifteen seconds to make the best scoring word you can. Things don't always go your way - occasionally a whistle sounds and you have to exchange score sheets with the other players. That means even the editor could win a game like this. The game comes from Australia - maybe by way of an apology for *Neighbors*.

There you have it. Lots of fun and I hope these tips will get British buyers. It'll be a shame not to see them take off over here.



Follow-me - a 'follow-me' type game, but with a twist



Small Talk from Welsh - a clever pre-school game



With *Socrates*, you can turn your TV into an educational toy

Turbo Touch



Are you a two-fingered typist? Could a tortoise write more words per minute. If so, 'Turbo Touch' could change all that

As the name suggests, this utility is designed to turbo charge your typing ability. If you practise frequently with 'Turbo Touch', you should be able to accelerate your tempo to exceed 300 keys per minute and reduce your error rate to less than one percent, which is not bad for a program written entirely in Basic. 'Turbo Touch' also features multi-coloured graphics, sound effects, personal feedback (measured against the C-64 internal clock), and artificial intelligence.

Artificial intelligence in this context means the ability to read, interpret and translate any given text into key strokes for practice purposes. In other words, 'Turbo Touch' can be customised according to the tempo level of the user.

Even young children can learn with this program, because parents and school teachers can make the exercises very easy if necessary. It's even possible to create exercises in other languages, as long as they use the same alphabet as English. Such flexibility makes this program feasible for use by a very wide range of people, and the variety largely eliminates the inevitable boredom of repeatedly typing 'The quick brown

fox... etc., which is typical of most other typing tutors.

USING 'TURBO TOUCH'

There will be two prompts when you start up. The first asks which exercise you want to load. You may select one of three prefabricated ones - all finger, cap letters and practice text, or a previously customised exercise. The second prompt asks how many keys per minute should be allowed before eliminating the help function which highlights the keys you must press. Help is allowed up to a maximum of 150 keys per minute; above that the keys will only be highlighted to correct mistakes.

The 'all fingers' exercise shows all the proper finger positions needed to become a proficient touch typist. You'll need to practise often with 'all fingers' (as a similar self-made exercise) to develop coordination. Once an exercise is loaded, the computer screen displays a keyboard with all blank keys, except for the 'home keys' which are lit (for ease reference). Your fingers should be rest lightly on the 'home keys' (without pressing them) before and after each key stroke, in the following manner:

LEFT: (A) Little Finger
(S) Ring Finger
(D) Middle Finger
(F) Index Finger

RIGHT: (J) Index Finger
(K) Middle Finger
(L) Ring Finger
(;') Little Finger

THUMBS: (space) Either thumb can be used on the space bar.

When you're below the speed set in the second prompt (at start up), the keys will highlight themselves in the order in which they must be crossed. The colour of the text line will be changed one character at a time, each time the correct key is entered. Mistakes will result in an annoying beeping sound, which is labelled so as an "negative reinforcement". Multiple mistakes on the same key will continue to sound off the buzz, but only one error per key will be counted in the feedback updates at the end of each text line. If, after making several errors, the beeping starts to drive you goggle-eyed, then just lower the volume.

Once you're familiar with the 'home keys', the rest is relatively easy. The remaining keys need only be learned in terms of how many keys above, below or next to the 'home keys' they are. The only extra thing you'll still have to learn is using the SHIFT keys for capital letters and certain symbols and punctuation. SHIFT-ed characters should be entered using one hand to press the character key, while the little finger of the opposite hand holds down the SHIFT key (on either

Disk Tricks



There's a lot more to Commodore disk drives than first meets the eye

Contrary to what you may believe, Commodore disk drives are the most powerful available for any 8-bit computer. They have a comprehensive built-in DOS, RAM, ROM and 6582 processor. It is the software support of the C64 that lets the system doze. Under the control of certain cartridges, the 1541 even outpaces the BBC drives.

This article contains a selection of simple programs and hints which you don't usually find in Commodore's manual.

Easy loader

Before today, you have probably loaded in the directory to check on a program name. You may have entered up and put `LOAD` before the filename and `B` after it - this is useful, but also time-consuming. This method allows you to put `B` or `,B,1` after the name in the directory entry when you are saving the program. By loading the directory, moving to the correct name and pressing `SHIFT` and `RUN/STOP`, you will be able to load your program quickly and easily. This is even better if you have an extended basic with a directory read facility installed.

```
SAVE* FILENAME<SP> [D]
B<B> > *B adds B
SAVE*FILENAME <SP> [D] ,
[D] 1*,B adds B,1
```

`SP` = shift + space
[D] = Commodore key = D
= shift +

The only restriction about this method is that filenames must be 11 characters or less.

Save and Replace

I'm sure that you have heard the rumours of this function scrambling disk, yet it is one of the most important of all disk facilities. Apparently, the problem is caused by omitting the drive number. This is a hangover of double-disk systems, where the two drives were assigned the drive numbers 0 and 1. Any Commodore single drive is 0 and omitting this number causes the drive to ignore some of the available buffers, corrupting the disk when there is a lot of shuffling of files to be done.

The solution is always to include the drive number:

```
SAVE* = *PROGRAM* ,B
becomes
SAVE* = 0PROGRAM* ,B
```

This method has never given me any problems.

Scratch one character files

Sometimes, due to a typing error, you get an unwanted file on disk with only one letter in the name. No problem, scratch it. Wrong, it wasn't scratch. The solution is:

```
OPEN1,1,1,"*"CLOSE 1
```

Selective Directories

Commodore DOS allows you to view specific parts of the directory, as well

as the standard directory. When pattern matching and wildcards are used, it becomes a powerful command, allowing you to check a disk for a particular program. Here are some examples:

```
LOAD*NAME* ,B
- lists only NAME's entry
LOAD*COM* ,B
- lists all entries beginning with CO
LOAD*?*-ST ,B
- lists all sequential files
LOAD*EMUSIC*-17* ,B
- lists only programs beginning with MUSIC
LOAD*?T64* ,B
- lists all four character files with 64 at the end
```

Software Speed-up

This allows small speed increases with the scratch, validate and rename commands by speeding up the movement of the head between tracks.

```
OPEN1,1,1: PRINT #15, "M-9"
CHR$(7);CHR$(20);CHR$(1);CHR$(1)
```

Unobtrusive Load

You will, no doubt, have found it annoying that there is no easy way to load a program from inside another program without causing the program to re-run. This method calls the `Kernal` routine directly so that the load will be executed only once, and the program will continue from the correct line after the help screen, machine code or similar feature has been loaded.

```
POKE147,6:SYS7912:"NAME" ,1:
SYS26251
```

Rescuing Unclosed Files

I'm sure you have come across this problem. When accessing a file, an error stops your program, or the computer is switched off by accident. Most of the data has been transferred to disk and should be easy to restore. Strangely enough, when you try to reopen the file, you get a `WRITE FILE OPEN` error. Examining the directory reveals an asterisk beside the filename. This means that the file was not properly closed and is therefore useless. An undocumented command to the rescue! This allows you to open the file and restore as much of it as

possible using INPUT # 2 or GET # 5
 OPEN#3,"FILENAME.M"

Append

If you are manipulating sequential files, particularly in databases, then you know that the only way to add information to an existing file is to re-load the whole thing, add the new info and re-save. The DOS provides an easy way of adding this information with the minimum of work. The DOS can reopen the file, and tack the extra information on the end of the existing file. Note that this is only an append and, as such, will not correct information in the middle of a file. Nevertheless, it saves considerable time when no alterations need to be made to the first file.

```
OPEN#3,3,"FILENAME.APPEND"
```

Copy and Concatenate

This is a very under-used command, as it usually only creates the same file on the same disk under a different name. Even with this limitation, it can still be useful. For example, when using a database or wordprocessor you could copy a saved file as "BACKUP" and allow this to be recalled as an "Open" option in case of an irrecoverable mistake. The syntax is:

```
OPEN#3,15,"COPY: NEWFILE +  

  OLDFILE"
```

Copy also allows you to append files that are precisely stored on disk, infinitely useful for a wordprocessor:

```
OPEN#3,15,"C:TOTAL + FILE1,  

  FILE2, FILE3"
```

Reset Drive

This command will reset the drive completely, as if it had been just turned on. The device number and computer type will be reset.

```
OPEN#5,15,"U)" CLOSE#15
```

Change Device Numbers

This allows the standard disk drive (device 0) to adopt a different number, which is essential if you need to use two drives at once. NM is the number that you wish to allocate to the drive (usually 9).

```
OPEN#3,15: PRINT #15, "M-  

  W"CHR (119) CHR (8) CHR (2)  

  CHR (84)+32) CHR (50)+64)
```

Well that's all the goodies - now for some master programs which deal with features of the C64 operating system.

Directory

This compact program can be used as a sub-routine in your Basic program, or during program development. Any business program must have a directory read, and this is as good as any.

```
10 OPEN 1,0,"F"  

20 GET = L,XS,YS  

30 GET = I,XS,XS,XS,XS  

40 IF ST THEN CLOSE#1  

RETURN  

50 GET = I, XS: IF XS = "" THEN  

PRINT: GOTO 30  

60 IF XS = CHR (34) THEN P =  

NOT P  

70 IF P THEN PRINT XS;  

80 GOTO 30
```

Blocks Free

This scans through the directory until it comes to the BLOCKS FREE statement, and puts it into BF. This can be useful for the user to find out how much space there is on the disk. Also, if you know the length of the file you are saving, you can check to see if there is enough room on the disk before you start saving.

```
10 OPEN 10,0,"IS"  

20 FOR I = 1 TO 35: GET  

  10:XS:NEXT  

30 GET I,YS:CLOSE 10  

40 BF = ASC (XS+CHR(30)) +  

  256*ASC (YS + CHR(30))  

50 PRINT BF "BLOCKS FREE":  

RETURN
```

Block Save

Most people know that sharing the Basic pointers at locations 43-48 allows any block of memory to be saved. This has its drawbacks because it wrecks your Basic program. The below method is useful if you have to save graphics data from within a program.

```
10 SYS$7812 "FILENAME",1,1  

20 POKE#190,0: POKE#194,48:REM  

LOW/HIGH BYTE OF START
```

```
ADDRESS  

30 POKE#174,0: POKE#175,64:REM  

LOW/HIGH BYTE OF END  

ADDRESS  

40 SYS$2857
```

Block Load

This method does not alter the Basic pointers like the normal .L.I suffix, which gives an output of MEMORY 47100.

```
10 OPEN#1,1,"FILENAME.P.R"  

POKE#170,0: SYS$4049: CLOSE#1
```

Load Address

It is often useful to find a program's load address because it gives a clue as to what the program actually does. Use the following:

```
10 INPUT "PROGRAM NAME", NS  

20 OPEN#2,2, NS + ".P.R"  

30 GET = 2,XS,YS  

40 PRINTASC (XS + CHR (55))  

+256*ASC (YS + CHR(30))  

50 CLOSE#2
```

Device Indicator

There's a handy location that gives the device number which was last used. In practice, this means that programs can tell if the user loaded with tape or disk, and which disk it was. D\$PEEK (188) will store the device number in D.

Keep track of files

Using several files can sometimes become messy, especially when they all have to be closed in a complex program. SYS \$5501 closes all files, and is useful if an error condition occurs. PEEK (152) will give the number of active files at any time.

Last filename

SYS \$2911 will print the name of the latest file that has been loaded. It uses parts of the SEARCHING FOR message routine. Naturally, if this routine has been disabled, then this list will not work.

That should be enough goodies for you. Prepare yourself for further disk delights in the near future.

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Banker 128

By P. Stubbs



Keep your personal finances on a tight rein with new financial program

This program is designed to calculate, store, and display your bank account details. This is done by entering in the details of your account(s), and then saving them in the form of a sequential file. On re-loading this file, you can then simply update (or add on) from where you left before. The Banker program will also print out bank-style statements showing up-to-date account balances. Banker is designed to work with a Commodore-style printer, and most other printers that use channel 1A.

Getting Started

First you need to form a P.L.N. code. On loading, you will be confronted with the loader screen. At this stage, (as you are using this for the first time) you must enter (left arrow). You will find this key located at the top right-hand side of your keyboard - enter this key and press [RETURN]. You are now asked various questions regarding your personal use of Banker.

First you are asked to enter a P.L.N. code. This can be any code you wish to enter that the computer will then use as a filename for your personal details. (Please note that this code is not intended as some form of security procedure, simply a filename to save time on entering personal details on future loadings). Enter your P.L.N. code followed by [RETURN]. You will now be asked to confirm it - if it's correct, simply type "Y" for yes.

The next question is, how many accounts do you intend to use this program for (BANKER can be used for up to ten bank accounts). For the purpose of this demonstration type 1 [RETURN]. You are now asked to input the year. You will see that "88" has been entered in for you - if that is the correct year, simply press [RETURN], if that is not the correct year then tap in '89 or whatever the year is and [RETURN].

Account Details

You are now in the accounts field, and are looking at the words ACCOUNT 1. This is the account we are going to answer questions on first. The first question is NAME OF BANK - please do not use any punctuation in your reply. Now answer the questions ACCOUNT TITLE and FILENAME FOR THIS BANK. This is the filename the computer will give to your completed account file, so as to save it for future use. Any filename will do, (except the filename you have already used as the name of your P.L.N. file).

Next, you're asked about standing orders, the cost per month, when you first started paying the order, and for how long the payments are to last. (The computer needs this information to calculate when the payments end, and therefore when to start deleting them from your file). If the order is of the permanent kind - for example, a standing order to the Gas Company

- and therefore carries on regardless, enter N at the question "IS THIS A STANDING ORDER OR A REPAYABLE LOAN (S/L)."

Confirmation Mode

If you're using this program for more than one account, you are now invited to go through all the details again for ACCOUNT 2 and any subsequent accounts. Since for the sake of this demonstration we are only using one account, we now move into the confirmation mode. The computer will now run through your answers so you can confirm them. If there is a fault in the details, answer N at the question CORRECT (Y/N) and you'll be returned to the start to correct your mistake. If they are correct, answer Y and a file will be formed with your new P.L.N. code. You are now back at the loader screen - tap in your newly formed P.L.N. number, and the computer will load your file into the memory.

On subsequent loadings of this program, the above procedure need only be followed if there are any changes to your personal details. If there are no changes, simply type in your P.L.N. code.

Before we can enter the MASTER MENU, there are still a few questions to answer. The answers to these questions have already been filed in for you, using the information from your P.L.N. file, so all you are doing



for the most part is confirming the answers.

The year has been entered for you, leaving you to input today's date. Please ensure that you use the correct format (\$16.88) when entering the date.

There is one question in this field where (as you are a first-time user) the answer has been entered incorrectly. This is the question which asks: "ARE YOU LOADING THE FILE FOR THE FIRST TIME?" The answer NO has been entered, whereas we are in fact loading the file for the first time, so you'll need to change this answer to YES.

After completion of these questions, you will encounter another confirmation field - if you have completed the answers correctly, answer Y for yes. You are now into the Master Menu.

The Master Menu

There are six options at the top of the Master Menu screen - Cheques, Cashpoint, Bank Orders, Payments, Totals and Others - And five options at the bottom - Save to disk, Update files, Change entry, Printer option, and End of run. We are now going to deal with the top six.

Press the [1] Key, for CHEQUES, and you will be faced with the CHEQUES MENU.

You will see you are faced with three options on the cheque menu - as option three is self-explanatory, we will deal with the first two.

OPTION 1: Press the [1] key, for MAKE AN ENTRY, and you will be faced with the CHEQUES ENTRY MENU - simply answer the questions CHEQUE NUMBER, DATE, AMOUNT, and ITEM. On the cheque number it is advised for simplicity that you enter the last three digits of the number instead of the whole number. When using it for the first time you'll find a '1' has been entered for you - just type over this, as it is for your next entry, where it will show your next cheque number (just so long as your cheques go up in ones). When filling in the date, it is the date that the cheque was cashed on that is needed, and please remember to use the correct format. On filling in the amount, do not use the '\$' sign.

When all the cheques to date have been entered, depress the [F1]. This can only be done once you have returned to the 'CHEQUE NUMBER' mode.

OPTION 2: After exiting the ENTRY MODE, you will automatically be taken into the VIEW MODE. After viewing your entries, hit any key and you will be returned to the Master Menu.

CASHPOINT AND OTHERS: The exact same procedure is repeated for both the CASHPOINT and OTHERS options. In the OTHERS mode you will see that under ITEM, cheque book has been entered in for you automatically - this is because this is the sort of item the OTHERS field has been designed for, deducting the banker's

charges for a new cheque book, or basically anything that is deducted from your account, other than cheques, cashpoint entries, and standing orders. If your OTHERS entry is not for "cheque book", simply type your item in over "cheque book". Please remember to enter any remaining letters of "cheque book" should your item be shorter.

OPTION 4: On entering this field you will be faced with a slightly different menu. Option 1 is used for viewing all of your bankers orders on a separate sheet (this sheet is not calculated with the rest of your account and is for viewing only). On leaving this option you will find yourself back at the BANK ORDERS MENU.

Option 2 is a very powerful option that will calculate all your bank orders for this month. On subsequent loadings of the file, this option will check the date of the loading and decide whether more orders need to be added or not. It will also take into account when a standing order has finished (using information given about that order in your P.I.N. file), and enter a "CANCELLED" entry for that order from that date on.

OPTION 3: On entering this field, you'll see the usual menu of MAKE AN ENTRY/VIEW ENTRIES, and it works in the same way as CHEQUES. On entering the MAKE AN ENTRY mode, you'll see that pay is entered in for you automatically, as the payments mode is designed to take any income to your account, if pay is not the required item, simply type over it with your item (as we did with "cheque book" in the OTHERS mode).

On viewing your entries, you will see that the first entry shows is "BALANCE", and that it will be entered as 0.00. Don't worry about this at the moment, as we will deal with this at a later stage. You will also note that in this field, the total expenditures, total income, and balance is revealed, these figures being the summation of the whole account (cheques, cashpoint, standing orders, etc).

Please remember that for the total expenditure (and therefore balance) to work correctly, the computer has to calculate the standing orders. Therefore for a true reading, you must enter the VIEW BANK ORDERS field before using option 3.

OPTION 4: This option simply shows the TOTAL EXPENDITURE, TOTAL INCOME, and BALANCE, as did the view mode of PAYMENTS TO THE BANK (option 3). The difference with this option is it also shows the breakdown of each subsection (cheques, cashpoint, etc), as to how it reached the figure shown as TOTAL EXPENDITURE.

Please note that as with option 3, for the total expenditure (and therefore balance) to work correctly, the computer has to calculate the standing orders. Therefore for a true reading you must enter the VIEW BANK ORDERS field before using this option.

Saving Your Files

We have now completed all the sections of the top six, and we can now continue to the other five sections of the Master Menu.

OPTION 5: This option saves your completed file to disk, using the filename that was appointed for it in your P.A.N. file (it's also the filename that you confirmed in the opening questions to the Master Menu - see page 24).

Before saving your file - because of the way your disk drive handles the information - each section (cheques, cashpoint etc) has to have at least one entry. The computer will check this automatically, and if any section has been left empty, it will enter a 'NIL' and a value of 00.00.

Because of its composition, the 'Bank Orders' section must be viewed to calculate the automatic entries. Should you attempt to SAVE your file before viewing 'Bank Orders', you'll be returned to the Master Menu. On returning, view the Bank Orders (option 4.2), and then return (option 7) to SAVING.

If in doubt, view the Bankers Orders before any option above 4 on the Master Menu.

Updating Your Files

This is a powerful command, used for updating your files after receipt of a bank statement from the bank holding the account that you are working on.

Option 6: This section works by

01.01.88		CASH IN HAND	
TRUST SAVINGS BANK		ACCOUNT OF MR & MRS BROWN	
DELETE NEW ITEMS			
1. CASH	2. DISPOSIT	3. OTHER	
4. BANK ORDERS	5. PAYMENTS	6. ITEMS	
7. DATE TO USE		8. UPDATE FILES	
9. PRINTING OPTION			
0. END OF FILE		PROGRAMMING	

enabling you to delete cheques and other payments that appear on the bank's statement. By showing you each section as a file, you are able to delete items that are shown on the bank's statement, therefore leaving only the items not yet cleared by the bank. The end product is an up-to-date account, without hundreds of items not needed because they've already been cleared by the bank.

On entering this option, you will first be asked for the balance from the bottom of your 'issued' bank statement.

This figure is the balance at the bottom of the statement informing you how much is left in (or owed on) your account. On entering this figure it will be placed in the BALANCE column in the view mode of PAYMENTS TO THE BANK (option 5.2 of the master menu). This is the figure which showed 00.00 when we viewed the section earlier.

On entering the figure for the BALANCE, you will be taken automatically into the 'delete cheques' mode. You will notice that down the side of your entries is the numbering, from entry 1 to whatever amount of entries you have in your file.

To check the bank's statement, simply tap in the number which corresponds with the first cheque shown on the bank's statement and hit [RETURN]. You will note that the entry is now completely obscured by asterisks (* * * * *).

Continue on this way, until all the cheques shown the statement are blanked out in the same way. Now tap in [*] [RETURN] and the computer will delete all the cheques marked with the asterisks.

Deleting the remainder of your files (Cashpoint, Others, Bank orders, and Payments), is done in exactly the same way as you did in the DELETE CHEQUES mode.

On completion of the final section of the 'Updating Files' mode, you'll automatically be taken into the view mode of BANK ORDERS. Exit this mode as usual.

After using the Update Files option, the program is used exactly the same way as before, and each section can be viewed as the file saved.

Please remember that if you save the file after updating, it will be saved 'updated' and the previous file with all the extra items (that we do not need anymore) will then be deleted from your disk.

Changing Entries

Option 9 of the Master Menu enables you to change an entry if you make a mistake. If, for example, you incorrectly type in a cheque number in the ENTRY mode of CHEQUES, you simply continue through the page until you can exit (see page 41), return to the Master Menu, and then select option 9, where you can alter the cheque number to the correct number and then return to the Cheques mode to continue with the next entry.

OPTION 9: On choosing this option, you will see the CHANGE ENTRY MENU, categories to change CHEQUES, CASHPOINT, OTHERS, and PAYMENTS. You will notice that the other sections, BANKERS ORDERS, is not present - this is because all entries to this section are automatic, and therefore there should be no mistakes.

Should you wish to delete an entry in any of these categories, (including Bankers Orders), you should use option 8 - updating files. CHANGE ENTRIES is for changing, not deleting.

To change an entry made in the Cheques mode, you would use option 1 of the CHANGE ENTRY menu. Press the key [1] now. You will now be faced with the Cheques change made menu. You'll see the words "ENTRY NO. 1", underneath which will be displayed your first entry from the CHEQUES mode. If you wish to change this entry press [C], if not, you can scroll through the entries by pressing [], to scroll forward, and [] to scroll back.

Once you've chosen the entry you wish to change, and have pressed the [C] key to change, you'll be asked to input each detail again (date, cheque number, etc.). If, for example, the last was in the 'cheque number', simply press [RETURN] to the other questions and they will remain unchanged. After changing the incorrect item, the display above will change to show the amended version. You're now free to scroll through for any other mistakes, or to return to the Master Menu (this is done by pressing the [H] key).

To change CASHPOINTS, OTHERS, AND PAYMENTS entries, you choose the relevant number in the Change Entry menu, (see above), and follow the exact same procedure as for Cheques (see above).

Printer Option

The printer option is the most important part of the Banker programme, the part that actually prints out bank (yearly) statements of your account. The benefit of this is that your statements will always be more up-to-date than the bank's. If, for example, you cash a cheque on the 2nd of January, and you receive a bank statement from your bank on the 1st, the cheque will not be shown, therefore, luring you into thinking you have more money than you actually have! This is obviously not a good thing, as it leads to all sorts of problems...

... "Now", you say, "but I keep a running balance in the stub of my cheque book". Yes, but do you account for standing orders, bankers charges, costs of, for example, a new cheque book that you ordered on the 12nd, and it slipped your mind?"

Of course, another way of checking

is to load up your Banker program and view through the various sections, (finishing with section 6 (totals). Well, of course this is by far the safest way of doing things, but now thanks to option 6 - the printer option - all you have to do is check your own, up-to-date bank statement.

Your bank statement is split up into the different categories, as is the programme, for easy viewing (see attached demonstration statement). The computer will automatically print the date, bank name, and your account title, at the top of the statement. It will then print the date, item, cheque number, debit, and credit, for each section in turn, concluding with the total expenditures, income, and balance, of your account to date.

To use this option press [H] in the Master Menu and you'll be asked to confirm that you want a printed statement - this is in case you had pressed the [H] by accident. Answer Y for yes, and you will be asked to ensure the printer is turned on. Check that the printer is on, and there is paper in it, and then hit any key. Your "STATEMENT" will now be printed. On completion of printing, you'll be returned to the Master Menu.

End Of Run

To end the program, use option 'A' on the Master Menu. On pressing [A], you will be faced with a few 'safe-ish' questions, the first of which is checking that you didn't press 'A' accidentally, and therefore giving you the chance to return to the Master Menu as if nothing had happened. The remainder of these questions check that you have saved the file (option T), and whether you wish to calculate another account (if you select this, you will be returned to the LOADER TITLE SCREEN awaiting your P.I.N. Code). If you reply to this question that you do not wish to calculate another account, the computer will reset itself. Your computer is now ready to run any other program you wish to use.

Conclusion

We have now worked through each section of the Master Menu, and by this stage you should be fairly conversant with the system. You should have entered all items from your account, you should have viewed

them, you might have (for demonstration purposes or otherwise) altered them, you might even have deleted some of them, you should have saved them as a file, and if you own a printer you will most probably have printed them out into a statement... Now it's time to reload your file and update (or add to) it.

We can, at this stage, either completely reset the computer and reload Banker, as simply, using option 'A' and to view another account. Either way we will now end up with the Loader Title Screen in front of us.

Because we've already formed a P.I.N. Code, we don't have to enter a lot of boring details about accounts and standing orders, we simply enter our P.I.N. Code and the computer will load it all in a matter of seconds. Please note that if you enter the P.I.N. Code incorrectly, the computer will reply with a FILE NOT FOUND message, and you'll be returned to the Loader Title Screen.

On successfully loading the P.I.N. file, you'll enter once again the questions page that precedes the Master Menu. Again all the answers are already placed in for you, and all that remains, is for you to hit [RETURN]. The only difference this time is that you must answer 'No' to the question, "ARE YOU OPENING THE FILE FOR THE FIRST TIME?". Also, for the sake of demonstration, it might be a good idea to add a month or two in the Date Field, just to watch the Banker Orders field doing its stuff!

Because you entered "NO" to the "ARE YOU OPENING THE FILE FOR THE FIRST TIME" question, you will note that on entering the Master Menu, there is a line between the sections flashing, reading: ***** PLEASE WAIT LOADING FILES ***** This is because the computer is loading the 'old' file that you have just saved. Once this file has been loaded, the PLEASE WAIT LOADING FILES line will go, and you will see a line in the top right-hand corner flashing - "FILES IN MEMORY". You will of course have seen this before, as this line comes into effect as soon as any entry is made into any of the sections.

You are now ready to add to, delete, change or printout any of the files. Remember to re-save the file, before "END OF RUNNING" once you've started to use the programme for your account.

Multi-Coloured List

Brighten up your Basic Listings by adding some colour with this handy routine
By Neil Higgins

Did you know that it's possible to have your Basic program listing in different colours? For example, you could have half of your program listed in blue, and the other in white. But the main use I had is that you can highlight certain parts of your program such as subroutines, run statements, messages, or even the last part of the program you were working on!

The routine given will allow you to do this with ease. It works by inserting a REM statement at any line you choose which holds a string of characters that actually changes the colour of your listing. To use the routine, first type it in, save it out for future use, and then to add colour to the syntax in-

```
SYNTAX, LINE NO, COLOUR (0-15)
```

where LINE NO can be any valid basic line number, and COLOUR is any of the standard colour codes from 0-15. If the line number chosen already exists in your program, then the following message will appear - LINE EXISTS-CONTINUE Y/N. If you press the Y key, then the line will be replaced by a REM statement and your colour. If you press the N key, then the old line will be left intact - this is a safeguard so that you don't delete important lines by mistake.

As a final tip for people who don't understand the benefit of this program, let's say you have a subroutine starting at line 1000 and ending at line 2000. If you want to make this list in just the colour white, then you would first enter - SYS 15876,599,1, in which case your listing would carry on in the colour white. But we only want the subroutine to list in white, and the way around this is to include another REM to change the colour back to normal. Let's say for simplicity this happened to be light blue. You would enter - SYS 5805,2001,14, which will return the colour after the subroutine back to light blue, which was our original colour. If you experiment with different colours, you'll soon find the best ones that stand out.

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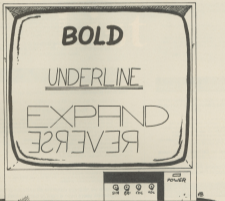
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PRINTFX



This print effects package could bring your Commodore screen to life!

By Mark Everingham

As your Plus/4 screen looms just to death? Don't you wish you could inject some life and interest into your screen displays, something more than turning them some stomach-turning green colour in an attempt to catch the user's attention? Well, PRINTFX can save you from the oblivion of computer boredom. Simply use the mystic SYS command, and PRINTFX will change your Commodore-using life!

So, after all these extravagant claims that PRINTFX will change your life, what exactly does it do? Well essentially, it offers the Plus/4 user a variety of printing effects (or FX). These can be used to live-up your boring screen displays, or for more serious applications, for instance in mimicking the output of a dot-matrix printer for word-processing purposes. Printing effects implemented range from simple underlining to bold, italicised, underlined, vertically & horizontally flipped, double width, double height text rotated through 270 degrees about the text origin, and displayed using an exclusive-or method. If you're struggling for breaths after that sentence, or wondering what on earth it meant, don't worry - PRINTFX adds 20 new commands to BASIC which make it simplicity itself to operate.

Using PRINTFX Commands

As I have just mentioned, PRINTFX is operated through a new set of 20 BASIC commands forming an extension to normal CBM BASIC. These commands work in exactly the same way as the normal BASIC commands and are fully supported with error messages and function evaluation. For example, the command TEXT prints some text on the screen and has the syntax shown below:-

```
TEXT XCOORD,YCOORD,"TEXT to be printed"
```

Usually you would use something like the command that follows to display some text:

```
TEXT 18,10,"HELLO"
```

If, however, you want to print some text at a position defined by variables, or want to allow the user to specify

the text to be printed, this is no problem. For example:

```
XC=08:YC=12:TEXT XC,YC,"HELLO"
```

This will print "HELLO" at the position (18,12) specified by the variables XC and YC. You could also use an expression such as that below to achieve the same effect.

```
TEXT J%6, J%6, "HELLO"
```

No any numeric argument can be replaced with any expression which yields a numeric result. The same can be applied to strings:

```
INPUT "WHAT IS YOUR NAME"; N$
TEXT 10,LEN(N$)+1,12,"HELLO " + N$
```

As you can see, each argument may be replaced with an expression or series of calculations which produce either a numeric or string argument, whichever is required. In this way it is possible to achieve some complex effects.

PRINTFX Error Messages

Listed below are the error messages that PRINTFX gives, and their relevant meanings.

Syntax ERROR - You have omitted one of the required arguments or used a phrase which PRINTFX and BASIC does not recognise in the context.

ILLEGAL QUANTITY ERROR - One of the arguments you have used is outside the valid range for that argument. The appropriate range for each argument is shown in brackets in the next section.

TYPE MISMATCH ERROR - You have replaced a numeric argument with a string argument, or vice-versa.

The PRINTFX Commands

What follows is a list of all the PRINTFX commands, along with the syntax they take, the actions they perform and an example of the command's use.

TEXT XCOORD, YCOORD, ZCOORD, "TEXT"

The TEXT command is used to perform the actual process of printing some text on the screen, subject to the special effects previously set up. Note that if you are using double-width text then the x-coordinate (xcoord) should be in the range 0-58, and if using double-height text, the y-coordinate (ycoord) should be in the range 0-23.

The text string can be of any length, and the TEXT command will automatically wrap the text around the screen in the direction dictated by the MOVING command.

BOLD ON/OFF

The BOLD command is the first of the special effects commands and is used to switch on or off Bold printing. The Bold typstyle, which is sometimes called "Emphasized" on Dot-matrix printers, can be used for sub-headings or to emphasize in-text headings. It essentially widens every vertical line within each character printed. Like the other Effect commands, the BOLD command takes only one argument - ON or OFF to turn the effect On or Off respectively.

Example: BOLD ON:TEXT 1,8,12, "BOLD TEXT":BOLD OFF

ITALIC ON/OFF

The ITALIC command is used to switch on or off the Italic typstyle. This is usually used for placing emphasis on single words within the main body of text. Alternatively it may be used to highlight whole paragraph quotes, or to indicate that a phrase is of Latin origin. The typstyle is achieved by shifting the top half of each character one pixel to the right. The operation of the command is identical to the BOLD command.

Example: ITALIC ON:TEXT 1,8,12, "DULCE ET DECORUM EST": ITALIC OFF

UNDERLINE ON/OFF

The UNDERLINE command is used to select whether subsequent printing will be underlined or not. Underlining is used for headings, or as an alternative to Italic (or emphasis). The effect is achieved by simply adding a straight line to the base of each character.

Example: `UNDERLINE ON:TEXT 1,1,12,"UNDERLINED TEXT":UNDERLINE OFF`

REVERSE ON/OFF

The REVERSE command produces a similar effect to the BWS ON/OFF control codes on the text screen in Commodore Basic. The style inverts each pixel of each character, producing a white on black effect if it is monochrome.

Example: `REVERSE ON:TEXT 1,14,12,"REVERSED TEXT":REVERSE OFF`

VTFIP ON/OFF

The VTFIP command offers the facility of Vertically Flipping a piece of text so that the top of the character appears at the bottom, effectively turning it upside down. This can be useful if making a piece of text follow a shape on the screen.

Example: `VTFIP ON:TEXT 1,12,12,"UPSIDE-DOWN TEXT":VTFIP OFF`

HZFLIP ON/OFF

The HZFLIP command allows horizontally flipped text to be produced. This is similar to Vertical Flipping, except that it produces text which faces left rather than right, each pixel on the right being transferred to the left and vice-versa. The effect can be used when printing text from right to left as directed by the MOVING command.

Example: `HZFLIP ON:TEXT 13,12,"BACKWARDS TEXT":HZFLIP OFF`

TURN stage (0-3)

The TURN command is the first of the special effects commands which does not take a single ON/OFF argument, but instead a numeric argument in the range 0-3. The command is used to turn or rotate a piece of text through an angle specified by the stage argument. The text is rotated about the centre of each character. The stage number 0-3 produces the following rotations:-

Stage (0-3) / Rotation in Degrees (0-360)

0	000
1	090
2	180
3	270

Example: `TURN 1:TEXT 9,12,"TEXT ROTATED 90 DEGREES":TURN 0`

WIDTH 0/1

The WIDTH command is my own personal favourite - it allows text to be printed twice the normal width with 20 characters per line. Even though only 20 characters fit on a line, those can start at any position 0-28. PRINTFX will take care of moving the cursor two characters instead of one, and will wrap text across lines correctly.

Example: `WIDTH 1:TEXT 3,12,"DOUBLE-WIDTH TEXT":WIDTH 0`

HEIGHT 0/1

The HEIGHT command allows you to print text twice its normal height, with 12 lines of text fitting on the screen at a time. Those lines can start at any line from y=0 to y=23 and PRINTFX automatically moves the cursor two lines when wrapping text across lines.

Example: `HEIGHT 1:TEXT 11,11,"DOUBLE-HEIGHT TEXT":HEIGHT 0`

Combining PRINTFX Special Effects

If you've been keeping count, you will have realised that 11 special effects have been mentioned as achievable using PRINTFX. However, the real beauty of PRINTFX is the ability to mix different special effects. In this way, it's possible to obtain more than 4000 effects by the combination of the 11 basic styles of printing. Every single one of PRINTFX's effects can be used together, even the double-width and double-height commands. An example of this is given below:

Example:
`WIDTH 1:HEIGHT 1:ITALIC ON:BOLD ON:TEXT 1,1,"DOUBLE-WIDTH, DOUBLE-HEIGHT, ITALICISED, BOLD TEXT":WIDTH 0:HEIGHT 0:ITALIC OFF:BOLD OFF`

In fact, many more than 4000 effects are available...

ORDER "BIUVHT"

It may not be very obvious, but the order in which PRINTFX carries out its special effects does in fact change the way a piece of text appears. The ORDER command can be used to change the order in which the special effects are carried out, although double-width and double-height is always performed last. The syntax of the ORDER command is a single string which must be seven characters in length, with each character representing a special effect. The default order is shown above, and the characters in the order string are as follows:-

Character	Special Effect
B	Bold
I	Italic
U	Underline
V	Vertical Flip
H	Horizontal Flip
T	Turn (Rotation)
R	Reverse

An example of the difference the ORDER command makes is shown below.

1. `ORDER "BIUVHT":BOLD ON:REVERSE ON:TEXT 1,1,"BOLD & REVERSED:ORDER 1":BOLD OFF:REVERSE OFF`
2. `ORDER "RBIUVHT":BOLD ON:REVERSE ON:TEXT 1,1,"BOLD & REVERSED:ORDER 1":BOLD OFF:REVERSE OFF:ORDER "BIUVHT"`

Using the ORDER command, it is theoretically possible to produce literally thousands more different printing effects!

MODE STORE/PLAT/ERASE/INVERT

If you've used the Commodore BASIC CLEAR command in the graphics mode, you will know that whenever it prints any text on the screen, everything under the text is erased completely. Most of the time this is fine, but sometimes you may want to lay some text over graphics or erase an area of graphics with some text to

produce a rubbing-out effect. PRINTFX can print its text in four ways, and the MODE command is used to select which method is used. The four arguments and corresponding effects are listed below.

Symbol / Effect	32	Underline
MODE STORE Erase everything under text before printing.	16	Reverse
PLOT Lay the text on top of the graphics.	8	Vertical Flip
ERASE Reset each pixel that the text consists of, rubbing out the graphics only where the text covers.	4	Horizontal Flip
INVERT Invert each pixel on the screen where the text is printed (i.e. set pixels become reset, and vice-versa).	2	Double-Width
	1	Double-Height

Example: CHAR 100,"TTTTTTTT"
MODE PLOT
TEXT 80,"THIS TEXT IS
OVERLAID USING PLOT"
MODE STORE

As another interesting aspect of the INVERT mode, any text printed with the mode set to INVERT can be erased by reprinting the text in the same position with the mode still set to INVERT. This effect is often used in arcade games to produce rapid screen movement.

EFFECT effect (0-255)

If you're using many special effects at one time, you may be wondering if there is a quicker method of setting up a special effect than using a string of BOLD, ITALIC, UNDERLINE etc. commands, although these are very easy to use. If you've become familiar enough with PRINTFX, you can set up any effect except TURN using an EFFECT command. The EFFECT command turns a number in the range 0-255 into the combination of effects this number represents. The number is built-up from eight component numbers:

Number	Effect
128	Bold
64	Italic

32	Underline
16	Reverse
8	Vertical Flip
4	Horizontal Flip
2	Double-Width
1	Double-Height

If you want an effect to be switched on, then you add the number to your accumulating total, or if not then leave it as a zero. For instance, if you wanted to set up Bold, Italicised, Reversed text, the numbers you would use are:

128 (Bold) + 64 (Italic) + 16 (Reverse) = 208

Therefore, the command to set this effect into operation would be EFFECT 208. This short command replaces the marginally longer BOLD ON ITALIC ON REVERSE ON! However, it is obviously not as easy to understand, and so the value of the individual effect commands should not be underestimated.

Another interesting use of the EFFECT command is to produce a number of effects from a single FOR...NEXT loop. A program to draw 254 of PRINTFX's special effects follows:

```

10 FOR E=0 TO 254
20 EFFECT E
30 TEXT 10,"EFFECT" + STR$(E)
40 GETKEY KE
50 NEXT E

```

UPPERCASE & LOWERCASE

All the examples we've discussed so far have used the standard Commodore upper-case font, which is in operation when you first see your Plus/4. This font gives upper-case characters and shifted graphics characters such as the Spade, Heart, Diamond and Club. There may be times when you want to use the lower-case character set instead, which offers both lower and upper-case characters and so is more suitable for serious applications. This is no problem - the LOWERCASE command allows you to do this. If you then want to use the upper-case character set, just type UPPERCASE.

Example:

```

LOWERCASE:TEXT 1,1,"Same
Text Using UPPER and lower-case"
UPPERCASE:TEXT 1,1,"Same
Graphics: S A S S S E S X"
( S - 7 indicates the shifted character on key 7)

```

RAMFONT 1AAAA/AAAA & CBMFONT

In addition to using the standard Commodore fonts which are located in the ROM of your Plus/4, you may at some time prefer to use a character-set which you've created using a Character-Designer such as that found on the Four Commodore TD48R, C16 Special Program Disk.

Usually, you can only print such home-made characters in one style, but using PRINTFX all of the thousands of styles can be applied to your own character-set, so you can even imitate those little yellow Papyrus characters you have designed! To tell PRINTFX that you wish to use a font based in RAM rather than the standard Commodore ROM font, the RAMFONT command is used. It takes as its syntax the address where the character-set is found. This address may be expressed either in hexadecimal, provided by a "H" character, or in decimal.

For example, if you've designed a font positioned in memory at 10F00 Hex, you can choose to use it with the command RAMFONT 10F00. Alternatively, if you have a character-set in memory at the address 5C000, you could select it with either RAMFONT 5C000(Hex) or RAMFONT 40150(Decimal). Once you've finished using a character-set designed by yourself, you can go back to using the standard Commodore font by executing the CBMFONT command.

MOVING MLEFT/MRIGHT/ MUP/MDOWN

It may have occurred to you when using the TURN, HZFLIP and VZFLIP commands that it's sometimes a bit limiting to have text always printed from left to right in the conventional manner. If your text is facing towards the left, then it makes more sense to print text from right to left, or if the text is facing upwards, from bottom to top.

You can choose which way text is to be printed using the MOVING command, followed by the direction in which text should be printed. The direction should be one of LEFT, RIGHT, UP and DOWN, and each should be directly preceded with an "M" for "Moving". This "M" is needed to avoid clashes with the LEFTS and RIGHTS functions of CBM BASIC. Whichever direction PRINTFX is

printing is, it automatically takes care of the wrapping of text from line to line, and if a TEXT command causes text to run off the screen, it simply stops printing text on the last visible character.

Example: MOVING LEFT:TEXT 88,1, "PRINTING RIGHT TO LEFT";MOVING RIGHT

STANDARD

If you're using a large number of special effects at one time, when you come to turn them off again, this can result in a large number of BOLD OFF, ITALIC OFF, UNDERLINE OFF etc. Commands which are a bit of a waste of time when you want everything switched off. One solution is to use an EFFECT 0-command, but this doesn't reset the TURN function or Font address. The answer is the STANDARD-command which simply resets all PRINTFX's functions to their standard default values. These settings are as follows:-

Effect	Standard Setting
Bold	OFF
Italic	OFF
Underline	OFF
Reverse	OFF
Vertical Flip	OFF
Horizontal Flip	OFF
Turn (Rotation)	0
Width	0
Height	0
Order	"BIUWHT"
Font	CRMFONT Uppercase

Example: EFFECT 25:TEXT 1,1, "PRINT FX"; STANDARD:TEXT 1,1, "STANDARD"

The FXHELP Command

When you're first using PRINTFX, or later when using the more advanced features, you may not be able to remember the exact name of some of PRINTFX's 28-commands. In such a case, the solution is elementary, just type FXHELP. The FXHELP command gives you a list of the PRINTFX commands, as well as the televised arguments they can take such as OFF, STORE or MLEFT. This command should be of great help when getting to know PRINTFX.

USING COLOUR WITH PRINTFX TEXT

That concludes our summary of the PRINTFX commands. The next subject I would like to discuss is the use of colour when printing text using PRINTFX. This is simple to do, and the process is shown below. Text printed by PRINTFX is printed in the current foreground colour on the current background colour. These are set-up using the standard CBM BASIC/COLOR command.

Example: Printing some text a medium red colour on a bright yellow background.

COLOR 8,8

(Set up Background colour)

COLOR 1,1

(Set up Foreground colour)

TEXT 1,1, "THIS TEXT IS RED ON YELLOW"

Any one of the Plus/4's 121 colours may be used for both background and foreground colours.

Abbreviating PRINTFX Commands & Keywords

In the same way that you can lessen the amount of typing needed to enter a BASIC command in standard Commodore BASIC by using abbreviations, you can abbreviate all the PRINTFX commands and keywords such as STORE or OFF. The full and abbreviated forms of all PRINTFX words are shown below.

Getting PRINTFX "Up & Running"

The PRINTFX system is easy to install, and may be used by either Tape or Disk users. The process of poking the machine-code data into memory is simply a matter of loading and running the BASIC LOADER program (Listing 1). The program will inform you of any errors in the data as follows:-

INVALID NUMBER IN LINE n -

One of the numbers in the specified line is outside the valid range of 0-125

CHECKSUM ERROR IN LINE n -

Each line of data contains a checksum and this should be the sum of the other numbers in the line. This error indicates that either one of the data items in the line is incorrect, or the checksum number itself is wrong.

Once you get the message "STORE AGE COMPLETE - DATA 100% CORRECT" follow the program's instructions to save a copy of the working code onto a disk or tape. You can then load PRINTFX by typing the following:-

LOAD "PRINTFX"

(For Disk Users)

or LOAD "PRINTFX"

(For Tape Users)

RUN

A title message will appear at the top of the screen, and the PRINTFX commands will then be in operation. Because PRINTFX uses the high-resolution graphics screen, any print-

Full	Abbreviated	Full	Abbreviated
BOLD	B Shift-B	STANDARD	
ITALIC	I Shift-T	EFFECT	E Shift-F
UNDERLINE	U Shift-N	MOVING	MO Shift-Y
REVERSE	R Shift-E	TEXT	T Shift-E
VFLIP	V Shift-T	FXHELP	F Shift-X
HZFLIP	H Shift-Z		
TURN	T Shift-U	OFF	O Shift-F
WIDTH	W Shift-I	STORE	S Shift-T
HEIGHT	H Shift-E	PLOT	P Shift-L
UPPERCASE	U Shift-P	ERASE	E Shift-R
LOWERCASE	L Shift-O	INVERT	I Shift-N
CRMFONT	C Shift-R	MRIGHT	M Shift-R
RAMFONT	R Shift-A	MLEFT	M Shift-L
ORDER	O Shift-R	MUP	M Shift-U
MODE	M Shift-O	MIDOWN	M Shift-D

ing program should take the following form:-

```
GRAPHIC 1,1 On-clear the screen)
or GRAPHIC 1,1 (for a Split-Screen)
TEXT etc... (Do your PRINTFX
printing)
GRAPHIC 0 (Select Text mode
again)
END (Return to BASIC
[Optional])
```

The GRAPHIC 1,1 gives a screen with graphics at the top and a small text window at the bottom. If you don't wish the screen to be cleared, omit the "1,1". Some interesting effects can also be generated using the multi-colour graphics mode. To activate this, do GRAPHIC 3 or GRAPHIC 4.

C18 Owners cannot use PRINTFX because on a C18 with PRINTFX installed there is exactly 2 bytes of free memory left! However, if you possess a C18 with a minimum of 19k extra RAM expansion, you can use PRINTFX as it stands with no alteration.

The PRINTFX Screen Editor

In order to let you play around with some of PRINTFX's special effects or to generate simple screen displays with the minimum of trouble, I have included a listing for a simple Screen Editor. Using this program you can use most of PRINTFX's special effects to quickly produce professional screen-displays. The process for getting this program running is shown below.

```
LOAD "PRINTFX"
(For Disk Users)
LOAD "PRINTFX"
(For Tape Users)
RUN
Type in the Screen Editor Program
(Listing 2)
SAVE "PRINTFX.SEDITOR"
(For Disk Users)
SAVE "PRINTFX.SEDITOR"
(For Tape Users)
RUN
```

Subsequently, you can use the Screen Editor by loading & running PRINTFX then loading and running "PRINTFX.SEDITOR".

Upon running, after the Title Screen has been displayed, you can freely type text. The key-presses below have the special actions shown.

Key-press	Function
RETURN	Go to left of next line
DEL	Delete character to left of cursor
CTRL-B	Toggle Bold On/Off
CTRL-I	Toggle Italic On/Off
CTRL-U	Toggle Underline On/Off
CTRL-R	Toggle Reverse On/Off
CTRL-V	Toggle Vertical Flip On/Off
CTRL-H	Toggle Horizontal Flip On/Off
CTRL-W	Toggle Double-Width On/Off
CTRL-L	Toggle Double-Height On/Off
CTRL-N	Increase Turn angle
CTRL-C	Toggle Upper/Lower case
CTRL-D	Select Default settings
HOME	Move to top-left corner of screen
CLEAR	Clear screen and move to top-left
LEFT	Move Cursor Left
RIGHT	Move Cursor Right
UP	Move Cursor Up
DOWN	Move Cursor Down
ESC	Abort Program
[F1]	Toggle Bold On/Off
[F2]	Toggle Italic On/Off
[F3]	Toggle Underline On/Off
[F4]	Toggle Reverse On/Off
[F5]	Toggle Double-Width On/Off
[F6]	Toggle Double-Height On/Off

Although the PRINTFX Screen Editor does not support colour or all of PRINTFX's functions, it's a good introduction to using PRINTFX, and

the details about PRINTFX for compatibility or further programming. Below is a quick summary of necessary usage for each purpose.

Address	Usage
\$1000-\$10FF	PRINTFX Program & Data Area
\$D0	X-Coordinate
\$D1	Y-Coordinate
\$D2-\$E0	Auxiliary Screen Address
\$E4-\$E9	Character Address Pointer
\$F7-\$F8	Temporary Storage Locations
\$8B	Temporary Register Store
\$B7E4	Font Base Address (M58)
\$B8A-\$B000	BASIC Token Evaluation
\$B9C-\$B00D	BASIC User Token Generation
\$B6E-\$B60F	Keyword Location
\$B10-\$B01	User Token Preparation

Because it is written in simple BASIC, it should be very easy to add whatever facilities you want to the program.

PRINTFX Control Locations

For the more advanced programmers, it may be helpful to know a few of

Because PRINTFX leaves the CHRGET routine and the vector \$308-\$30F intact, it is compatible with most other C18 & Plus/4 add-ons such as DOS 3.1.

Well, I think that about wraps it up. PRINTFX without doubt has many serious applications, but remember that above all, it should be good fun!

Anti-Freeze

Protect yourself against pirates with this ingenious new program

By Neil Higgins



In a past issue of *Your Commodore*, there have been many articles on the subject of program protection — indeed, I've even written one myself. One thing they all had in common was that they only described the simple ways of protection, such as disabling the run stop key, detaching a hard ware reset or even using a secret password to prevent access to a program. These methods worked well, but how can we protect ourselves against the invasive systems now used on the latest state-of-the-art back-up cartridges? Well, in this article I will explain one way in which machine code programmers can defeat such systems.

The most common cartridges for the Commodore 64 at present have to be 'Action Replay', 'The Expert', 'Final Cartridge' and 'Frame Frame', all of which have a built-in freeze button which is supposed to be able to stop any program while it is running and make a back-up. If you have any of these, then stay tuned! I was only able to test my anti-freeze routine on two versions of these cartridges — namely the Final Cartridge 2 and Action Replay MK 3, and in both cases it proved highly successful.

Eureka!

Before I explain how to use the anti-freeze, I will tell you how I first came across it. It all started when I was sitting around one day wondering what my next project would be. After an hour spent staring blankly at my computer equipment, I noticed my 'Action Replay' cartridge, and I had a brain-wave — why not try and detect whenever the freeze button had been pressed? But where on earth would I start?

I decided not to try using non-memorable intrinsics or other equally precarious methods. I thought there would have to be at least one location somewhere in memory that changes whenever that button is pressed. Some obvious memory locations to test were around the CIA chips from \$1C08 to \$1D0F, and the stack from \$0100 to \$01FF, so after a length of time around the CIA's without getting anywhere, I concentrated on the stack area.

Since 'Action Replay' is supposed to have a system that leaves the stack contents intact, I decided to fill it with a random byte (I filled \$0100 to \$01FF with \$00) and then ran a routine which would set the stack pointer. After countless attempts at pressing the freeze and checking the stack, I finally

set the stack pointer to 25, then again changed the stack area and pressed the freeze button, having entered the built-in monitor. I then noticed that location \$0105 had changed, and thus my anti-freeze program was born.

Trying it out

The routine is given as a source code listing which was written using the Micro Assembler, but it should be compatible with most of the assemblers (you may just need to change the TXT pseudo ops to BYT). A basic loader is also given for those without assemblers. To test it on your cartridge, load it into memory and start it with \$75 40132. A message will appear asking you to press the freeze button, and after doing so you must return to it by using the 'RUN' option in your cartridge. If the test was successful, the message 'I checked! You have just used the freeze button' will be displayed, at which point you can reset to satisfy yourself that it works. If it crashes on return, then you could also call it successful, as it means a working back-up cannot be made.

Machine codes can of course add their own routines onto this, such as filling the whole of memory with random bytes, or even printing a silly message to try on your mates. If you do edit anti-freeze for your own programs, it's important to note that since the stack is reduced to 25, you are severely limited as to the number of nested subroutines or ROM routines you can call. Also, check your usage of the instruction PHA, in other words keep an eye on the stack pointer.

The routine also needs to use location \$0103, but this is also used by certain run routines — such as the one at \$1D50 which converts the contents of floating point accumulators 1 to a string starting at \$0100 — so if you intend to use the ROM, make sure you know what memory addresses are used, or it could be disastrous.

As there are now versions of cartridges coming onto the market every few months, I can't tell you if anti-freeze would successfully work with them, I hope you will try it out yourselves, and if anyone out there has already got all the latest ones, then why not send in the results to *Your Commodore* and demand they be put in the Mailbag for us all to see. Anyway, I hope anti-freeze helps develop your own programs to stand out the pirates. □

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GAMES
UPDATE



Seven levels of kung-fu action await those strong enough to tackle Dragon Ninja, or rather Red Double Fu Dragon Ninja to give it its full title. Yes, here's another attempt to beat the living daylights out of a motley collection of opponents as you attempt to save the President of the United States.

Controls are the usual, predictable walk, jump, kick and punch moves with the addition of a super punch if you press and hold the fire button for a few seconds to build up strength. However, you are unlikely to have the time to accurately move the joystick to select fast kicks and back elbows as you're swamped by ninjas, high-kicking acrobatic women warriors and weapon-brandishing minions.

If you manage to dispatch them you have to run the gamut of the super villains positioned at the end of each level who unlike the others that are killed with a single punch has an energy bar next to yours at the bottom of the screen and takes several blows to kill. The first super villain you must cross fate with is a fire-breathing giant, a green and poisonous giant ninja who, finally, has a split personality as he can quickly become an army.



The game has obviously been programmed by the team behind Terry Krazyade, and is a cut above the usual kung-fu games. It combines fast action with good backgrounds (such as a giant truck) which actually are part of the gameplay.

To improve your chances you can pick up and use weapons the ninjas have used against you, which increases your range but can cause you problems as it varies the usual distance between you and your opponent to guarantee a hit.

This is one of the better kung-fu coin-op conversions and you should be able to fight your way through the first two levels by your second game, but reaching the seventh may take longer.



Twoflower

Title: Dragon Ninja. Supplier: Aspyre (Oxford) & Central Street, Manchester. M7 5WE. Tel: 061-412 6811. Mailing: 0647 126. Price: £9.99 (cash). £14.99 (card).

Dragon ★ Ninja



PaperClip Publisher

PaperClip Publisher offers professional results at a budget price.

By Tony Hetherington

P a p e r C l i p P u b l i s h e r is the latest in a line of top quality but imported BIF (Bash Top Publishing) packages that will allow C64 owners to create newsletters, magazine pages and even the ubiquitous flysheets from the comfort of their keyboard.

As you have probably guessed by now these pages were created using the package that boasts some pedigree as the names of three top software houses appear on its packaging. The program's authors are Hetherington, Inc. Included in the package is the *P a p e r C l i p* word processor which appeared over here via the now defunct Articlesoft, Gold Bash (producer of the Amiga BIF

p a p e r c l i p and *Electronic Arts - Software Systems*. Electronic Arts has no plans to import *P a p e r C l i p P u b l i s h e r* into the UK and so, once

again, C64 owners have to rely on the efforts of F.S.S.L. to provide the best in productivity software.

As you can see *P a p e r C l i p P u b l i s h e r* allows you to mix text and graphics in a variety of styles that can produce some interesting results. You'll see that I've strayed from the normal *Your Commodore* style to show off some of them such as the drop shadows and shading.

This article has been written using *P a p e r C l i p*, which is only one of a handful of wordprocessors it supports, and then converted by the text converter utility before loading into the program's text editor. Once in the editor you can add formatting commands such as *centering* that sometimes *Your Commodore* appears it is written in italics. The text editor can be used to write all of your

text but it lacks the advanced features such as a spell checker and word processors. The program also includes a quicktext editor that can



handle up to 250 characters and is ideal for headings, introductions and picture captions.

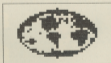
Not surprisingly there is a graphics editor which consists of a rudimentary graphics package through which you can create your own artwork and a more useful utility through which you can load a clip-art from *Print Shop*, *Page Designer*, *Print Master* and the *Goodie* graphics package. *PaperClip Publisher* includes its own clip-art library (which is used to illustrate these pages) but it's useful to be able to use the artwork from other

Once you have your text and graphics together on a wash dish it's time to create some pages.

Pull down menus and dialogue boxes guide you through the page creation process and it's possible to go from a blank screen to printed page in under an hour. In fact, half of the well-written manual is dedicated to a step-by-step tutorial in which you create a sample page using pre-defined text files.

The first stage is to define the format for your page or pages (if you want each page can have a different format and determine the size of margins, the number of columns on the page and the size of the paper it will be printed on). Next you split the page into boxes into which you will put the text and graphics.

None are the working units of *PaperClip Publisher* as they contain their own local conditions



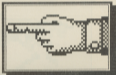
others to contain text and graphics as required. One powerful feature is the ability to link boxes. These can be either on the same page or on others, through which you can run two stories side by side on your page and then continue them inside. It sounds simple but quite a few so-called packages don't have this feature.

Once the page layout is complete you simply pour in the text and graphics by selecting the appropriate icon from a bank of them on the left-hand side of the creation screen and select the file from a dialogue box. Then go and make a cup of tea as drabble would be a popular description for the pace of this action. Eventually the text will be there and there's even a magnify function to check it's in the right place if you've used anything less than 24 point text.

Finally, you use the quickest option to add headlines, which can be quite a fiddly process to get them centred in their boxes, and then print out your masterpiece.

Comparisons will be made between this and *GraphicWorld* so I might as well join in. I found

PaperCraft Publisher to be easier to use but limited in its access to outside word processors. *GraphicWorld* can grab text from any GDT wordprocessor. Graphically, this one scores with its ability to use *Graphic* and it can even use fonts from the GDT



font packs. *PaperCraft* is cheaper as you don't have to buy fonts as well. On the minus side it is very slow when it's pouring text and printing out pages. On the plus side it offers more variety of fonts and point sizes than, for example, *Stop Press (ANSI)* and would be the obvious choice for existing *PaperCraft* users.

Yours truly,
 Title: *PaperCraft*
 Publisher:
 Support:
 T. 5 5 P. 8. 1 2 3 4 5 6 7 8 9
 1 2 3 4 5 6 7 8 9 1 0 1 1
 Publisher, 1 2 3 4 5 6 7 8 9
 1 2 3 4 5 6 7 8 9 1 0 1 1
 1 2 3 4 5 6 7 8 9 1 0 1 1
 1 2 3 4 5 6 7 8 9 1 0 1 1

that determine the size, style and appearance of their contents. If the box contains text you can use the cursor bar dialogue box to decide whether the text will be centered, or justified, printed in Helvetica, Times,

box.

There is also an additional option used to determine whether a box is opaque or transparent. This is used to overlay text on graphics or patterns to produce some interesting



Courier or Symbol fonts, in 8, 12, 16 or 24 point size, in white or black ink, on a plain or patterned background, magnified in either the X or Y directions or both, and whether the box containing it should be visible, have a thick or thin border and have a drop shadow.

If the box is to contain graphics then, although all the options remain, you only need to worry about pattern, magnification, drop shadows and vertical and horizontal margins to centre the clipart in the

effects.

It would be tedious to have to define each and every box, particularly in a long document like this one. You can use a default box option to establish a norm and then only change the exceptions.

Use of the word box is misleading as a box can be a rectangle and can be of any size. Once placed a box can be moved or resized with a few presses of the fire button. For example, one box could be used for the newspaper's heading, another for the introduction and

MIXING Business

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EDUCATION

Commodore computer show

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will demonstrate how these machines' power is continually being stretched, producing faster and ever more addictive games with superb graphics.

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Commodore micros are now used as educational tools all over the country. With the development of BBC Basic on the Amiga and the advent of Desktop Video (combining TV pictures with text and graphics), the range of educational applications is endless.

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Rocket Ranger



It's Saturday morning showtime again, as *Rocket Ranger* takes us to the skies to defeat the Nazi hordes and rescue the brilliant Professor and his beautiful daughter. You've probably seen this series, you may even have read the book, so now play the game and become *Rocket Ranger*!

The game begins in your lab in Fort Dix, USA in 1940 - you're working on your latest invention when suddenly a rocket pack, ray gun and decoder wheel mysteriously appear in front of you, warning that the Nazis have discovered a fuel known as Lunarium and are set not only to win the war but also to dominate the world far continents. Immediately, you realise that the equipment has been sent from this potential evil future, and that you're the only one who can stop it coming true.

Things suddenly take a turn for the worse when a deadly Nazi Zeppelin lands and astronauts kidnap the brilliant professor Otto Barstoff and his beautiful daughter Jane. You strap the rocket pack on your back and rush to the rescue. Before you get carried away this isn't a simple bush the bush game, as it demands a combination of arcade skill and strategy.

The strategy element is controlled from the war room at Fort Dix, and involves issuing orders and receiving reports from your team of agents in occupied Europe. These agents can be ordered to either organise resistance to slow down the Nazi war machine or infiltrate Nazi command

and gather information about their dastardly plans and the location of secret bases.

But what of the professor and Jane I hear you cry? Their fate will determine the effectiveness of the Nazi war machine - they plan to fly the unfortunate pair to Germany, which will raise Nazi power from 50 to 75 per cent, and then torture Jane with a mind machine until the Professor agrees to be moved to the base on the Moon, which will increase it to 90 per cent. This efficiency determines the rate of Nazi conquest, and the time you've got left to save the world.

Your first task is to organise your agents to find the location of rocket labs, bases and bomb factories, and then initiate resistance to slow down the Nazi advance. While they're busy with that you can fly off in pursuit of the Professor, which will lead you into either a head-on attempt on a Zeppelin, a dogfight with a squadron of Me109's or a shoot-out with anti-aircraft (and anti-*Rocket Ranger*) guns depending on how long it took you to find them.

You then have to find and attack five Nazi rocket bases to steal parts to build your own ship (and plunder Lunarium to fuel it), before blasting off to the moon and a final battle with an army of Nazi Zombie Women.

Unfortunately, your agents can be discovered and shot, rocket pack fuel is in short supply, and Nazi guards and Me109's aren't easy to beat, so the saving of the world will be a heroic struggle. However, since you've taken to the skies a few times, you'll agree that this is best Cinemascope games yet. Forget *The Three Swages*, *Defender of the Crown* and *Sidewind* - it's *Rocket Ranger* that'll save the day!

Factfile:

Title: *Rocket Ranger* **Supplier:** Cinemascope (Microsoft)
Headway House, 68-72 Show Lane, London EC6P 6AR
Tel: 01-377 4641

GAMES
UPDATE

F-14 TOMCAT



The F-14 Tomcat is the USA's main carrier-based fighter and is capable of quick take-offs, aerial acrobatics and swift, deadly attacks. It's armed with Phoenix long range missiles, Sidewinder mid range, Sidewinder short range missiles and a Vulcan cannon, and protected by electronic counter measures, including chaff and flare launchers.

Before you decide that you've heard it all before, let me add that these is a tough training program to endure before you can even qualify for fast jets, and there are 80 missions to fly once you do qualify. Once you've enlisted, you have to complete a rigorous training schedule, but luckily the program spares you the square bashing, so you start by climbing into the cockpit of your training aircraft. Throughout the exercises an instructor flies in front of you and gives you instructions, so it's a good idea to find the pause button so you can check what you're going to do before he disappears from view.

The first exercises are simple, and involve climbing to set heights and banking to specified headings before returning to base. Then you move onto more complex combat manoeuvres such as the Low-G Yo-Yo and the Barrel Roll while still playing follow-the-leader. After the eighth move, you're assessed on your performance and "Topland".

Only the best get to fly last jet - the others are failures.



which in most air forces means helicopters. If you should fall short of the mark, a graphics sequence shows how you continued to prove you couldn't fly and ended up as a wrecker known as Tomcat Torn. If you eventually succeed, you'll be assigned to the Carrier Nimble and sent on patrol and work your way through the 80 missions, and hopefully through the ranks and medals, until you finally retire.

Before each mission, you're briefed as to the patrol you are ordered to carry out, as well as the possible risks and the rules of engagement. Then it's straight into action as the bogies appear instantly on your scanner. In some missions, you've already broken out and you can shoot at will. These tend to be the easiest as only you have Phoenix long range missiles, so you can drop your speed and take out the enemy without any risk.

Unfortunately, in most scenarios you aren't allowed to fire until either your commander gives you permission (very rare) or the enemy fire at you. The result is an intriguing cat-and-mouse game, in which you try and warn the enemy off while keeping them in your sights and you out of theirs. This is where your training really pays off, as the enemy fighters (usually MiGs) break and bank to try and get behind you. Only then will they fire. It's up to you to keep them in check until they fly off or risk a shot, when you can finish them off with a couple of Sidewinders.

Your Electronic Counter Measures warn you when an enemy locks on to you, and fires when it's up to you to take the appropriate action and launch chaff or flares or try and evade them. When they're all destroyed, you return to the carrier for a debriefing.

Depending on your performance, you're either praised or perhaps humored with a medal, or chewed out for disobeying orders (it's very tempting to blast a MiG when it's right in your sights), which may lead to a review board and some tough discipline.

F-14 Tomcat scores quality, with its fast action gameplay and quality graphics. What I particularly like is the attention to detail. For example, when you log in your name, it is done on a form and the letters appear as if they were a signpost. This is definitely a high-tier.

Touchline:

288c F-14 Tomcat, Supplier: Ariston.

WARLOCK'S QUEST



The Karma is the ultimate jewel. You know, the one that rules the world, is the source of infinite power and is generally unmissable. Anyway, its powers have apparently had an off day, and the gem has been captured by no less a person than He-Whose-Name-Should-Never-Be-Spoken, but who is known as the Lord of Wrongdoing. Whoever he is though, things look pretty bleak, and kudos throughout the land have taken to trembling.

How you came to be involved in this little plot is another of life's great mysteries, but here you are, charged with the recovery of the aforementioned trinket and righting all the world's wrongs in one fell swoop.

THE MUNSTERS

Originating in the mid-Sixties, The Munsters have now become something of a cult thanks to repeats of the television series on Channel 4. A whole new generation has come to enjoy the exploits of Herman, Grandpa, Eddie, Lily and Marilyn. The Again Again software house has managed to secure the rights for a computer game and, surprise surprise, the game is actually a reasonable representation of the TV series, unlike most games of films and TV shows.

The trouble with The Munsters is that they are too nice, and so the Devil himself has decided that they must be taught a lesson. His minions have kidnapped their Marilyn, and 1313 Mockingbird Avenue has been invaded by a whole host of ghouls, ghoulies and long-legged beasties, all intent on hindering any rescue attempt.

The trouble is hidden somewhere deep within an underground complex of pits and caves, guarded by legions of evil characters. All you have to do is find it. For some unknown reason, you can only locate this bit of magic when you have first collected eight other random objects that just happen to be lying around on the off chance that some day, some second-rate adventurer might just happen along looking for them. You can just imagine He-Whose-Name-Should-Never-Be-Spoken saying "What! The entire power of the world is in my evil clutches, unless some da-gooder happens to collect the dread stone and fire trident etc. I know, I'll leave them out where he can find them."

Thus it is that you wander about killing critters with your faithful fire-spitting wand (how can you have a faithful wand? Is it called Fido?) picking up treasures, potions and other useful objects. Beware though, some of the items are cursed, while others simply kill you instantly. The caves are on two levels, and you can move between the two by means of a series of pits, ladders and teleports.

The caves lead in different sections which are arranged in a circular order, necessitating having to backtrack across the different loading zones. This is bad enough on disk, but I dread to think what it would be like on tape. A little more care in positioning some of the dead ends could have diminished this problem greatly.

The graphics are dreadful - a cluttered screen filled with tiny little characters. I last saw graphics this size a few years ago. The blurb describes the graphics as detailed and witty - this is correct, they certainly made me laugh!

The top of the screen records your various statistics points, as well as indecipherable blinks representing the objects collected. There is also some sort of multiplier relating to your armour strength which goes up periodically. How significant this is remains to be seen, as there is no mention of it in the instructions. All in all, this game is a mess. It would make a fair budget game, but at full price, forget it.

Finalities

Title: Warlock's Quest **Supplier:** Ace International **Price:** £8.95 (disk), £14.95 (tape)

The game starts with you in control of Lily, and your first task is to activate Grandpa and Herman. This involves collecting a series of objects, but they must be picked up in the correct order. Doing this requires a lot of backtracking throughout the house, and you'll also need to make a couple of visits to the graveyard.

There are two main types of monster, those that drain all your energy away on contact, and those that don't! Your problem is to find a way of killing off the nasty monsters in order to access different parts of the house and acquire the objects needed to progress further with your quest. It doesn't take long before you discover that you must first kill off large numbers of harmless ghosts in order to boost your spell power sufficiently to have a go at the big beasties. Naturally, attacking the harmless ghosts does not exactly injure you to death, so they too start to drain away your precious life-blood.

Once Grandpa has been activated, he must protect Herman, whilst together they locate Eddie. Then it's off to the chateau where Marilyn is being held captive, but

LED STORM



You've all played car racing games before - you know the sort of thing, left, right, accelerate, brake and jump. Jump!! Yes jump. In LED Storm from Capcom, one of the principal methods of removing your rival from the road is to leap on him from a great height, squashing him flat.

The idea behind the game is simple. There are nine different stages, each offering a different type of terrain - city, desert and so on. Each stage must be completed without running out of energy, in order to progress to the next one. There is no opportunity to practice a stage beforehand.

The futuristic course contains any number of hazards, some natural, some mechanical and some artificial. Magic traps attach themselves to your rear bumper, slowing you

down and wasting precious energy. Only violent shaking at the joystick can dislodge them.

Naturally, you'd expect some sort of penalty if you should happen to drive off the road at a bend. Blamming repairs are effected by waiting for a friendly passing flying saucer to give you a lift. When you are more likely to go astray is where the road disappears suddenly. You have to line yourself up with a ramp and time your jump just right so that you land safely on the other side of the chasm.

Collisions with other cars just force you into a spin, again slowing you down and using up fuel. The further you progress, the more crowded the roads become. These are lanes carrying TNT which should be avoided at all costs, as they too blow you off the road. Other hazards that you might encounter include falling rocks, oil slicks, holes in road and floating mines.

The amount of energy that your car can carry is carefully calculated to make life as difficult for you as possible. Fortunately, you can tap up on your energy pods that float down on parachutes, and you can jump up to catch them. Passing space ships drop three different types of capsule to give you either bonus points, temporary invulnerability or extra extra energy. The final way to tap up your fuel supply is by driving over the jerry-rigged street over the road. Each one collected lights up one letter in the word 'energy' at the bottom of the screen.

One area where LED Storm scores over rival racing games is that you don't have to go flat out all the time. Certainly, the faster you go the further along the track you get, but it does reduce considerably your chances of collecting anything in the road. Indeed, anything other than dead slow towards the end of the second stage, and you are guaranteed not to stay on the course.

The graphics are pretty good, and there are some excellent scrolling routines in operation, together with a catchy tune. But all that only serves to add gloss to what is already a highly addictive game.

Tweethline:

Title: LED Storm. **Supplier:** Capcom via US Gold. **Units:** 213. **Retailer:** Wot. **Birmingham B7 7AN. Feb 021 - 108 1988.**

fast, the services of the pet family dragon are required to help clear the road for the family dragon's house. All that



remains to be done now is for Herman to work out which of the doors Marilyn is hidden behind.

A pretty fair rendition of The Mutations theme runs plays throughout the game. Most of the characters are recognisable, although a bit lacking in detail and the mutations look good. The main problem with this game is that there is no rhyme or reason to the order that you have to do things in. It's just a case of trial and error until you find out what works and what kills you. Even then, you have to go through the same sequence of events every time you play.

Having said that though, I did find The Mutations addictive, and continued playing it long after I had finished stopping. Definitely one of the better licensed to-be, and a must for any Mutation fan.

Tweethline:

Title: The Mutations. **Supplier:** Again Again. **Units:** 147. **Retailer:** Puker's/Ed's. **Poughly, West Yorkshire. WYS 2LR. Price: £8.99 (tax).**

Who Framed Roger Rabbit



The scene is Hollywood in 1947, and Roger Rabbit is in big trouble. Sure, he's a superstar Toon and works every day at the Maroon Cartoon Studios but he's just been framed for the murder of the cartoon Gag King Marvin. To make things worse Marvin, who owned Toontown, promised to give it to the toons, but now not-so-funny business has reared its evil head and the despicable Judge Doom looks set to cash in.

In a three part game based on the smash hit film you have to race in Benny's cab to the Ink and Paint Club, find Marvin's real will, snag it out with a weasel and finally defeat Judge Doom to save Toontown.

Benny is a reckless cab driver, but your best bet to reach the Ink and Paint Club before the Judge. The first part of the game is a race against time through the streets of Los Angeles which are full of traffic to halt your progress, a battle to avoid pools of the Toon-dissolving dip that will cost you one of your lives, and big reds (trains) which have a similar if more obvious effect. Luckily, Benny's car is an ordinary vehicle and can keep with its ascending suspension and even drive along the roof tops.

Eventually you will reach the Ink and Paint Club where you must run around the tables collecting the papers that the Penguin waiters put out while avoiding the grip of the gorilla bouncer. You have to collect all the papers because Marvin's will is written on one of them, but unfortunately it's in invisible ink. Papers are collected by running around the tables and pressing the fire button at the right time. If you mistake it you'll grab either nothing or a drink. Toons and drink don't mix and so you'll lose valuable time as Roger Rabbit flips his lid under the temporary but dramatic effect of the drink.

The next stage takes you back into Benny's car by a hot desperate dash to the Gag factory where all the cartoons

gags are made. These gags become your weapons as you try and get the guarding weasels to laugh themselves to death and so you wear glasses with springy eyes, throw penny-ship bananas, cause a stir with spring powder and make a quick escape through a portable hole.

Success will save Toontown and mark the end of one of the most original games you'll play. It not only features some neat animation but gameplay that actually does justice to the film.

Franchise:

Film: Who Framed Roger Rabbit. Supplier: Activision. Make Home. Mouse Funo Road. Reading, Berks. RG2 0JX. Tel: 07734 31966. Machines: C64/128.



ACTION SERVICE



Somewhere in Europe there is a top secret training center where only the most fearless soldiers come to learn their trade and to earn their place in the elite team known as the Cobra Commandos.

The course is guarded by barbed wire and armed sentries, and because the toughest assault course ever used. There are walls to climb, mines to hurdle, pipes to crawl through, vicious guard dogs to avoid, enemy soldiers to fight in either unarmed kung-fu combat or with your trusty repeating rifle.

All the time your progress is being monitored by the instructors who make things as difficult as possible for you, and who deduct points for the slightest mistake. For example, enemy soldiers can only be fought in the appropriate style - unarmed soldiers cannot be shot or you'll lose 100 points, which is disastrous as points are hard to earn. If the instructors are feeling particularly vicious they may order you to drop and do ten push ups at any time during the course.

The course can be attempted in four different styles which determine the type of challenge you will face. They are: physical (a lot of crawling), risk (avoid mines and handle explosives), combat (hand to hand fighting) or a mixture of these. Whatever you choose it is a daunting task.

If you manage to complete the course then the game includes a custom commander with which you can build yourself a new challenge or set one for a friend.

Although the course is tough to complete and you have different ways of approaching it, it does become enjoyable and would probably be better if it was just the first, qualifying stage for a whole commando game complete with assault and sabotage missions. As it is, it's little more than a trial and error arcade game.

Developer:
File: Action Service, Supplier: Cobra (Telegames), Mike House, Abbey Road, Egham, Surrey, TW20 2EP, Tel: 01-354 0723, Machine: C64/128 Price: £6.95 (vanilla), £14.95 (disk)



GAMES
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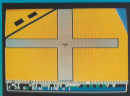
FIRST OVER GERMANY

SIEM's *B24*, released last year, showed that a flight simulator didn't need arcade-style action to be enjoyable, and became a big hit among thinking gamers. Now *B24* has a sequel in the form of *First Over Germany*, in which you will ultimately lead a squadron of B-24s in bombing attacks over Germany.

Such games are a long way off when the game is loaded, as you begin as a trainee. You haven't any of the experience needed to command such a bomber, but they're short of pilots so you're pressed into service. Your first task is to assemble your crew from those available - this acts as an anti-piracy device, as the crew are listed in the manual as well as a strategy element. You then have to choose between crew that are skilled, fit or experienced.

There then follows a series of training missions in which you must take-off, fly in formation and then land. Your performance affects the health and safety of the crew, as well as your chances of promotion. Eventually, you are posted to Tharleigh airfield, from which you will lead the 36th squadron in 25 missions over Germany.

The aircraft's controls are similar to those in *B24*, but with a few additions. As well as controlling throttle, altitude and direction, you also have to control the guns, manned by the crew to fight-off enemy fighters as well as open the bomb doors and drop them on the target. You've judged



on the accuracy of your bombs as well as how well you deal with hazards such as mechanical and engine failures, fuel usage and combat. Complete all 25 missions and you're a hero.

Now the bad news. Unfortunately, the game suffers from a bad case of line flicker, and superfluous characters sometimes flicker just where you need to focus on your controls. Anywhere else it would be a nuisance, but here it renders the game almost unplayable.

Franchise:

Title: *First Over Germany*. Supplier: SSI (US Gold). Data 212 Bedford Way, Bedford, Buckinghamshire MK43 0JF. Feb 021 356 333. machine: C64 disk. Price: £34.98.

DYNAMIC DUO

Brian and Robin, Laurel and Hardy and Tom and Jerry. Everyone has their own idea of a partnership that could be known as the Dynamic Duo. Firebird has teamed up the most unlikely pair, as a duck and a dwarf combine to break out of the Night House.

I suppose we have to be thankful that Firebird decided against giving these cute heroes cute names, but none-the-less we are stuck with a most unlikely pair of heroes. The Dynamic Duo is in question as to how the duck-and-slingy Night House, and they have to find their way out against the usual incredible odds.

The only way out of the Night House is via the sanitation room, which can only be found once you've collected ten parts of the room key. Unfortunately, these keys are hidden in treasure chests somewhere in the house, forcing you to search it all. In the Night House, getting from one room to another is a far from simple task - you have to either walk through doors or climb down holes in the ground, and to make things worse, some of the corridors are blocked, requiring an engineered explosion to clear the way through.

The Dynamic Duo can be controlled by two players working together, or by one, toggling between control of the duck or the dwarf. The duck starts the game perched

on the dwarf's head (which can't be very pleasant for the dwarf), but can also fly away to scout out the territory. The dwarf moves slowly, but is the only one who can open treasure chests. The only way to move them both to a new location is to park the duck back on the dwarf's head and then move the dwarf.

Throughout the game you are harassed by nasties that can be shot by whatever weapons a duck and dwarf have in common, but they continue to dog both your progress and the little appeal this game has.

Franchise:

Title: *Dynamic Duo*. Supplier: Firebird, 74 New Oxford Street, London WC1A 1PS.



Contributions

So you own a Commodore? So you've written some programs? So why haven't you sent them to us?

Your Commodore is always on the look out for new programs, hints and tips, articles and even regular series. In fact if you have something that you think could be of use to other Commodore owners we want to hear about it.

So if you have got something which you think we may be interested in, how do you go about submitting it to us?

Below you will find a list of guidelines that will help us to deal with any item that you send us to us. We don't expect everybody to be the next William Shakespeare but if you do follow these simple rules then it will make our job a lot easier.

- 1) If possible all material sent to the magazine should be typed or printed out on a computer printer.
- 2) All text should be double spaced i.e. there should be a blank line between each line of text. You should also leave a margin of about 10 characters around the text.
- 3) On the very first page you should put the following:
Name of the article
Machine that it is for
Any extra required - disk, printer etc.
Your name
Your address
Your telephone number
- 4) The top of every page should have the following information on it:
Abbreviation of the article title
Your name
The page number
- 5) For example, suppose you had submitted an article on C64 interrupts. You should put something like the following at the head of the page:
Interrupts/J Smith/1
- 6) Please make sure that you do not make any additional marks on your text especially underlining.
- 7) Try and write in clear concise English, it does not have to be a work of literature but it must be comprehensible.
- 8) On the bottom of each page you should put the word MORE if there are more pages to the article or ENDS if it is the last page.
- 9) If possible, enclose a listing of all programs.
- 10) Under no circumstances use a staple to hold the pages together. Use a paperclip instead.
- 11) Programs should be included on either disk or tape. Make sure that you SAVE two copies of every program so that we have a better chance of loading them if problems occur.
- 12) Programs under 10 lines can be included in the text. If your program is longer than this you must enclose a disk or cassette.
- 13) If your article needs any artwork then supply clear examples of what is needed. We don't expect you to be an artist but we do need to see what is required.
- 14) Photographs, if necessary, must be either black and white prints or colour slides. We can take about ourselves so don't worry about this too much.
- 15) Submissions of any length are welcome. If you have a five line routine that you think may be of use to someone else we welcome it just as much as a full blown six part series.
- 16) Payment varies quite a lot and depends on quite a number of factors, such as complexity of program, presentation of program, number of magazine pages it takes up etc. Payment is generally between £10.00 and £300.00.
- 17) All payments are made in the month that the magazine containing your article has appeared in print.
- 18) If we do find your submission suitable for inclusion in the magazine we will write to you giving the terms of publication, the rate of payment and an agreement form. Prompt return of this form will allow us to use your program as soon as possible.
- 19) If you want the program returning to you, should we find it unsuitable for publication, then you should enclose a stamped self addressed envelope.
- 20) The last and most important point to make is 'get writing', we are waiting for your articles.

Aide de Comp

By Kerry Fowler

Add over 50 useful
toolkit commands
with the Super
Aide disk



If you made a list of all the commands that may be useful when writing a program, it would be surprising if it consisted of more than 30 items. Free Spirit Software must have had a certain brainstorming session to squeeze every possible function into Super Aide. The really nice thing about it is that it principally works under the ROMs, and doesn't interfere with Basic memory at all.

Free Spirit has its roots in the vast US Commodore User Groups, and this is reflected in the software by virtue of several public domain programs being included to run within and beside Super Aide. The program itself breaks down into several constituent parts: DOS commands, programming aids, I/O functions, and a miscellaneous collection of functions.

Disk Commands

The DOS utility uses the conventional prefix of the 'a' symbol followed by

the normal string command as used in the CBM standard PRINT command. To format a disk, the normal commands would be replaced by:

```
OND: disknumm, id
```

A couple of extra commands have been added to the normal features. A 'back' sign followed by a device number greater than eight will direct the computer's output to the corresponding disk device. There is also a 'T' command which performs a cross between the DUPLICATE and COPY commands, and is equally useless to the majority of users. Unfortunately, the COPY command only copies a program onto the same disk, but under a different filename, while DUPLICATE copies a whole disk on a twin drive system.

With the 'T' command, a single program is transferred from one disk to another, but only on a dual drive

system, and only if the second drive has a different drive number. All Commodore 1500 series drives have a fixed drive number of 9, and it's only on the older 4000 twin drive units that a drive value 1 was used, so on most systems this facility is useless.

Apart from these minor niggles, the DOS commands work well and save a lot of unnecessary opening and closing of files. Many programs include these commands, even the free wedge supplied with the drives, so there is nothing really amazing about this section, but it's essential for some sort of DOS to be included, and this is as good as any.

File Buddies

For loading and saving files, there are no less than six different commands. Using these, a load address can be quickly retrieved from the disk, files can be loaded from the directory listing, and programs can be saved with the minimum of effort.

A sequential text file can be read to the computer screen as printed out using a printed sign followed by the filename. This is the most satisfactory use, but the command also works with program files, allowing lines to be grabbed and re-used whenever they may be needed.

When a directory is listed in the screen, this command can be placed beside the printed out directory, and when the RETURN key is pressed the program loads to its correct location in memory.

When any of the I/O commands are used in conjunction with a directory display, the messages generated are all printed on the same line. This means that the actual loading process does not affect the appearance of any of the other directory entries, which helps any future loads from the same file.

Program Aids

Half a dozen essential commands are available for program development. These are all prefixed by an asterisk.

All, followed by the starting line number and the line increment, initiates automatic line numbering. Each time a program line is entered, the next line number in the sequence is printed out and the cursor placed ready for the new commands to be typed in.



When a program is being written that will communicate with a printer, it's often easier to write it so that the PRINT statements are directed to the screen. This can mean a tedious job of changing all of the commands to PRINT afterwards. Super Aide contains a CHange command which can make this job easier. This will search through a program for a given string and change each occurrence to the newly specified command. Similarly, a specific command can be found using the F1 command.

The DElete command deletes blocks of lines, and programs can be built up in modular form by using the APpend command. This adds a program onto the end of any program in memory, and then a rUNumber command will tidy up the line numbers and any line jump commands where necessary.

Amazing Miscellany

Up until now, all of the commands are useful but hardly earth-shattering, and not really worthy of the £14.95 pricing. A few hours with the relevant copies of *Four Commodore* and anyone could knock it up for themselves. For me the strength of this package lies in the miscellaneous commands accessed by pressing the RESTORE key. When the key is pressed, the computer acknowledges the fact by changing the border colour. Any keypress that follows performs a different function. All of these commands are summarised elsewhere, so the more notable inclusions will be described here.

First and foremost is the special listing facility accessed with the upward pointing arrow. This is fantastic, because it makes it unnecessary to list programs. When the cursor is taken to the bottom of the screen, the

first line of the program scrolls into view, and the scroll also works in reverse when the cursor is taken to the top of the screen. Being able to scroll back and forth through a listing makes debugging a lot easier.

Another debugging aid is a simple Trace command which allows a program to be run at a preset speed. A small box at the top right of the screen shows the current line number and command being executed, while the rest of the screen appears as it would if the program was running normally. Even if the fault occurs well into a program, it can run at normal speed until the point just before the problem occurs and, because the RESTORE button works as an interrupt, the program can be halted with this key and the trace initialised for fault finding.

At any point a program can be stopped and the current variable values listed out, the length of a stored program can be calculated beside the start and end addresses, low resolution screens can be dumped to the printer, and the numbers can be converted between any of the three common bases - decimal, hexadecimal or binary.

Whenever one of these RESTORE commands is called, the information is printed on the screen, but the original screen is returned when the function is terminated.

Designing a low resolution graphics screen is eased by one of the two optional programs which can be loaded with, and used from, the Super Aide program. Full editing facilities are allowed with this facility, and an existing screen can be started up with a low shapey graphics, or it can be designed from scratch.

Once the masterpiece is completed, a program to reproduce it is generated which includes screen colours, sub-



size troublesome reversed characters and upper and lower case selection. One thing it doesn't do is to replace the extreme bottom right hand corner character with a POKE to prevent screen scroll-up when this line is printed.

The second optional utility is the well-known XMON monitor, which has been around in one form or another since the early PET days. This is a very good machine code monitor which not only allows the usual interrogative functions and disassembles, but also has a memory move routine and location modifier which adds to its usefulness.

The icing on the cake is the walk facility, which allows the programmer to run a coded program one command at a time. At each line of code is executed, a printout of the current status of the processor registers, counter and status and stack states are printed out alongside a disassembly of the next command for execution.

What's Up Doc?

The documentation is rudimentary, to say the least. The manual consists of a printout of the help screens contained within Super Aide itself and therefore there is no contents page or index. This doesn't make it easy to become familiar with the system. An example of the problems that this causes is with two extra programs which form Basic/code additions to the Super Aide program, and deal admirably with hi-res screen dumps to the printer and disk dumping. The manual mentions that a hi-res dump is on the disk, and perusal of the directory eventually reveals the filename NON-CRM.000.DUMP - not a very friendly title.

The program menu shows that it

will dump images created with Simon's Basic, UltraBasic 64, Doodle or Kanda Printer, which is all very fine if you own any of those programs - I don't! There is also a standard hi-res dump for other images, but there is no documentation to say where the code part of the program lies, so it is easy to overwrite the code routine by accident.

I've had the program for a couple of weeks, but fathoming how the dump works took some time, and I initially resorted to converting files from my usual graphics packages (Rainbird's Advanced DCP Art Studio and CRU's Image System) to Kanda format and printing out the resultant file. For a beginner without the resources of a good library, I'm afraid that this facility would be beyond them.

The disk driver is easier to use and performs adequately well. It allows sectors to be read from disk and displays them on the screen. As the cursor is moved along the sector bytes, a display at the lower part of the screen shows the screen character as a more meaningful numerical value, and a few

words describe the function of the byte whether it be a sector pointer, filename character or just a harmless data byte. Good though this utility is, it will not seduce me away from my usual disk utility, but for those without any form of disk sector access, this is better than nothing.

My final gripe is that the Super Aide program uses the RESTORE key, which means that booting out with RUN/STOP and RESTORE is disabled. This can be a problem if the program locks up in UDG or hi-res mode, because you can neither read any error message or get out of the problem without resorting to the reset button on the C128 or the even more drastic power switch on the C64.

There is a second way to get out of trouble if a syntax error occurs when using hi-res or UDG modes. Super Aide allows the function keys to be defined, so if a series of reset commands are stored on these keys, a few presses will solve the problem. It would be nice if key definitions could be saved, however, instead of having to redefine them at each power-up.

Conclusion

Despite its faults, Super Aide is a very powerful utility which greatly facilitates program development. Any features which aren't there (and there's not many missing) can be stated as the function keys.

The program utilities are all hidden away under the ROMs, but the hi-res screen editor is stored from 48153, and the machine code monitor lies in the higher reaches of normal Basic memory. Fortunately, the programmers had the foresight to realize that a user may wish to use these locations, so the routines are afforded an option screen which may or may not be loaded at power-up.

I was very impressed with the range of commands which this package offers, and would certainly recommend it to any programmer.

Footnote:

Product: Super Aide. **Price:** £14.95. **Supplier:** Financial Systems Software Ltd, 15 High Street, Peckham, Greater W18 1JG. **Tel:** (0181) 351713. **Ednote:** C64 or C128 in C64 mode, disk drive, printer (optional).

Super Aide Commands

Disk Wedge

display disk error message
 [3-15] direct commands to new device
 \$ directory to screen
 C copy a file
 D duplicate disk
 I initialise drive
 N format disk
 Q quit disk wedge
 R rename a file
 S delete a file
 T copy a file to a new drive
 V validate disk files

I/O Commands

I list file to screen
 R display load address of file
 / load a Basic file
 % load a machine code file and run Basic file
 save a Basic file

Toolkit Commands

*AU automatic numbering
 *AP append a file
 *CR search and replace
 *DE delete program lines
 *FI find a listing command
 *NU renumber a program

RESTORE Function

(press restore key followed by)
 A low-res screen editor
 C change display colours (followed by C for text colour B for background E for border)
 D hi-res screen dump
 F define function keys
 H display help screen 1
 I onNEW
 K reset computer
 L double space printer (screen or printer)
 M same XMHM 64
 N number conversion no prefix = decimal 3 = hexadecimal % = binary
 O printer echo off
 P printer echo on
 R toggle full key repeat
 S display length of disk file
 T trace on
 U display help screen 2
 V list variables and values
 X trace off
 Z view a relative file record
 zero inhibit display free memory location of start of variables

Listings

Flow of Ideas



PROGRAM DIRECTOR

```

01 100 PRINT#SCREEN,0:FORWARD=0:
02 110 RETURN
03 120 RETURN
04 130 PRINT#SCREEN,0:FORWARD=0:
05 140 RETURN
06 150 PRINT#SCREEN,0:FORWARD=0:
07 160 RETURN
08 170 PRINT#SCREEN,0:FORWARD=0:
09 180 RETURN
10 190 PRINT#SCREEN,0:FORWARD=0:
11 200 RETURN
12 210 PRINT#SCREEN,0:FORWARD=0:
13 220 RETURN
14 230 PRINT#SCREEN,0:FORWARD=0:
15 240 RETURN
16 250 PRINT#SCREEN,0:FORWARD=0:
17 260 RETURN
18 270 PRINT#SCREEN,0:FORWARD=0:
19 280 RETURN
20 290 PRINT#SCREEN,0:FORWARD=0:
21 300 RETURN
22 310 PRINT#SCREEN,0:FORWARD=0:
23 320 RETURN
24 330 PRINT#SCREEN,0:FORWARD=0:
25 340 RETURN
26 350 PRINT#SCREEN,0:FORWARD=0:
27 360 RETURN
28 370 PRINT#SCREEN,0:FORWARD=0:
29 380 RETURN
30 390 PRINT#SCREEN,0:FORWARD=0:
31 400 RETURN
32 410 PRINT#SCREEN,0:FORWARD=0:
33 420 RETURN
34 430 PRINT#SCREEN,0:FORWARD=0:
35 440 RETURN
36 450 PRINT#SCREEN,0:FORWARD=0:
37 460 RETURN
38 470 PRINT#SCREEN,0:FORWARD=0:
39 480 RETURN
40 490 PRINT#SCREEN,0:FORWARD=0:
41 500 RETURN
42 510 PRINT#SCREEN,0:FORWARD=0:
43 520 RETURN
44 530 PRINT#SCREEN,0:FORWARD=0:
45 540 RETURN
46 550 PRINT#SCREEN,0:FORWARD=0:
47 560 RETURN
48 570 PRINT#SCREEN,0:FORWARD=0:
49 580 RETURN
50 590 PRINT#SCREEN,0:FORWARD=0:
51 600 RETURN
52 610 PRINT#SCREEN,0:FORWARD=0:
53 620 RETURN
54 630 PRINT#SCREEN,0:FORWARD=0:
55 640 RETURN
56 650 PRINT#SCREEN,0:FORWARD=0:
57 660 RETURN
58 670 PRINT#SCREEN,0:FORWARD=0:
59 680 RETURN
60 690 PRINT#SCREEN,0:FORWARD=0:
61 700 RETURN
62 710 PRINT#SCREEN,0:FORWARD=0:
63 720 RETURN
64 730 PRINT#SCREEN,0:FORWARD=0:
65 740 RETURN
66 750 PRINT#SCREEN,0:FORWARD=0:
67 760 RETURN
68 770 PRINT#SCREEN,0:FORWARD=0:
69 780 RETURN
70 790 PRINT#SCREEN,0:FORWARD=0:
71 800 RETURN
72 810 PRINT#SCREEN,0:FORWARD=0:
73 820 RETURN
74 830 PRINT#SCREEN,0:FORWARD=0:
75 840 RETURN
76 850 PRINT#SCREEN,0:FORWARD=0:
77 860 RETURN
78 870 PRINT#SCREEN,0:FORWARD=0:
79 880 RETURN
80 890 PRINT#SCREEN,0:FORWARD=0:
81 900 RETURN
82 910 PRINT#SCREEN,0:FORWARD=0:
83 920 RETURN
84 930 PRINT#SCREEN,0:FORWARD=0:
85 940 RETURN
86 950 PRINT#SCREEN,0:FORWARD=0:
87 960 RETURN
88 970 PRINT#SCREEN,0:FORWARD=0:
89 980 RETURN
90 990 PRINT#SCREEN,0:FORWARD=0:
91 1000 RETURN

```

```

01 100 PRINT#SCREEN,0:FORWARD=0:
02 110 RETURN
03 120 RETURN
04 130 PRINT#SCREEN,0:FORWARD=0:
05 140 RETURN
06 150 PRINT#SCREEN,0:FORWARD=0:
07 160 RETURN
08 170 PRINT#SCREEN,0:FORWARD=0:
09 180 RETURN
10 190 PRINT#SCREEN,0:FORWARD=0:
11 200 RETURN
12 210 PRINT#SCREEN,0:FORWARD=0:
13 220 RETURN
14 230 PRINT#SCREEN,0:FORWARD=0:
15 240 RETURN
16 250 PRINT#SCREEN,0:FORWARD=0:
17 260 RETURN
18 270 PRINT#SCREEN,0:FORWARD=0:
19 280 RETURN
20 290 PRINT#SCREEN,0:FORWARD=0:
21 300 RETURN
22 310 PRINT#SCREEN,0:FORWARD=0:
23 320 RETURN
24 330 PRINT#SCREEN,0:FORWARD=0:
25 340 RETURN
26 350 PRINT#SCREEN,0:FORWARD=0:
27 360 RETURN
28 370 PRINT#SCREEN,0:FORWARD=0:
29 380 RETURN
30 390 PRINT#SCREEN,0:FORWARD=0:
31 400 RETURN
32 410 PRINT#SCREEN,0:FORWARD=0:
33 420 RETURN
34 430 PRINT#SCREEN,0:FORWARD=0:
35 440 RETURN
36 450 PRINT#SCREEN,0:FORWARD=0:
37 460 RETURN
38 470 PRINT#SCREEN,0:FORWARD=0:
39 480 RETURN
40 490 PRINT#SCREEN,0:FORWARD=0:
41 500 RETURN
42 510 PRINT#SCREEN,0:FORWARD=0:
43 520 RETURN
44 530 PRINT#SCREEN,0:FORWARD=0:
45 540 RETURN
46 550 PRINT#SCREEN,0:FORWARD=0:
47 560 RETURN
48 570 PRINT#SCREEN,0:FORWARD=0:
49 580 RETURN
50 590 PRINT#SCREEN,0:FORWARD=0:
51 600 RETURN
52 610 PRINT#SCREEN,0:FORWARD=0:
53 620 RETURN
54 630 PRINT#SCREEN,0:FORWARD=0:
55 640 RETURN
56 650 PRINT#SCREEN,0:FORWARD=0:
57 660 RETURN
58 670 PRINT#SCREEN,0:FORWARD=0:
59 680 RETURN
60 690 PRINT#SCREEN,0:FORWARD=0:
61 700 RETURN
62 710 PRINT#SCREEN,0:FORWARD=0:
63 720 RETURN
64 730 PRINT#SCREEN,0:FORWARD=0:
65 740 RETURN
66 750 PRINT#SCREEN,0:FORWARD=0:
67 760 RETURN
68 770 PRINT#SCREEN,0:FORWARD=0:
69 780 RETURN
70 790 PRINT#SCREEN,0:FORWARD=0:
71 800 RETURN
72 810 PRINT#SCREEN,0:FORWARD=0:
73 820 RETURN
74 830 PRINT#SCREEN,0:FORWARD=0:
75 840 RETURN
76 850 PRINT#SCREEN,0:FORWARD=0:
77 860 RETURN
78 870 PRINT#SCREEN,0:FORWARD=0:
79 880 RETURN
80 890 PRINT#SCREEN,0:FORWARD=0:
81 900 RETURN
82 910 PRINT#SCREEN,0:FORWARD=0:
83 920 RETURN
84 930 PRINT#SCREEN,0:FORWARD=0:
85 940 RETURN
86 950 PRINT#SCREEN,0:FORWARD=0:
87 960 RETURN
88 970 PRINT#SCREEN,0:FORWARD=0:
89 980 RETURN
90 990 PRINT#SCREEN,0:FORWARD=0:
91 1000 RETURN

```

Anti-Freeze



PROGRAM, ANTI-FREEZE

```

01 100 GET *****
02 110 GET *****
03 120 GET *****
04 130 GET *****
05 140 GET *****
06 150 GET *****
07 160 GET *****
08 170 GET *****
09 180 GET *****
10 190 GET *****
11 200 GET *****
12 210 GET *****
13 220 GET *****
14 230 GET *****
15 240 GET *****
16 250 GET *****
17 260 GET *****
18 270 GET *****
19 280 GET *****
20 290 GET *****
21 300 GET *****
22 310 GET *****
23 320 GET *****
24 330 GET *****
25 340 GET *****
26 350 GET *****
27 360 GET *****
28 370 GET *****
29 380 GET *****
30 390 GET *****
31 400 GET *****
32 410 GET *****
33 420 GET *****
34 430 GET *****
35 440 GET *****
36 450 GET *****
37 460 GET *****
38 470 GET *****
39 480 GET *****
40 490 GET *****
41 500 GET *****
42 510 GET *****
43 520 GET *****
44 530 GET *****
45 540 GET *****
46 550 GET *****
47 560 GET *****
48 570 GET *****
49 580 GET *****
50 590 GET *****
51 600 GET *****
52 610 GET *****
53 620 GET *****
54 630 GET *****
55 640 GET *****
56 650 GET *****
57 660 GET *****
58 670 GET *****
59 680 GET *****
60 690 GET *****
61 700 GET *****
62 710 GET *****
63 720 GET *****
64 730 GET *****
65 740 GET *****
66 750 GET *****
67 760 GET *****
68 770 GET *****
69 780 GET *****
70 790 GET *****
71 800 GET *****
72 810 GET *****
73 820 GET *****
74 830 GET *****
75 840 GET *****
76 850 GET *****
77 860 GET *****
78 870 GET *****
79 880 GET *****
80 890 GET *****
81 900 GET *****
82 910 GET *****
83 920 GET *****
84 930 GET *****
85 940 GET *****
86 950 GET *****
87 960 GET *****
88 970 GET *****
89 980 GET *****
90 990 GET *****
91 1000 GET *****

```


LISTINGS

8280 DATA 189,894,8,874,808,20,361,
189,894
8290 DATA 174,741,8,823,828,8,41,
82,748
8300 DATA 133,818,168,8,133,213,
8,818,1678
8310 DATA 88,813,8,823,88,813,8,
823,828
8320 DATA 88,813,188,813,81,188,
828,8,828
8330 DATA 133,813,888,7,188,141,
82,828,1888
8340 DATA 177,818,188,888,83,138,
18,818,1187
8350 DATA 172,82,888,88,188,8,18
8,813,1138
8360 DATA 83,828,88,888,8,38,88,
82,828
8370 DATA 801,73,888,3,38,138,82,
821,888
8380 DATA 88,828,8,38,138,82,
88,188
8390 DATA 888,8,38,187,82,821,88,
828,888
8400 DATA 8,38,888,82,828,78,888,
8,388
8410 DATA 88,828,82,38,888,82,82
8,18,828
8420 DATA 888,82,111,18,38,173,1
8,188,788
8430 DATA 87,828,82,188,8,38,881,
18,787
8440 DATA 82,77,21,828,21,188,21,
128,788
8450 DATA 82,828,3,78,188,18,88,
182,771
8460 DATA 8,38,821,18,78,87,187,
77,827
8470 DATA 838,828,188,18,82,881,
18,188,1887
8480 DATA 828,78,87,188,18,828,8,
82,182,1288
8490 DATA 8,38,881,18,888,888,18
8,78,888
8500 DATA 82,821,18,188,828,188,
828,78,1281
8510 DATA 81,18,828,828,188,8,82,
881,888
8520 DATA 23,188,828,78,82,28,17
3,211,888
8530 DATA 83,41,8,138,87,888,8,8
8,881
8540 DATA 188,87,388,7,188,4,188,
828,828
8550 DATA 23,18,8,88,11,78,88,11,
178
8560 DATA 828,828,848,188,888,82,
178,888,1881
8570 DATA 11,188,888,82,188,188,
4,78,787
8580 DATA 8,188,11,80,188,11,888,
828,828
8590 DATA 888,188,11,282,828,82,
188,18,888
8600 DATA 821,188,87,88,173,811,
82,41,1828
8610 DATA 1,888,1,88,828,87,828,
87,828
8620 DATA 188,18,188,7,188,888,8,
8,188,881
8630 DATA 882,821,188,828,82,188,
828,82,1282
8640 DATA 188,188,828,82,188,828,
82,188,828
8650 DATA 188,188,828,82,188,828,
82,188,828
8660 DATA 821,188,87,88,173,811,
82,41,1828
8670 DATA 1,888,1,88,828,87,828,
87,828
8680 DATA 188,18,188,7,188,888,8,
8,188,881
8690 DATA 882,821,188,828,82,188,
828,82,1282
8700 DATA 84,188,1,181,828,138,8,
88,188,881
8710 DATA 18,881,78,878,1,88,188,
8,828

8720 DATA 888,18,178,888,881,88,
138,821,118
8730 DATA 188,188,82,138,821,184,
828,178,1888
8740 DATA 82,888,41,138,138,41,1
78,88,888
8750 DATA 8,821,118,78,78,78,78,8,
888
8760 DATA 11,178,888,188,811,81,
188,8,878
8770 DATA 138,813,878,88,8,18,18,
182,821
8780 DATA 88,138,11,878,81,888,7
1,18,888
8790 DATA 8,11,178,828,188,828,1
8,178,888
8800 DATA 188,821,82,138,218,188,
828,82,1828
8810 DATA 138,821,188,888,18,18,
182,188,827
8820 DATA 188,8,181,821,138,811,
128,82,1828
8830 DATA 828,138,828,828,8,828,
821,88,1828
8840 DATA 178,821,828,18,878,1,88,
182,888
8850 DATA 7,888,888,82,78,88,888,
88,788
8860 DATA 138,888,82,138,18,878,
88,878,8288
8870 DATA 821,82,41,84,828,1,88,
188,778
8880 DATA 13,888,8,84,828,82,828,
88,788
8890 DATA 882,188,11,88,878,811,
82,41,871
8900 DATA 88,888,1,88,888,828,18,
1,828,1121
8910 DATA 828,888,878,821,82,41,18,
828,781
8920 DATA 1,888,188,7,188,828,82,
78,887
8930 DATA 888,828,888,82,138,18,
878,88,1828
8940 DATA 178,811,82,81,8,8288,1,
88,878,8288
8950 DATA 128,21,188,3,188,4,188,
828,881
8960 DATA 83,188,88,188,828,82,8,
82,828,1828
8970 DATA 82,188,88,187,888,82,8,
82,188,1828
8980 DATA 88,888,188,11,88,878,8,
11,82,828
8990 DATA 41,4,828,1,88,188,7,18,
8,788
9000 DATA 828,82,82,182,11,12,18,
8,11,821
9010 DATA 82,188,11,18,888,11,18,
188,788
9020 DATA 11,18,188,11,82,188,11,
12,82,828
9030 DATA 828,11,188,11,188,828,
87,188,828
9040 DATA 88,828,88,178,828,82,8,
88,1,828
9050 DATA 88,188,88,188,11,188,7,
188,828
9060 DATA 888,82,828,828,82,188,
188,828
9070 DATA 888,8,188,7,188,828,82,
88,828
9080 DATA 888,82,828,828,82,82,
188,18,828
9090 DATA 848,888,888,828,188,11,
788,821,1828
9100 DATA 188,88,88,178,888,82,8,
88,828
9110 DATA 878,821,828,82,8,78,128,
11,888
9120 DATA 84,188,1,181,828,138,8,
88,188,881
9130 DATA 18,881,78,878,1,88,188,
8,828

9140 DATA 888,888,178,211,25,82,
1,188,888
9150 DATA 11,88,188,1,182,828,82,
3,828,788
9160 DATA 881,11,828,82,828,8,82,
4,188,828
9170 DATA 88,821,1,828,82,878,82,
1,828,887
9180 DATA 11,8,78,138,11,84,188,
1,828
9190 DATA 138,88,188,828,82,828,
88,138,1888
9200 DATA 828,88,1,88,188,82,82,
828,827
9210 DATA 88,138,888,878,821,82,
41,1,828
9220 DATA 108,11,82,188,1,138,88,
1,888,888
9230 DATA 828,88,828,88,138,828,
28,8,828
9240 DATA 104,828,88,821,8,848,8,
88,78,82821
9250 DATA 78,82,188,88,188,82,82,
1,88,881
9260 DATA 828,828,8,188,828,81,8,
78,82,828
9270 DATA 78,78,187,82,78,828,82,
4,828,888
9280 DATA 11,188,828,828,178,828,
8,78,828
9290 DATA 187,828,178,8,188,828,
78,178,1828
9300 DATA 21,188,138,82,78,828,78,
178,788
9310 DATA 21,188,138,78,828,88,
78,788
9320 DATA 78,188,78,84,88,78,78,
138,828
9330 DATA 88,78,88,88,82,78,78,
8,828
9340 DATA 187,88,88,88,88,82,82,
187,888
9350 DATA 88,88,78,78,78,828,78,
82,788
9360 DATA 78,78,78,828,88,88,82,
828,888
9370 DATA 87,78,88,81,828,78,82,
78,788
9380 DATA 71,78,818,88,88,88,88,
88,788
9390 DATA 87,88,88,187,78,78,87,
88,788
9400 DATA 88,87,88,88,187,87,88,
77,788
9410 DATA 78,78,78,828,82,88,77,
78,788
9420 DATA 78,78,78,828,82,88,88,
828,877
9430 DATA 78,78,88,187,82,84,88,
78,781
9440 DATA 88,88,82,188,88,78,78,
88,888
9450 DATA 87,828,77,78,88,78,78,
188,871
9460 DATA 84,88,88,828,78,88,78,
88,788
9470 DATA 78,828,78,78,188,84,88,
78,828
9480 DATA 88,187,88,78,78,828,82,
88,877
9490 DATA 88,88,187,78,78,88,88,
82,828
9500 DATA 87,828,77,78,88,78,78,
188,871
9510 DATA 828,77,88,78,78,78,828,
77,878
9520 DATA 78,88,78,828,77,88,828,
77,878
9530 DATA 88,78,87,828,8,828,18,
828,888
9540 DATA 18,828,18,821,18,8,17,
82,828
9550 DATA 17,78,17,88,17,88,17,8,
8,117
9560 DATA 17,82,17,88,17,188,17,
828,828

LISTINGS

7	37	80	DATA 250,175,12,28,144,187
8	38	81	DATA 175,175,152,250,187,
9	39	82	DATA 175,175,152,250,187,
10	40	83	DATA 175,175,152,250,187,
11	41	84	DATA 175,175,152,250,187,
12	42	85	DATA 175,175,152,250,187,
13	43	86	DATA 175,175,152,250,187,
14	44	87	DATA 175,175,152,250,187,
15	45	88	DATA 175,175,152,250,187,
16	46	89	DATA 175,175,152,250,187,
17	47	90	DATA 175,175,152,250,187,
18	48	91	DATA 175,175,152,250,187,
19	49	92	DATA 175,175,152,250,187,
20	50	93	DATA 175,175,152,250,187,
21	51	94	DATA 175,175,152,250,187,
22	52	95	DATA 175,175,152,250,187,
23	53	96	DATA 175,175,152,250,187,
24	54	97	DATA 175,175,152,250,187,
25	55	98	DATA 175,175,152,250,187,
26	56	99	DATA 175,175,152,250,187,
27	57	100	DATA 175,175,152,250,187,
28	58	101	DATA 175,175,152,250,187,
29	59	102	DATA 175,175,152,250,187,
30	60	103	DATA 175,175,152,250,187,
31	61	104	DATA 175,175,152,250,187,
32	62	105	DATA 175,175,152,250,187,
33	63	106	DATA 175,175,152,250,187,
34	64	107	DATA 175,175,152,250,187,
35	65	108	DATA 175,175,152,250,187,
36	66	109	DATA 175,175,152,250,187,
37	67	110	DATA 175,175,152,250,187,
38	68	111	DATA 175,175,152,250,187,
39	69	112	DATA 175,175,152,250,187,
40	70	113	DATA 175,175,152,250,187,
41	71	114	DATA 175,175,152,250,187,
42	72	115	DATA 175,175,152,250,187,
43	73	116	DATA 175,175,152,250,187,
44	74	117	DATA 175,175,152,250,187,
45	75	118	DATA 175,175,152,250,187,
46	76	119	DATA 175,175,152,250,187,
47	77	120	DATA 175,175,152,250,187,
48	78	121	DATA 175,175,152,250,187,
49	79	122	DATA 175,175,152,250,187,
50	80	123	DATA 175,175,152,250,187,
51	81	124	DATA 175,175,152,250,187,
52	82	125	DATA 175,175,152,250,187,
53	83	126	DATA 175,175,152,250,187,
54	84	127	DATA 175,175,152,250,187,
55	85	128	DATA 175,175,152,250,187,
56	86	129	DATA 175,175,152,250,187,
57	87	130	DATA 175,175,152,250,187,
58	88	131	DATA 175,175,152,250,187,
59	89	132	DATA 175,175,152,250,187,
60	90	133	DATA 175,175,152,250,187,
61	91	134	DATA 175,175,152,250,187,
62	92	135	DATA 175,175,152,250,187,
63	93	136	DATA 175,175,152,250,187,
64	94	137	DATA 175,175,152,250,187,
65	95	138	DATA 175,175,152,250,187,
66	96	139	DATA 175,175,152,250,187,
67	97	140	DATA 175,175,152,250,187,
68	98	141	DATA 175,175,152,250,187,
69	99	142	DATA 175,175,152,250,187,
70	100	143	DATA 175,175,152,250,187,
71	101	144	DATA 175,175,152,250,187,
72	102	145	DATA 175,175,152,250,187,
73	103	146	DATA 175,175,152,250,187,
74	104	147	DATA 175,175,152,250,187,
75	105	148	DATA 175,175,152,250,187,
76	106	149	DATA 175,175,152,250,187,
77	107	150	DATA 175,175,152,250,187,
78	108	151	DATA 175,175,152,250,187,
79	109	152	DATA 175,175,152,250,187,
80	110	153	DATA 175,175,152,250,187,
81	111	154	DATA 175,175,152,250,187,
82	112	155	DATA 175,175,152,250,187,
83	113	156	DATA 175,175,152,250,187,
84	114	157	DATA 175,175,152,250,187,
85	115	158	DATA 175,175,152,250,187,
86	116	159	DATA 175,175,152,250,187,
87	117	160	DATA 175,175,152,250,187,
88	118	161	DATA 175,175,152,250,187,
89	119	162	DATA 175,175,152,250,187,
90	120	163	DATA 175,175,152,250,187,
91	121	164	DATA 175,175,152,250,187,
92	122	165	DATA 175,175,152,250,187,
93	123	166	DATA 175,175,152,250,187,
94	124	167	DATA 175,175,152,250,187,
95	125	168	DATA 175,175,152,250,187,
96	126	169	DATA 175,175,152,250,187,
97	127	170	DATA 175,175,152,250,187,
98	128	171	DATA 175,175,152,250,187,
99	129	172	DATA 175,175,152,250,187,
100	130	173	DATA 175,175,152,250,187,

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80	176 DATA	31, 30, 30, 30, 30, 180, 30, 30
81	178 DATA	30, 30, 30, 19, 18, 69, 1 90, 30
82	187 DATA	21, 30, 30, 30, 30, 100, 30, 31
83	178 DATA	30, 30, 180, 31, 30, 30, 180, 30
84	177 DATA	30, 30, 187, 179, 30, 10 8, 30, 30
85	180 DATA	30, 13, 18, 180, 30, 30, 30, 30
86	181 DATA	100, 30, 30, 30, 30, 30, 30, 30
87	178 DATA	30, 30, 30, 30, 30, 30, 3 8, 30
88	177 DATA	13, 18, 69, 30, 30, 30, 3 8, 30
89	178 DATA	30, 30, 30, 30, 30, 30, 3 8, 30
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Join The Dots!

Twenty-four pin dot matrix printers have become a viable alternative to laser printing. But which one should you buy?

By Robin Barton

Only two or three years ago, a serious question everybody was obliged to ask was, is it Epson compatible? Nowadays, unless you're buying a micro-specific printer for an odd case) you can forget this — virtually all printers conform to what is now the accepted standard.

Given the usual improvement in features and facilities you might think there's no longer much to choose between one model and the next. However, depending on the make and model, you can still spend two, three or even four times the amount for essentially the same type of device to do the same job. So what do you get for your hard-earned dollars, and what justifies the higher price?

Of course no-one thinks the home user who occasionally lists a program, checks a screen or writes a letter needs the same printer as a business producing a couple of hundred receipts a day, or the school with a dozen microes throwing listings at a single network printer at the same time. The fact is though, no-one wants to spend more than necessary, and while businesses or schools may have a larger budget than the home user, it's often more rigid too.

Decision

Impressions conveyed by reviews are inevitably subjective, and while most try to provide a balanced view, remember that your opinion is the important one — reviews are merely pointers. For a large purchase like a printer, you should always see and compare several in your price range before you decide. Buying a printer is a serious business for most of us, and a mistake can be expensive.

Separate the vital features from those that would be a bonus. If you have a very special application, you might need to take a dash to your dealer and ask to see the results from your job. If the dealer is keen on a service as well as price, he won't mind. If you buy from a "box shifter" you may save money, but find that you pay for it in lack of support later. Bear in mind that most of us will expect our printer to last five years.

While evaluating these printers, it occurred to me that many potential buyers would have been nine pin users for perhaps several years, and might be unaware of features that are "standard" for 24 pin machines. A large proportion of these facilities are quite beyond the capabilities of even the most expensive nine pin models of just

a few years ago. Before moving on to the individual reports perhaps a little education is appropriate, especially if you're unfamiliar with current printer capabilities and trends.

Orientation

The most obvious additional feature of most current printers is the provision of several LQ font styles, usually with the ability to add more. In addition, many of the combined print-mode restrictions which apply to older printers (for example the inability to use condensed and Elite mode together) no longer apply. In simple terms, current printers have more sophisticated internal software. This is because some have moved to 16 bit processors, whereas older printers used eight bit controllers.

Buffer sizes are more generous these days too, because RAM is cheaper and three of the four here are typical. Virtually all current 24 pin printers also have commands for left, right and full text justification, centering a line of text and tabbing to a specified absolute position, regardless of the current font or pitch.

The number of pitches too is increased, 10, 12 and 15 being standard, with expanded and

condensed modes on top of those, plus the ability to vary inter-character spacing for all of them. Usually, additional effects can also be overlaid, like outline or shadow print, and most can provide double height as well. You can usually mix any of these. You can usually mix any of these. You can condensed 15 pitch isn't possible. Whether your printer control software can handle all these print mode combinations and effects is of course a separate question, and one that should also be considered if you expect to be able to take advantage of all the new facilities.

I feel that one other item has been credited with more than it deserves by some write-ups — push load tractors are undoubtedly capable of more flexible and consistent operation, but desirable though it is, "paper parking" has nothing to do with reducing paper wastage. If printing must start right from the top of a new page, as it always does for fully formatted pages, it doesn't matter whether your printer's tractor pushes or pulls. Contrary to suggestions I've read, neither system accommodates this need.

The only solution is to leave the last printed sheet attached until you start printing the next. Really the truth is that most users want the convenience of continuous paper, but actually print only one or two sheets at a time. If you print continuously the problem doesn't exist, but if you don't, the only perfect solution is a printer that moves the paper up for tear-off, then moves it back ready for the further output. Such devices do exist, but not usually at the cost of prices most of us would want to hear about.

Evaluation

One area where subjectivity can be eliminated is the speed at which a printer performs. The results for one selection can be compared in the table that follows. The tests were carried out under identical conditions.

The test consisted of exactly 5000 bytes of this review, printed in Courier at 10cps by all the printers. This included a page header with a one inch top and bottom margin, blank lines between paragraphs, but no headings. It produced one-and-a-half pages of typical text on standard 11 inch paper at six lines per inch. It hasn't quoted manufacturers' figures, because they have little or nothing to do with reality, and they don't all seem to use the same magical formula for calculation anyway.

As an aside, I've often wondered why there's no BSI test for printers, or why performance claims are not subject to the Sale of Goods Act. I've had this particular box in my house ever since testing my trusty FX80 more than years ago. I found it couldn't even print spaces at anything close to its claimed speed (and in fairness the FX80 was a lot slower than many others). The figures here are real, and you can expect to achieve these yourself.

Samples of print are also illustrated to show some of the styles, but magazine reproduction, however good, puts a limit on the validity of this for personal judgement. Again, always see (and hear) the real thing yourself before you make your mind up.

Two of the models, the LC24-10 and the LQ-500, are at the lower end of the 24 pin price range, and must compete head-on in the home-user market. The bias towards this end of the range is intended to reflect the interest of the majority of readers.

On the other hand, if you've ever wondered what higher priced printers have to offer, the ones that your dealer doesn't stock and other magazines don't review) read on and be enlightened.

Star LC24-10 Multi-font

The first thing to strike me as I unpacked the LC24-10 is how extremely neat and tidy it is. There are no bits and pieces sticking out, and few to stick on. Preparation for use involved installing the ribbon cartridge, pushing the carriage knob on and plugging in. Unlike most printers, the main lead isn't separate, it's permanently wired in and has a moulded-on plug. This is very convenient, but the lead could be a little longer, especially since it's not so simple to change to a longer one.

Setting it up

The interface is Centronics (parallel) and the test plug is at the rear of the right side out of the way of paper.

Although not a problem for most users, it appears that there is a serial interface, and any other options.

The ribbon cartridge is the compact type which comes with the print-head, and it couldn't be easier to fit — lift the top cover, place the cartridge in position and press. I found no need to touch the ribbon, so no ink fingers — excellent. It was so easy I actually removed and replaced it twice just to make sure it wasn't a fake!

The LC24-10 also handles cut-sheet paper, for which separate paper guide slots have to be moved. Apart from the A5 wire-bound 110 page manual there was nothing else in the box — a good start! Construction quality seems to be on the right side of adequate. Neither the printer's case nor its top cover suggest flimsy construction or the need for over-careful handling, and I wouldn't expect long-term durability of the breakable bits to be a problem.

Control of the pre-set options uses the familiar dipswitches, and these are also accessed by lifting the top cover. You don't need to disturb the printer or paper to alter them, nor do you have to be a control freak, but they are a little smaller and therefore more fiddly than some. Setting the options is explained clearly in a question-and-answer style in the manual, and no LC24 owner should be baffled by these (except for the print below).

The manual is quite well laid out, with ASCII, decimal and hexadecimal codes shown for each command. There's a reasonable index and a complete command list but in ASCII code order, which is fine if you already know the code that you're looking for! I was surprised that there was no separate quick reference card, nor is there a list of commands grouped by function. As a result, finding a particular command usually involved diving into the index, a minor but real irritation, the novelty of which soon went off.

On the front of the printer, at the left is the main power switch and at the right a slot for either a replaceable font cartridge or a RAM card. If you use this for additional fonts, each card provides an additional style, but the manual contains no information on what these are. Alternatively you can plug in a battery-backed RAM card which expands the printer's standard TK buffer, though again the manual doesn't say by how much.

Specification

The LC24-10 provides both Epson LQ-800 and IBM Proprietary X24 emulation, giving the usual 96 ASCII characters, or 240 in IBM mode including graphics. Fourteen national character sets are covered too.

From an initial check of the print specifications and paper handling, I rapidly formed the impression that this printer was thoughtfully and comprehensively designed from the beginning. Happily this was confirmed when testing began. Star seems to have managed to combine obvious style with sensible, practical operation and a remarkable range of print facilities.

Five fonts are provided as standard, with italics available for all of them. Other effects include outline, shadow, double width, double height, triple width and double or quad size.

One area which sometimes causes problems for 24-pin printers is vertical paper movement when used with existing software designed for 9-pin printers, but it's no problem for the LC24-10. Vertical spacing can be controlled in either 180ths for 24-pin software, or 216ths for nine-pin compatibility as you please.

Another notable 'feature' is that vertical spacing can also be controlled at twice the normal 24-pin resolution. This means that, both vertically and horizontally, you can produce dots at 560 per inch, a higher density that most laser printers, although the LC24's individual dots are obviously larger.

Using the Star

Continuous paper feeds through a slot in the back of the printer and is controlled by a push-feed tractor. When the paper runs out, a small portion of the rest of the same lifts off to make loading very simple. The rest of the time there's no need to remove the paper, even for a change to cut sheet operation. Press a couple of buttons and the paper automatically parks out of the way, but still engaged by the sprockets. Move the paper release lever to its alternate position, and cut sheets can then be used.

Cut sheet loading is also semi-automatic. Drop paper in the guide, pull the bail rod lever forward and the paper is fed through leaving a one inch prep margin. Put the bail rod back and start printing. To resume continuous printing is also easy. Move the paper release lever back, pull the bail rod lever and the continuous paper

feeds through again - then let the bail rod lever go and start printing. It's actually more difficult to describe than do.

On the top at the front of the printer, there are four membrane-covered micro-switches. Whether you like membrane switches or not is personal taste - I don't, but those on the LC24-10 do operate with a satisfying click, so at least you can be sure of what you're doing.

One of these switches is on/off line, and with the other three in various combinations all five font styles, with or without italics and in 10, 12, 15, 17 and 20 cpi can be selected. Two of the switches, if pressed at power-up, can also prevent either the type-style and/or the pitch from being subsequently altered by software. The word line feed, form feed, self test and hex, dump facilities are also provided by these switches. All this initially sounds potentially confusing, but after a minute or two it becomes quite clear.

Printing can begin about an inch of the top of a page, and for continuous paper the wastage when you tear off is about an inch and a half. The tear-off cutting edge would be better if it were serrated, I found it necessary to take attention if a reasonably straight tear was to be achieved. Print quality was good for all the LQ fonts, unless (unfairly) compared to the 900-2800's. I must say I wasn't very impressed by the draft font though - 'adequate' is the most I can say about it.

Other 24-pin printers sound 'noisier' than equal speed nine-pin devices. (More pins = more noise) but the LC's noise level seemed about average, and was quite acceptable. Unlike some printers, the quality of the noise didn't advertise itself too obviously as emanating from a 24-pin device, but like most printers, you wouldn't want to stand next to it when making a phone call.

The LC24-10 proved 100% reliable throughout the test, and performed precisely to specification.

Conclusion

The LC24-10 is an excellently designed and very neat, compact printer. It has extremely practical, easy to use facilities, together with an unusually wide range of fonts, print effects and sizes. Blame out of me for after, Star - it shines.

The recommended retail price is £369. Extra font cards are £49 and RAM cards are £38, full plus VAT, giving £488.85, £56.55 and £57.85 respectively.

After a quick scan through current magazines, I found the LC24-10 advertised at around £290 plus VAT. At this price, value for money isn't a question. If you are having an 80 column printer, the LC24-10 MUST be high on your short-list.

Epson LQ-500

The first job after removing the LQ-500 from its box was to measure it. I was surprised that it's slightly smaller in width and depth than the Star, the square styling and greater height are misleading. The height is because the top-mounted tractor and its cover are already fitted. The ribbon, paper feed knob and mains lead are the only other fittings needed immediately.

Setting it up

However, there is a bit more left in the box than the manual and a cut sheet guide at this stage. The mains lead is separate from the printer, and perhaps (importantly, it's longer than the Star's). A parallel interface is standard, but again in contrast to the Star, the £20 paper manual lists three alternative serial interfaces, two IEEE interfaces and two buffers, 128 and 256, for both parallel and serial connection.

The interface lead plugs in at the rear, as does the power lead, and one of the extra bits in the box is the paper rest, an extension to the back of the printer so that continuous paper can be kept clear of the leads. The ribbon cartridge is full width and fits to the printer chassis, not the print-head. Fitting was quite straightforward, but it's necessary to manoeuvre the ribbon with a pencil, fingers or something similar. As the manual suggests, it's easier if the print-head is moved to the centre to do this. The remaining parts consist of the cut sheet paper guide

and its top cover.

Quality of construction is very good - the case and both covers are distinctly robust. I noticed as I inspected the printer that there was no lead-wire. Quite neatly, Epson has dispensed with this and built deep ribs into the acrylic covers to keep the paper against the plates, while at the same time increasing the strength of the covers.

Because the tractor is top-mounted, the minimum distance from the top of a sheet to the first print line is about 2.75 inches. Also there's no tear-off facility with the tractor unit, except the perforations in the paper. To remove a printed sheet always involves the loss of about half a page, unless you read the paper back.

The LQ-300's dip-switches are located under a removable cover on the right of the printer towards the rear. They're easy to reach and nothing need be disturbed to do so. Control of all the usual presents is provided, and this manual too adopts a question and answer system to help setting up (but see also the self-test feature below).

I altered two switches from the 'as delivered' state, one to select 11 instead of 12 inch paper, the other to enable the 85 buffer rather than download definitions. The manual doesn't give information on downloadable capacity. One of four extra fonts can be added by inserting a font cartridge next to the dip switches, out of sight under the same cover.

The first 50 pages of the manual contain a thorough guide to setting up followed by another 30 pages on general use and trouble-shooting, so even first time users should have few problems. Control codes are given in ASCII, decimal and hexadecimal forms, with direct keyboard versions too where possible. Each command is also accompanied by a generous explanation where necessary.

The manual's contents list is rather more thorough than the Star's, and there's also a glossary of terms, as well as a font index. Commands are summarized both by name and task, which, with the test-out quick reference card, ensures that locating an unfamiliar or seldom used command is easy.

Specification

The LQ-300 is, of course Epson compatible, and the IBM block gra-

phic character between ASCII 128 and 255 are included, together with accented and Greek characters and some maths symbols. IBM emulation is not supported. The manual acknowledges this and offers some suggestions for setting up DOS software, but while most recent DOS software caters for Epson printers, old software may not. In this case the bottom line is you may have trouble. 15 national characters sets are supported.

Three fonts are provided as standard, each of course with italic versions. Additional effects are outline, shadow, double width and double height. All fonts are available in 10, 12 and 15 pitch, and all can be condensed, except 15 pitch. Vertical spacing is controlled at 1/800ths of an inch, while the minimum horizontal movement is 1/300th.

Using the Epson

Continuous paper feeds over the back of the printer, and must be pushed round the plates and on to the sprockets by hand. The process isn't as fiddly as it sounds, but since a change to cut sheet means removing both the paper and the tractor unit, it's just as well.

Both the tractor and its top cover are simple to remove, and the paper guide covers are as easy to fit, but it's not the sort of job you'd want to do every few minutes. Whether this is a problem to you only you can decide, but I suspect that in practice the average user doesn't actually change stationary very often. Loading cut sheet paper is semi-automatic. Drop a sheet in the guide and with the printer still on-line, press the line-feed button, and the paper feeds through. In cut sheet mode, pressing the form-feed button ejects the printed sheet when you reach the bottom.

On the top at the right side of the printer are three buttons - the rear one is on/off line, and the other two provide all manual control. With the printer on-line, repeated pressing of the form-feed button cycles through the available fonts, including the one provided by the cartridge if fitted. Fonts can't be changed by these buttons, but must be pre-selected by dip-switch or altered by software.

Line feed, form feed, self-test and hot dump are also provided by these buttons, but the self test has an excellent extra. In addition to filling

in obvious fashion, all the dip-switch configuration options are printed, with the current selections highlighted by emphasis print, so even if you aren't confident about setting dip-switches, checking what you've done is done for you. A nice touch.

Print quality was good - the standard 'Roman' font (unique to Epson, I believe) looks particularly clear and clear. Using 18 pitch Courier (provided by cartridge) for a direct comparison, the LQ-300's print seemed to me slightly clearer than the LC24's, with, for example, the letter 'Q' a fraction larger (or is it rounder?). In truth, if there is any difference it's not much, so I asked my wife to compare a page of each (without any other information) and she could see no difference between them. This is obviously an area where subjectivity reigns supreme, so judge for yourself.

One last when the LQ did have a definite edge was in draft mode. Draft on the LC24, though quite legible, was inferior. This probably explains the LC's slight 'catching up' in the draft speed test compared to LQ (see table). To guess that in the hundreds of ribbon-line and print speed many home users would operate in draft mode most of the time, so don't underestimate the importance of this - make sure you compare them. The LQ's draft was much more a 'real' typeface, and I found it more pleasant to read.

The noise level from the LQ-300 was OK, certainly no more than the LC24's. Given that, at least on my test, the LQ's draft print was about 60% faster and better quality 18p font than the LC24, you'd reasonably expect a little more noise. The fact that there isn't might reflect the LQ's slightly heavier construction.

The LQ performed faultlessly throughout the test.

Conclusion

The LQ-300 is Epson's bottom-of-the-range 24 pin printer. It is very solidly built and simple to use, though the paper handling did test its age. The might be unacceptable if you swap stationary frequently. While not providing such a range of fonts and controls as the LC24-18, all the 'standard' 24 pin facilities are present, and these would be quite adequate for most uses.

In some areas the LQ-500 has the edge. For special applications needs there is a wide range of interface options. If output speed and draft quality are important factors, the LQ-500 might be preferred.

The recommended retail price is £399, and extra fees (cash are £55 (£458.85 and £63.25 including VAT).

Again checking recent magazines produced a different story, and I found the LQ-500 frequently advertised for about £18 to £15 less than the LQ34-10.

Citizen HQP45:

The HQP-45 is a wide carriage printer, so the first job was to make space for it. The remaining contents of the box were the main lead, the ribbon and two manuals.

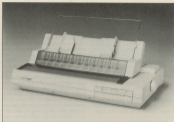
Setting it up

Both the paper feed knob and the cut sheet guide are already fitted. After the sound cover and the paper cutter have been removed (both smacked acrylic top-covers), staccato packing was removed from the print-head and the full-width ribbon (all 18 inches of it) was fitted.

Surprisingly, Citizen haven't opted for a compact cartridge for a printer of this width. I found fitting slightly awkward, both because of its size and because full width ribbons tend to be more awkward anyway. The main lead is separate and plugs in at the rear of the printer, as does the parallel interface cable. A serial interface is also provided as standard, and this is on the right side towards the rear. No other interfaces or buffers are fitted.

The HQP's styling is very individual and quite elegant. I'm not very shy, but I couldn't help thinking that it would look good through a high street retail agent's window. At the same time, I also thought the sharp corners were not such a good idea. They might be painful if you knocked your hand on them, and they might get damaged if something solid were to bang into them.

Neither the printer's case nor the



covers inspired impressions of durability, made worse, no doubt, by their large size. I always felt a need to take care when lifting or replacing the covers. To be honest, I can't imagine them lasting very long in a school or similar environment.

As a result of this impression I checked, and wasn't very surprised to find the HQP at 16.3 pounds weighed only a pound more than the much smaller (80 columns) LQ-500, and more than eight pounds less than the wide carriage SQ-2000. I know that you don't buy printers by the pound, but there must be a message here.

On the front, at the right are four push-switches to control manual operation, and immediately below them is a drop-down flap which contains the dip-switches. In this position they are very easy to reach and nothing needs disturbing. Control of all the usual options is provided, but somehow Citizen have managed to spread them over four banks of eight - 32 dip-switches. It's certainly a record in my book.

Bank three is mainly concerned with the serial interface, but I still expected to see lots of extra options - there aren't any. There is some confusion though. First, which manual? Reference Manual? Wrong, the User's Guide. As to the switches, in the manual switch 1-3 is explained as 'Automatic Line Feed by CR code' with options 'Yes/No', switch 2-3 is shown as 'Automatic CR' with options 'Yes/no'. If that hasn't confused you switch 3-4 is labelled 'Automatic Line Feed by full column' with options 'CR+LF/CR only'.

There are other examples. Switch 1-4 is 'Epson emulation on/off but a note for bank four says 'When SW4-8 off, Epson Configuration' and while switches 4-1 to 4-3 select international character sets, 4-8 really selects 'Scandinavian Character Set' Confused now? I was. There is a 'maintenance self-test' which prints out the settings, but it only shows a 1 or a 0 to show if a switch is on or off (I unlike the LQ-500, which interprets the settings for you in English and shows the other option too).

I'm supposed to know something about printers, but it took me two attempts to turn the printer's line feed off. Keeping a sense of proportion, this is usually a one-off job, but while the manual is clearly laid out, in this area it just doesn't explain itself. As a first job and the introduction to the HQP-45, it wasn't very endearing.

It turns out that the Reference Manual (66+ pages) contains the software commands, while the Users Guide (80 pages) is everything else, including specifications, character sets, print examples and the quick reference card. Most things are quite well laid out and with good explanations (except for the lack of decimal control codes and the dip switch section), but splitting the material into two manuals is a mistake, and the names don't help.

It seems the information you want is always in the 'other' manual (and of course you can't find it). It's a nice idea but it doesn't work. The problem is aggravated by the fact that, in both manuals, although all the sub-topics are listed on the contents pages, only the first page number of each chapter

is shown. Even when you find the right chapter, you must still hunt through it. I thought perhaps I was being dense, but other reviewers have had the same problem.

One excellent feature is the HQP's unusually large print buffer of 24K, and this can be split into 18K for download definitions and still leave an 8K print buffer, first class. The manual doesn't give download capacity in either mode.

One extra font can be added by means of a font card which slots in under a cover on the right to the rear of the machine. The manual doesn't show what other fonts are available. A second slot is provided for an emulation card, giving software compatibility with Diablo or Qume printers, or an IBM Proprinter. Other emulations are implied, but not specified.

A six page addendums sheet was included with the User's Guide. This contained many corrections and additions (some quite significant as really there were three places to look), and these more pages of index, doubling in size. I had already thought that the manual was a 'real job', and this confirmed it. It isn't good enough when you're spending several hundred pounds.

Specification

The HQP-45 is Epson LQ-1000 command compatible, but as standard none of the IBM graphics, Greek or accented characters or matrix symbols are included. Nine national character sets are provided.

Character is the sole font. Font cards are necessary if additional styles are required, but only one can be used at a time. Italic is of course included, and LQ draft and 'correspondence quality' (halfway between draft and LQ) are available. Enhanced print effects are inverse print, available in 10 or 12 pitch only, and double height. Neither of these use the standard Epson commands, but instead have specially 'Citizen Escape sequences'.

The usual 10, 12 and 15 pitch are provided, and both 10 and 12 pitch can be condensed. Vertical spacing is controlled in 180ths of an inch, horizontal movement in 360ths.

Using the Citizen

Continuous paper is fed by a push tractor, but paper parking isn't pro-

vided, and isn't possible manually either, because the tractor drive can't be disengaged. A paper cutter allows sheet take off. Use of continuous paper is very awkward unless the cut sheet paper guide is removed, because it hides the sprockets for loading and also gets in the way of the paper coming out again.

Swapping to cut-sheet paper isn't very convenient either. The sound cover must be removed and put aside, the paper guide then lifts up from the rear and locks in position. In theory that's it, and loading cut sheets is semi-automatic. Place a sheet in the guide and the printer feeds it through, triggered by a micro-switch. In practice the sheet is often 'grabbed' before you're ready and before it's quite straight, with the result that several attempts might be needed.

When the paper does go in straight, the vertical position isn't consistent to within half an inch, so manual adjustment is also needed (Even the User's Guide says adjust 'if necessary'). Unfortunately the remaining top cover, the paper cutter, must now also be removed so you can see the paper to make the adjustment. This permanently lets you in for the full blast of the HQP's noise, which is considerable.

On the front of the printer are four buttons. The right one is on/off line, and the other three provide manual control. Second from right is the forward/back-deep, the third selects between the fonts (if fitted as external) while the left button cycles the options of draft, correspondence quality, letter quality and proportional.

To the left of this are LEDs confirming the current selection, but the screening between them isn't sufficient and light spills from one to the next. The separate paper-out light shows permanently, so until you get used to them these aren't very helpful. Line feed, form feed, self-test and hex, dump are also provided by the buttons.

Print quality was acceptable for letter quality or draft, but was not thought to be as good as the LQ-500's by anyone I showed sample to. I'm not sure what purpose 'correspondence quality' serves. It's little better than draft, certainly not good enough for correspondence, and seems rather superfluous. I think higher quality draft mode would be an accurate description.

Noise levels from the HQP-45 were totally unacceptable. It was unplea-

santly loud with both covers in place, but when used for cut sheet (which demands your presence and the absence of both covers, see above) it was stunning. A conversation with someone in the same room was an effort, never mind by telephone. The HQP's speed was not much higher than the LQ-500's, and by no means enough to justify or excuse the volume of noise.

There were two worrying points. I noticed that characters printed in draft were, on alternate lines, quite noticeably displaced to the right or left, depending on which way the print-head was travelling at the time. This is another 'first' for me, and together with the main issues suggest that both the print-head and its stroke timing are being pushed harder than they want to go. Time will tell.

The second and more serious worry was that, even with the printer power switch in the off position, when the mains lead was inserted there was a distinct electrical 'fizz', the source of which I don't know.

Conclusion

Citizen's HQP-45 is the wide carriage cousin of the HQP-40, then 80 column 24 pin printer. On the plus side the styling is quite striking, and the unusually large print buffer is very welcome.

Construction may prove adequate over time, but it doesn't inspire confidence, although there is a two-year warranty. In place the manual will leave new users floundering. The reliability of cut-sheet paper handling is not acceptable - it's a good idea which in practice is a liability. The volume of noise is impressive, but for the wrong reasons. Provision of only a single font coupled with the lack of the expected 24 pin extras simply isn't good enough.

The recommended retail price is \$999 and extra font cards are £35, £68.85 and £86.25 (including VAT).

I'm quite baffled by Citizen's pricing policy. I have found the HQP-45 advertised for £116 plus VAT. One would almost believe the recommended price (obtained from Citizen 15/12/85) is intended to make the printer appear to belong to a higher specification category than it deserves. I can't for a moment recommend it.

Software for Sale

If you think that one of our programs looks very interesting, but you can't afford the time to type it in, then our software service will help you out

It's three o'clock in the morning. You sit at the computer keyboard having just finished a marathon typing session. Listening one of the superb programs from *Your Commodore*. Your fingers reach for the keyboard and press the letters R, U and N. You press RETURN, sit back and nothing happens.

— Everyone has probably faced this problem. When it does happen it's a matter of spending hours searching through the program for any typing mistakes. No matter how long you look or how many people help you, you can usually guarantee that at least one little bug slips through a netted rod.

The *Your Commodore* Software Service makes available all of the programs from each issue on both cassette and disk at a price of £6.00 for disk and £4.00 for cassette. None of the documentation for the programs is supplied with the software since it is all available in the relevant magazine. Should you not have the magazine then back issues are available from the following address:

INFONET LTD, 5 River Park Estate, Berkhamsted, Herts, HP4 3HL.
Tel: (04427) 76661

Please contact this address for prices and availability.

The Disk

Programs on the disk will also be supplied as totally working versions, i.e. when possible we will use Basic Loaders thus making use of the programs much easier. Unfortunately at the moment we cannot duplicate C18 and Plus 4 cassettes. However programs for these machines will be available on the disk.

What programs are available?

At the top of each article you will find a strap containing the article type, C64 Program etc. So that you can see which programs are available in which format, you will also find a couple of symbols after this strap. The symbols have the following meaning:



This symbol means that the program is available on cassette.



These programs are available on disk.

Please Note

Since the programs supplied on cassette are total working versions of the program, we do not put disk-only programs on tape. There is no sense in placing a program that expects to be reading from disk on to tape.

NOVEMBER 1988

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WILLIAM TELL — See November for details (C64).

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MARCH 1989

- PERSONAL FILE** - A cross between a wordprocessor and a database that allows you to set up "cards" that can be quickly altered (C64 Disk only).
LETTER WRITER - An 80 column text editor for writing those personal letters (C64).
BASIC WORKSHOP - A single key entry system, just like a Sperry! (C64)

HEAD FOR HOME - Our version of a popular board game for C18 and Plus/4 owners - available on disk only.

SPRITE LIBRARY - Geometric shapes form this month's installment (C64).

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WILLIAM TELL - Our very popular arcade adventure for the C64.

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B A E A H

Readers Problems

Through the *Commodore* file is one of the world's most popular microcomputers, it can be very difficult to find specific information about your particular machine.

At the *Your Commodore* office we receive literally hundreds of letters from you, our readers, on a wide range of subjects ranging from the simple 'Can you give me the telephone number for...?' to the more complex 'I'm trying to write a program that uses a split screen. How do I do it?'

Unfortunately, the volume of mail received has become so great that it is impossible to answer every letter and still manage to publish a magazine each month.

For this reason we have felt it necessary to produce a number of guidelines for getting information from us:

- 1) We cannot guarantee to answer every letter sent to the magazine. Should it become apparent that a number of readers are suffering from the same problem, then we will reply to the letter via the Letters page.
- 2) A new helpfile has been set up. This will be open for your queries on

Tuesday and Thursday afternoons between 2:00pm and 4:00pm. We will not be able to deal with our telephone queries at any other time. If our technical adviser is not available when you ring, then a message will be taken.

If you are having problems with one of our listings, can you please let us know in writing. This will enable us to see if a number of people are having the same problem. When a common problem becomes apparent with a program, then a correction sheet will be issued. Enclose a self-addressed, stamped envelope and we will send you a copy of the correction sheet as soon as it is available.

We are sorry that it has become necessary to institute these rules. However, we are sure that you will agree with us that the more time that we can spend making *Your Commodore* the most informative magazine around, the better.

For program queries write to:
Program Corrections
Your Commodore
Argus House,
Boundary Way,
Hemel Hempstead
HP2 7ST
Tel:0442-68331

CORRECTIONS FOR MARCH '89**ELECTRONIC NOTEBOOK**

Unfortunately 3 lines were cut from this program at the time of press. The missing lines are produced here.

```

TIBS E-E + I:EI-E
88320 G:883 G:80
94250 RETURN
71540 IPE EITRENED+E
80350 N:STRSDI + "[PI]" +
STRSDI + "[PI]" + STRS ISD +
"[PI]" + STRS OS) + "[PI]"

```

HEAD FOR HOME

A number of readers have quoted a couple of strange statements that appear in question 30. The items giving concern are 0340 and 0080.

These are the codes for the control codes 14 and 8 respectively. Numbers are used to represent them as they would appear as graphic symbols.

008 is the same as pressing CTRL and H at the same time

014 is the same as pressing CTRL and N at the same time

The first code disables the shift and Commodore keys, whilst the second selects lower case mode.

Commodore Where Are You?

At the *Your Commodore* office we are repeatedly asked for the address and telephone number of Commodore

U.K. Many people, after referring to their computer manuals, believe them to be based in Corby.

The Commodore plant at Corby was closed down some time ago. Reproduced here you will find the correct

address for Commodore U.K. Commodore Business Machines, (UK), Commodore House, The Switchback, Boks 816 7NA, Tel: 09281 770000, Gardner Road, Maidenhead.

The Nibbles *By Alan Batchelor*

*Take
note of this!*

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