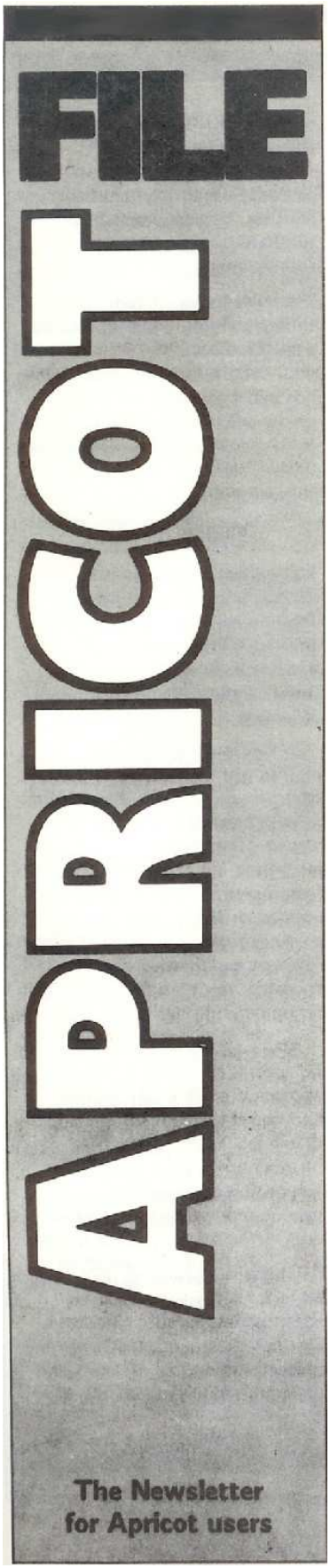
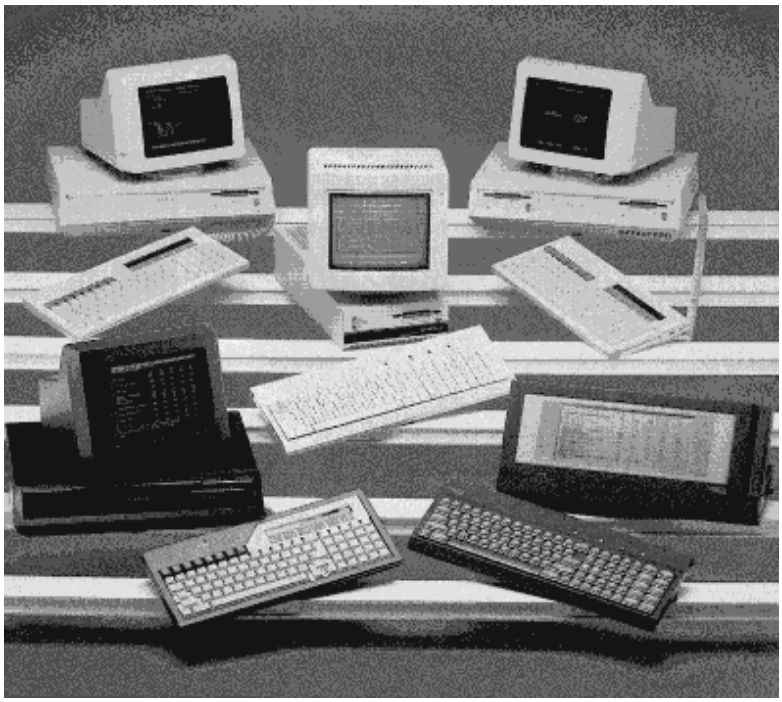


Apricot File 2_11



Scans courtesy of www.actapricot.org

Copyrighted content republished with thanks and permission from:

> **Dennis Jarrett of TP Group**
> **Stuart Bunt**
> **Eddie Bromhead**
> **Mark Whitehorn**

Many additional thanks to Eddie Bromhead for scanning all of Release 3, 4 and extra inserts.

Release 2.11

August 1987

FILE APRICOT

The Newsletter for Apricot users

Upgrade your Xen to a Xen-i 386?

Bargains from Apricot

When Apricot launched its 386-based machines last year, the company promised it would continue its Xen-i policy of low-cost upgrades. £999 is the just-announced price for turning a Xen-286 into a go-faster system; it applies to all 286-based Xen and Xen-i computers (excluding workstations) bought since 15 June this year.

The upgrade can be a good deal, for it takes you to the nearest equivalent in the 386 line. So, for instance, you can go from the systems with a 20MB hard disk (Apricot-architecture Xen HD, list price £2,699; *or* an IBM-compatible Xen-i Xi20 or XD20, £1,999 and £2,499 respectively) to a *30MB* Xen-i 386/30 — list £2,999 — for £999.

Apricot says this offer runs in conjunction with its existing 'Advance Plan', which allows an upgrade path for all Apricot products — "a unique selling proposition in the micro industry, and one wholly consistent with Apricot's systems strategy" according to group marketing supremo James Blackledge. "This scheme really does offer the best of both worlds to buyers wanting a 286 machine today, that will provide immediate access to 386 technology tomorrow."

One of the goals of the 'system supplier' strategy has always been to get into blue-chip City accounts — Apricot still wants to lose the image of a mass-market supplier, to replace its base of low-value dealer sales with some high-price added-value installations among the very people who will decide what happens to the company's share price. Most of these accounts are jealously guarded by the likes of IBM and Compaq; but Apricot does seem to have brought off something of a coup with the sale of around 20 **Xen-386** systems to merchant bankers **Midland Montague**.

Hitherto this has been one of **Compaq's** prize customers — it has some 250 Compaq units, 100 of them 386-based. Compaq hasn't exactly been ousted, but the Xens were bought "because they offer a signficant price advantage" as low-end network workstations — "even at list price it is possible to buy almost two Apricots for every one comparable Compaq". (In this kind of environment, 'low end' means a system with up to 40MB disk). What's more, Midland Montague plans many more purchases at this level, maybe a hundred or so machines.

Compaq says it expects to continue doing business with Midland Montague at the top end — over-100MB systems — where the price difference is "insignificant"; but the bank is reportedly still evaluating the bigger Xens, and Apricot is still in with a chance of winning the account outright.

That one is a direct sell. Another good order recently came via a dealer, **CT Maddison** of Oxford — **£60,000** worth of **desktop publishing** for **Pergamon Press.**

▶▶▶ CONTINUED ON PAGE 27

In this issue

The Disinformation Column returns — Word(not-quite)Perfect 2
Technote: Inside RAM BIOS 3.12 6
Inside Comms on the Apricot — start of a series of reviews . 8
Free Small Ads 10
The Workshop: Batch File Recipes 11
Report from Bandage & Plaster: save bank charges 12
Diary Dates 15
The Complete Escape Codes — part three: Summary 16
DEALS FOR READERS Update 19
The Workshop: using all free memory for Fortran 20
Readers' Writes 24

The Disinformation Column

On acid drops

Word(not-quite)Perfect

By David Langford

Like millions of Apricot users, I've enthusiastically converted to WordPerfect; and since that day I have used no other. Like thousands of people writing in this magazine, I even sell the program. Few people have said a word against it, besides a quick tut-tut at the ludicrous retail price structure (of which more below).

But although one can truthfully call it the best Apricot word processor, even the coruscatingly wonderful Version 4.2 does seem to have a few shortcomings. There is a tradition in biographies and obituaries called 'the acid drop', whereby fulsome praise is toned down by the occasional mordant comment or complaint. Every previous APRICOT FILE reviewer of WordPerfect has supplied the fulsome praise: now here I am with the acid drops.

Apricot imperfections

To run WordPerfect 4.2, Apricot PC/Xi users need a BIOS version later than 2.4 — otherwise they'll get no screen output. (This can be fixed as related in my column about interrupt patching: see Release 2.5.) With the later F series there's no such problem; but in the versions I've tried — such as ROM BIOS 3.1.1 and RAM BIOS R1.6 — several menus are unuseable because the screen goes mysteriously blank. (It's a bug involving screen windowing, curable by a memory-resident 'patch' program.) IBM-oriented error messages indicate lack of care in configuration: 'Drive door may be open ...' If you manage to wipe the MicroScreen labelling during a 'Go to DOS' excursion, it won't come back on return to WordPerfect. Some minor points were obviously too much for the American designers: in the manual and the IBM version, the Shift Lock is visibly indicated on the status line — but not for mere Apricot users.

WordPerfect 4.2 also has much more severe problems on the 'basic' PC/Xi. It won't run without a memory upgrade to at least 320K — it's been tailored to fit the somewhat larger memory of a '256K' IBM as opposed to a '256K' Apricot. It does sort of work on the 256K Portable, where putting the BIOS on ROM chips has made a bit more RAM usable. But in general, the more add-on memory the better: WordPerfect can make use of it all.

The thesaurus likewise fills a bog-standard IBM disk, and is thus 40K too big for a single-sided Apricot disk. Tough luck if you can't read the double-sided disks on which WordPerfect is supplied ... Hard disk users with SS floppies should have their thesaurus cut up by a knowledgeable friend, so that the fragments can be copied from 320K disks and reassembled in the vast space of the Winchester drive. I've made up a little 'thesaurus repair kit' along these lines, if anyone's desperate.

(The smaller thesaurus from WordPerfect 4.1 fits on a single-sided disk, but has thoughtfully been made incompatible with WP 4.2. I thought you'd never ask.)

Much more interestingly, BIOS 3.1 and late versions of FORMAT.EXE allow you to format floppies as 'single-sided IBM' with a full 360K capacity. Try something like FORMAT B: /M0 /I (the /M0 specifies media type zero, which of course means 'single-sided', and the /I stands for 'ICL' — no, 'DEC' — well, something like that). Then find someone with double-sided drives and BIOS 3.1 or later, who can copy your thesaurus to this strangely formatted disk. (Warning: any BIOS before 3.1 will claim that such a disk is empty!)

We can't blame the WordPerfect people entirely for the messy simulation of the IBM's 'CONTROL/ALT key mapping'. The basic Apricot just doesn't have an ALT key; and WordPerfect does its best to reproduce all ALT functions as CONTROL functions, reducing the flexibility in the process. Still, one feels that a bit more programming effort might have cured the anomalies; for example, if you use key mapping to get CONTROL-X to generate a specialist character, it also changes the function of the righthand cursor key. And so on.

Other oddities

The supplied dictionary, LEX.WP, is swollen with millions of technical terms, esoterica and downright errors — just like dear old SW.DIC. With time and patience you can edit it to taste, unless you have the early Apricot version of the SPELL.EXE program that crashes when you try. (The main WordPerfect spelling checker seems to have a general tendency to crash if the supplementary dictionary overflows on a full disk.)

The thesaurus is irremediably American and cannot be edited in the slightest. If I took the idea of a thesaurus seriously, I'd mark that as a major flaw.

By the way, although the spelling checker's presentation of alternative words sometimes includes mysterious repetitions, this isn't exactly a bug. The word is being thrown up independently by the 'possible typo' and 'possible phonetic error' checks.

Though mostly pretty crashproof, WordPerfect regularly hangs up if you inadvertently load a non-WordPerfect document (most significantly, one in SuperWriter format) and conduct a Search. *Caveat emptor.*

When we get down to basic editing, WordPerfect is very superior indeed ... although 4.2's dancing cursor can annoy. It tries to stay in the same column when you move up or down. But it isn't allowed to appear in 'unused' territory beyond a line ending, meaning that it flicks to the left when you get to lines which don't extend to the original column position. On the other hand, it does try to stay as close as possible to its old column position, meaning that it flicks right again when moving from a short to a longer line. You get used to it, eventually.

One logical hole in the generally very sensible cursor movement is 'Page Up' (shift plus up-arrow). This takes you to the start of the previous page. To get to the start of the *current* page you have to hit 'Page Up' followed by 'Page Down' (or 'Go To' followed by the current page number ... which obligingly vanishes from the status line the instant you press 'Go To'!).

Contrast this with the 'Screen Up' key (shift plus SCROLL). This sensibly takes you to the top of the previous screenful if you're at the top of the current one, but to the top of the current screen if you're not.

Text attributes

Most standard functions are handled with such brilliance that it's doubly surprising to run into the weird clumsiness of underlining and boldfacing. Up to a point this is fine: to start or stop underlining you hit the Underline key, type on, and admire the way underlining is shown on the screen. To underline a chunk of existing text, block-mark it (easy and intuitive) and hit Underline. Then you realize that one word within the underlined block needs to be 'un-underlined'. Familiar as you are with toggle commands, you move the cursor to before the word and hit Underline ... nothing happens. Aha, you think, and smugly block-mark the word, and hit Underline ... and nothing happens.

So help me, the only way to get what you want is to remove the underlining from the whole block, and to do it over again in two separate chunks. This, I submit, is silly.

Boldfacing works in just the same way. Should you need to change all your underlining to boldfacing, or *vice versa* (because bold looks better on your own daisywheel printer but publishers prefer emphasis to be indicated by underlines), a search and replace *won't* help — the special markings just vanish.

Admittedly, laborious macros can be written in version 4.2 to simplify if not speed these processes. But it's fiddly and a bore.

Italics work via a philosophically different 'font change' command (matrix printers only, of course). They can be toggled on and off in the old, simple way we remember from SuperWriter; but there's *no* way to deduce from the edit screen which words have been italicised. To check on this you must rummage through the esoteric 'Reveal Codes' display, which invariably tells you more than you wish to know. A possible solution is to rewrite the printer driver so that underlining on screen produces italics in the printout; this is quite straightforward with the PRINTER.EXE program ... unless of course you want underlining *and* italics in the same document.

Perhaps the most obviously bodged functions are those which superscript or subscript a block. They work perfectly, but you'd better not change your mind; examination of the result via 'Reveal Codes' shows that a separate super- or subscript code is inserted before every single character of the block. Getting rid of them with 'Delete' is like extracting tealeaves from a deep-pile carpet.

Don't try to remove superscripts cleverly by re-marking the block and attempting to subscript it back to ground level; deleting a superscript *and* a subscript code from before each letter is more than the human frame can bear. Eventually I worked out the solution. You (a) mark the wrongly super- or subscripted text block again; (b) invoke Search and Replace; (c) specify a superscript or subscript code for searching; and (d) replace it with nothing at all. Step (a) confines the search to the block — you don't want to remove every other superscript or subscript from your document. How very different from merely deleting a couple of toggle codes, as in primitive SuperWriter ....

W.Y.S.I.W.Y.G.E.S.

What you see is what you get, except sometimes. If you're trying to fake WordPerfect expertise via the *Quick Reference Card*, you discover that to insert ^B you press CONTROL and 'B', which is interesting but unhelpful information. This actually puts the current page number into the text (vital for headers and footers). Although WordPerfect is stunningly impressive in its ability to maintain a WYSIWYG display of pagebreaks, footnote numbers and umpteen levels of paragraph numbering (even in Roman numerals if you prefer), it can't quite manage page numbers and shows them on screen as, ahem, ^B. A relic, perhaps, of some earlier and less user-friendly version.

The 'columns' features have their problems, too. A retrieved multi-column file occasionally loads with a very messy and overwritten display; this usually settles down when you've moved the cursor to the end of the file and back. Botching an inserted column width definition can virtually hang up the system — you're forced to hit ESC again and again through a file of too-narrow columns, in order to position compulsory soft hyphens.

You should surely be able to escape and redefine the faulty column specification, by hitting UNDO or

FINISH. In practice the only solution with a long file seems to be to weight down the ESC key and go for a cup of coffee ... or reboot.

The single greatest disappointment in WordPerfect has been the bane of numerous scriptwriters. The 'parallel columns with block protect' feature, which is supposed to make WordPerfect so ideal for scripts, doesn't quite work. On the left you might have a character's name and a few lines of stage directions; on the right, a block of dialogue. You want these kept aligned against each other as the rest of the script is edited to and fro. Unfortunately the whole system collapses when a soft pagebreak falls (as sooner or later it will) in the middle of a speech on the right: the rest of the speech then sags back into the lefthand column.

We fervently expected this to be cured when the upgrade from 4.1 to 4.2 came through. In 4.2 the problem has been brilliantly tackled by rephrasing the manual to say, roughly, that WordPerfect is absolutely ideal for scripts provided the speeches are not more than one page long. Honestly: "Parallel Columns are designed for documents such as scripts ..." And two pages later: "The Parallel Columns feature is designed for use with column groups that are shorter than one page". Gee whiz.

Of course the program's vast merits are sufficiently indicated by the fact that in spite of all the above, I'm still devoted to WordPerfect. No software is perfect, but this word processor comes closest.

SupportPerfect?

Arthur C Clarke scored some amazing predictions of the future in his short story *The Sentinel*, which grew into Stanley Kubrick's film *2001: A Space Odyssey*. At the time, *2001* with its enigmas was a bitterly controversial movie; and the UK agents for WordPerfect, Sentinel Software, now provoke more bitter comments from our customers than Apricot itself.

A famous *2001* sequence involves lengthy spaceship manoeuvres to the sound of *The Blue Danube* ... the very tune played (in a scratchy synthesised version) to those who phone Sentinel in hope of support, and for twenty minutes are put on hold! In *2001* the only link with godlike, supertechnological beings from beyond the stars is a mysterious monolith — recalling the monolithic organization of Sentinel itself, where all technical queries are evaded by reference to strange cargo-cult gods from afar. "We forwarded your letter to America, but they never replied."

Ansible Information's favourite Sentinel story involves the WordPerfect 4.2 thesaurus. When the program started appearing in Apricot format, this file was missing from the packages which arrived shrink-wrapped but not actually checked by Sentinel.

"We can't do anything," wailed these dauntless WordPerfect experts. "We can only await salvation by the WordPerfect masters in America." Meanwhile Ansible Information was busy transferring the vast TH.WP file from IBM format (with a nod to nice Mr Messiter's TRANSEND file transfer program).

"*We* have a working thesaurus," my good partner Chris Priest confided smugly to the Sentinel mandarins. "My God, send it!" they cried, and additionally requested copies of the WordPerfect disks they'd originally sold us. Of course we have this standard fee for such favours; you can imagine the hysterical thigh-slapping at Ansible HQ as we made out the invoice, charging Sentinel at public-domain rates for its own software ... If the TH.WP file in your Apricot WordPerfect 4.2 is dated something like 9 February 1987, you have this transaction to thank.

Leg-pulling may be fun, but Sentinel's discount system is no joke. For some while, Sentinel sales reps swore blind that there was only one standard scale of dealer prices; the copies being sold cheaply by evil box-shifters must be bootlegs, vile illicit imitations made from bamboo by Korean peasants. Only after many months did it emerge that Sentinel was routinely flogging the program at 60 per cent discount to box-shifters who bought it in bulk. This produces an interesting situation whereby small authorised dealers — who are expected to provide all sorts of loving care and support — can get WordPerfect more cheaply at 'retail' price from box-shifters than at 'authorised dealer discount' from the official suppliers. You work out the logic.

Then there was the great Educational Discount revelation. "I can get WordPerfect for £85," sniffed a lady professor: "Why should I pay your ridiculous price?" Questioned about this, Sentinel informed us for the first time that school or university users get WordPerfect at one-third the price if they swear on headed notepaper that the program's only for educational administrative use ... and at one-*fifth* the price if they swear it'll be used solely in the classroom for word-processor teaching and training. (These super-cheap classroom copies are protected, incidentally — no backups allowed — but the one-third-off 'admin' copies differ from the Real Thing only by having 'ADMIN' stamped all over the manual.)

We were deeply sympathetic to the academic who, having presumably perjured himself (like the lady professor mentioned above) to order a 'classroom-only' WordPerfect, rang several times to complain savagely. Seems that while it worked ok on the college's expanded-memory machines, it wouldn't on his PC at home, and what were we going to do about it?

Chris Priest told him what to do about it.

As you might imagine, we also bitched to Sentinel about the miniscule discounts and profit

margins available on these ultra-cheap educational copies — particularly irritating since the blasted academics tend to demand the most support, with their need for Middle English or Sanskrit printout. The snooty reply was "You shouldn't expect to make a profit on educational copies". Pressing the point, we were informed by the sales boss that small dealers should make up their profits via training courses and add-ons ... and thus the Ansible WordPerfect Disk was born.

Several months later there was an irate phone call from the same chap. How *dare* we use the sacred name of WordPerfect, which was registered and copyright and defended by the Official Secrets Act, in conjunction with our own crappy little products? How *dare* we imply any shortcoming in the official macro editor? How *dare* we produce, and try to keep secret from Sentinel, this wicked, underhand add-on disk which suggested that there might be imperfections in WordPerfect?

We pointed out in vain that we'd been advertising all this in many computer magazines for many months, that the official too-expensive macro editor had never been configured for Apricots, and that there *were* a few little deficiencies in the program. The wrath of Sentinel had been aroused, and goodness knows what they might do to us now — perhaps even force us to get our WordPerfects from a cheap box-shifter instead of Sentinel! We do hope not.

SF afiçionados will remember the harrowing spaceship scenes in *2001*, where a crazed computer firm systematically exterminates the astronauts who have been patiently tending it, selling software for it and helping increase its vast profits. Let's hope this too isn't prophetic. Open the pod bay door, Hal ...

Tailpiece

AUTHOR: I say, I say, I say, have you heard about the chap who bought an Apricot laser printer?

THE PLAIN PEOPLE OF COMPUTING: Ah, this is more like it, you've not been rude to Apricot for a whole column.

AUTHOR: Well — this will kill you, squire — he turned on the self-test function, ha ha, and what it printed out was ...

THE PLAIN PEOPLE OF COMPUTING: "Congratulations on buying an Apple LaserWriter."

AUTHOR: Oh. You know that one.

THE PLAIN PEOPLE OF COMPUTING: All right, have *you* heard the one about Sorcim, Computer Associates and SuperWriter 2?

AUTHOR (sulking): It'll have to wait for the next column now. ◆

About the newsletter

Our aim is to provide a complete editorial and information service to users of Apricot computers.

Except in the normal course of day-to-day contact, sub sales and the like, we are not affiliated with or supported by Apricot plc or any of its dealers. Nor for that matter are we sponsored by or directly associated with any user group or any other such organization, though in principle our goals and guiding intentions are very similar to the declared aims of many such bodies.

The Publisher does not necessarily agree with the views expressed by contributors, and assumes no responsibility for errors of reproduction or interpretation in the subject matter of this newsletter or from any results arising therefrom.

APRICOT FILE is a publication of the TP Group — which until we get the name changed is the trading style of Permapoint Limited, registered in England no 1929195.

Postal address

TP GROUP
PO Box 509
London N1 1YL, England

Personal calls and deliveries

TP GROUP
Unit 4, 47-51 Wharfdale Road
London N1 9SE, England

Please phone first if you intend to visit us!

Phone, E-mail, Telex

Telephone **01-833 3501**

Telecom Gold **81:JET767**
[from overseas **10081:JET767**]
Mercury Link **19011170**
The Source **BDE566**

Telex: **265871 MONREF G quoting reference 81:JET767**

The People

Editor	**Dennis Jarrett**
Production	**Fiona Carey**
Writer	**Garet Keogh**
Subscriptions	**Terrance Duggan**
DFR/Technical	**Roger Gann**

■■■ ISSN 0268-6066 ■■■

Technote

Inside RAM BIOS 3.1.2

... and other experiences

By Jost Riedel

The *Forty days in the wilderness* article in APRICOT FILE Release 2.7 needs further amplification. The two errors and one misinterpretation were not the author's fault; if BIOS 2.7 had good documentation there would be no chance of mistakes. This article summarises what I learnt by trying and accidentally not getting an error:

Ladder-driven utilities

I tested the three versions I could find in my collection of BIOS 3.1s. The MS-DOS 3.10 RAM BIOS version Beta 3.1, dated 23 July 1985, supports ladder-driven programs like MANAGER flawlessly; so does MS-DOS 2.11 RAM BIOS version 3.1.1, dated 23 October 1985. But to my surprise BIOS 3.1.2, dated 2 May 1986 (which I received with MS-DOS 3.2), doesn't — it gives a distorted screen with the ladder in the middle and everything else messed up.

As I had already peeked into IO.SYS to stop it chopping off the eighth bit when doing a hardcopy, I decided to try to fix this one too. The result is great when you have a printer that supports IBM-style block graphics, maths symbols and crazy Continental characters.

First, I had to analyse what was going wrong. It emerged that BIOS 3.1 was not to blame: *all* ladder-driven programs contain the same, trivial bug.

Ladder-driven programs write directly to the screen memory. This is organised as a circular table, and a pair of registers in the CRT controller chip point to the position where the top of screen starts. This is to facilitate scrolling — to scroll one line you simply add 80 to the table pointer and let it wrap modulo the table size. This of course only works when no window is enabled, and it makes screen addressing more difficult.

For performance reasons RAM BIOS 3.1 does not read the CRT register; instead it keeps a copy of it in a secret location. So setting this register will mess up the display after your application has ended.

There are two correct ways to solve the problem: you can send ESC z and trust that this will force the pointer to zero (this is what I do — it works for now, but might not perform under any new BIOS version).

Alternatively, you can read out the register contents. This is of course hardware-dependent; but so is accessing screen RAM directly — so who cares?

Ladder-driven programs use a third method: they send ESC H to home the cursor and then read out the cursor register. This now points to the same location as the top-of-screen register. Or rather, it *used* to do so; but now that isn't *always* the case — BIOS 3.1.2 seems to update the cursor position register *only* if the the cursor is switched *on*. With an invisible cursor, who cares about its position ?

Well, that's the bug — before homing the cursor, ladder-driven programs switch off the cursor.

To correct this, simply get out DEBUG and search for the OUT 68,AL sequence (this sends a register address to the CRT controller's address register). Unassemble the surroundings and they should look like this:

```
2761:B767  9C          PUSHF
2761:B768  FA          CLI
2761:B769  B00E        MOV  AL,0E
2761:B76B  E668        OUT  68,AL
2761:B76D  E46A        IN   AL,6A
2761:B76F  8AE0        MOV  AH,AL
2761:B771  B00F        MOV  AL,0F
2761:B773  E668        OUT  68,AL
2761:B775  E46A        IN   AL,6A
2761:B777  25FF07      AND  AX,07FF
2761:B77A  9D          POPF
2761:B77B  5B          POP  BX
2761:B77C  FFE3        JMP  BX
```

0E and 0F are the addresses of the upper and lower parts of the CRT's 15-bit cursor-position register. Change this to 0C and 0D (the top-of-screen register):

```
2761:B767  9C          PUSHF
2761:B768  FA          CLI
2761:B769  B00C        MOV  AL,0C
2761:B76B  E668        OUT  68,AL
2761:B76D  E46A        IN   AL,6A
2761:B76F  8AE0        MOV  AH,AL
2761:B771  B00D        MOV  AL,0D
2761:B773  E668        OUT  68,AL
2761:B775  E46A        IN   AL,6A
2761:B777  25FF07      AND  AX,07FF
2761:B77A  9D          POPF
2761:B77B  5B          POP  BX
2761:B77C  FFE3        JMP  BX
```

Write this back and you'll have a ladder-driven program that runs (at least as far as screen display is concerned) on all BIOS versions known to me.

Placing the BIOS on a formatted disk

Away from RAM BIOS 3.1.2, here are a few more general tips. It's normally said that there is no way to get a BIOS on a disk which already contains files (and no existing BIOS); and if there is a BIOS already present, you can't copy a larger version on to the disk. This is not true.

With Apricot's FORMAT utility (available on DEALS FOR READERS disk AP020, if you don't have it already) you can get a bigger IO.SYS or MSDOS.SYS file on to *any* disk. You can even get a bootable system on to a disk that has no system at all but already contains other files. All you need is enough *contiguous* space for the new system, and FORMAT will tell you if there isn't sufficient.

Of course you should back up a hard disk first. But recently I daringly transferred MS-DOS 3.2 including BIOS 3.1.2 to my Xi in this way, and I had no problems. (With 1.8MB free I hoped there would be enough contiguous space; luckily enough, there was.)

The restriction that system files must be the first files on a disk seems only to apply to the FORMAT option in the older, ladder-driven, DISK utilities.

Instant CALC

To get CALC and PRINT you don't have to use SHIFT — ACTIVITY or KEYEDIT can be utilised to select a preferred key combination. Remember, you have an *Apricot* — not some Inflexible Buggy Machine. (Ok, I don't know how to do it with ACTIVITY; and to use KEYEDIT you have to boot with a pre-BIOS 3.1.2 system).

Read-only DOS 3.2

The MS-DOS 3.2 I received has all system files marked READ-ONLY as well as SYSTEM and HIDDEN. ACTIVITY just gives you a user-unfriendly 'disk error' message that could mean anything, including a damaged hard disk. It took quite a while to diagnose the problem properly — plus some fiddling with CHMOD to unprotect KEYTAB.SYS, FONT.SYS and HEADER.SYS. ◆

AP026 — MANAGER/BIOS 3.1

Jost sent us the patched RAM BIOS 3.1.2 and amended versions of all the ladder-driven programs; this new DEALS FOR READERS public domain disk (order no AP026, price £10.00) contains the lot. It's a double-sided number with a MANAGER that works flawlessy under BIOS 3.1; Jost has also corrected a couple of minor bugs in this BIOS. Also on the disk are much-improved versions of KEYS and FONT. This disk is self-booting with MS-DOS 3.2 and BIOS 3.1.2.

Contributors in this issue

Dennis Jarrett is Editor of the newsletter. His magazine credits include being founder-editor of 16 BIT COMPUTING, PRACTICAL COMPUTING and WHICH COMPUTER? His several books include THE GOOD COMPUTING GUIDE (*really* thick and very cheap too from DEALS FOR READERS).

Edward Bromhead is Reader in Geotechnical Engineering at Kingston Poly, where he uses a couple of Apricots to model the behaviour of soil slopes and groundwater (mainly using his own Fortran software and GSX). He specialises in earthworks (eg for motorways) and landslides (he predicted the collapse of Carsington dam in November 1983: it fell over eight months later).

Mike Florey works for British Telecom as the Technical Manager for a large transmission network contract. Outside work he is closely involved with the off-stage activities of Streatham Hill Operatic Society.

David Langford is a full-time author and computer addict, whose latest book *EARTHDOOM!* — a spoof of disaster novels, written with John Grant and scorned by Kingsley Amis — is "by no means" about Apricot BIOS variants. (The inclusion of a permanently drunk character called Apricot should not be misinterpreted.) He is inordinately proud of being a guest of honour at the 45th World SF Convention at Brighton in August 1987).

David Lewis is a solicitor for a London borough that happens to be a keen user of new technology; he started computing himself six years ago with a ZX-81, but says his *annus mirabilis* was 1986 "when I bought an Apricot Xi and a Miracle Technology WS4000 modem — the Apricot took a fair slice of my savings, and the modem has taken care of my salary ever since". His work has made him "fairly conversant" with the Data Protection Act. Interests apart from law and computers include astronomy, chess, languages and international politics.

Jost Riedel studied chemistry in Göttingen where he got his first Basic lesson; after seven years he dropped out and is now working in a grinding wheel factory. He developed a deep dislike of the IBM Series/1 and System/23 computershe had to work with, and a visit to a Dublin fair made him fall in love with an Apricot that still lingers ... He recently started to teach Basic and Pascal at Bad Karlshafen's adult college.

Bob Smith has worked his way from big computers that did little to big computers that did a lot to little computers which did little once but now do a lot. This took some 18 years to accomplish, usually with big firms in big towns, but he now tries to do a lot for a little with an Apricot and a minicomputer for a company in a small town in the West Country.

Comms on the Apricot

Part One of a series: Evaluating the options

By Mike Florey

This short series of reviews covers different modem/software combinations. But I'll start with a little rumination on the features and standards by which I judge comms equipment and how they are shaped by technical and commercial pressures. I hope this will help readers decide whether their own needs are similar to mine and, if not, the extent to which the review conclusions should be adjusted to suit them.

Fitness for purpose

It's easy to forget that comms is a means to an end, not an end itself. A stockbroker is interested only in the accuracy of the figures on the screen and whether they are moving in the right direction: how those figures get there is more likely to be measured in pounds as an element of business overheads than in bits per second. That kind of user is looking for easy access to useful data, not technical bull and hassles. And the same almost certainly applies to the rest of us.

Success or failure in dial-up data communications boils down to the fitness for purpose of the component parts used. The modem must interface correctly to the telephone network and it must be capable of operating with an acceptable error rate over the range of connections you are likely to use. The modem cable must be wired correctly. The comms software must control the modem and be capable of meeting your requirements — for automatic log-on, Teletype-style operation, viewdata, file transfer protocols, or whatever.

If all is as it should be, you've cleared the first hurdle. If not, disaster looms.

First things first

Is your exchange line working properly? Exchange-line faults are either caused by worn or maladjusted exchange equipment, in which case they affect only one user; or by bad cables or cable joints, in which case they affect all users dependent on that cable.

Pick up the phone and ignore the flatulent burble of the dial tone (or the equivalent hi-tech whistle from modern exchanges). If there is a steady frying noise in the background or you get intermittent clicks and crashes, dial 151 for a meaningful discussion on getting it fixed.

Impulsive noise has a very spiky waveform and the peaks can be comparable to the level of received carrier. Levels of impulsive noise which appear innocuous on a speech call can confuse the decision circuit in a modem, leading to a high level of data errors. By contrast, the gentle hiss heard on long-distance calls routed over analogue transmission plant doesn't normally present a problem; most modems will give up on overall connection attenuation before the carrier-to-noise ratio becomes a significant factor.

More equal than others

All modems need BABT approval; but that's not a Good Housekeeping Seal — it just means the equipment won't be a safety hazard or interfere too much with other people's use of British Telecom services. Beyond that, there are no guarantees.

But one of the greatest benefits to come from the liberalisation of British Telecom is that, within the safeguards dictated by BABT, product features and performance are now determined by what the market is prepared to pay for rather than the whim of technocrats who don't have to foot the bill.

So some modems perform better than others and some modems have more features and facilities. In a competitive market there's the usual tendency to get what you pay for.

On the other hand, the free-market theory can break down in cases where there is only one product on offer: Apricot makes the only internal modem available for its non-IBM computers, whereas genuine competition exists for internal modems to fit the IBM PC and its friends.

And as with any market-led approach, the needs of minorities are often ignored as not being profitable enough.

Prestel and PSS have their own special access arrangements: you get at them by making a conventional call to a special number, but once you've reached that number the call is passed on to separate purpose-designed data-only networks that exist alongside the normal voice-grade telephone system we all know and love.

As a result, a modem designed primarily for dial-up access to Prestel and PSS does not need to be capable of working over the full range of line attenuation characteristics found in the ordinary PSTN (Public Switched Telephone Network): and so they can be simpler and cheaper.

The vast majority of modems sold in the UK are used in this manner: and the remaining market, for modems capable of tackling an end-to-end dial-up PSTN connection, is relatively small. To make matters worse, it includes the home enthusiast who might, for instance, want to call bulletin boards; in such cases, the hobby has to be financed out of personal income. A market which is both small and price-sensitive does not encourage manufacturers to invest in product development to meet its needs.

By contrast, the modem inside a fax machine is expected to work over any line — including long-distance international connections. It is sometimes possible for a fax machine to send successfully at 9600 bits per second (half-duplex) over the same lines that would defeat a cheap 1200/75 modem. Close-tolerance circuit design and digital adaptive equalisers are pricey, but they do make such performance possible.

So which modem will fit your needs? My main criticism of the present modem market is that the reams of grandiloquent sales hyperbole published by the makers contain very little detail about the technical performance of their products. Even the knowledgeable consumer is likely to buy on the strength of the maker's reputation rather than the performance of the product. Perhaps comms magazines will have to follow the path taken by hi-fi magazines and invest in test equipment to measure the figures that the makers are reluctant to divulge (probably with good reason).

Direct-dial

The chief benefit of direct dialling over the PSTN rather than communicating via a special network like PSS or Prestel is the relative freedom from character set and protocol constraints. Spreadsheets, word processor files and programs can be sent as readily as ASCII text files.

Software requirements are minimal for this type of application and public domain software or shareware programs should meet all reasonable requirements. So use the money you save to buy a better modem.

The characteristics of dial-up connections on the PSTN will be the same as for normal voice telephone calls made on the same line. So long as the modem tone is clearly audible and safely above any hiss on long-distance calls, a well-designed modem should work without difficulty. And using a decent modem at one end will, up to a point, help to compensate for any shortcomings at the other. A built-in equaliser which can be adjusted under software control will also help; that's probably a good feature to look for if you live a long way from your telephone exchange.

A degree of error-protection should also be provided by your comms package. Many low-cost comms packages, including those in the public domain, provide the XMODEM protocol or a variant; KERMIT has a more rigorous approach, and it has been adapted to run on a very wide range of computers (KERMIT *is now available from* DEALS FOR READERS *as disk AP021 at £10.00 — Ed).* The Editor may care to commission a write-up from one of the experts at the little green fiend's UK residence in the University of Lancaster *(a* KERMIT *series is coming — Ed).*

The professional answer to XMODEM is the X25 leased dataline on to PSS, Mercury data or VADS (Value Added and Data Services); low-volume users will find EPAD or VASSCOM cheaper.

Dial-up information services

The most common application of dial-up comms is to access information services or databases held on host computers. Examples include Prestel, Telecom Gold, the multifaceted Mnematics and The Source in the States, Dun & Bradstreet for credit information, and the OAG airline fares and schedules. Specialist 'closed user groups' exist on many such services for various business market sectors.

Prestel has its own access network and most users can reach it for the price of a local call. Most of the other information services can be direct-dialled via the PSTN; but it's often cheaper to access them via a service like British Telecom's PSS network.

Apart from making the modems work hard, cost is the biggest drawback when calls are made outside the local-call area. The cost differential between local and trunk calls is less severe than it used to be and the recent crop of 2400bps modems should help keep on-line time to a minimum. But it can take a long while to recoup the extra cost of a faster modem.

PSS can be cheaper to use if you can dial into it at local-call rate. All data networks like PSS which follow the CCITT X25 specifications provide a very high standard of internal error protection (the CCITT is the Comité Consultatif Internationale de Télégraphe et Téléphonie, a Geneva-based organisation of the European Telecommunications Union whose 'recommendations' — such as X25 for packet-switched data networks — have the force of law among Europe's PTTs and most of the world's telecomms authorities).

Errors can still be introduced on the line between the user and the PSS access point ('node') — you have to use the PSTN to get at PSS. But PSS nodes are normally close to their serving telephone exchange, which means that line-noise problems

will generally be reduced; and the use of professional autoanswer modems makes the connection more reliable and less error-prone.

There is a catch. Your comms software now has to cope with a relatively complicated log-on sequence which can include unpredictable delays caused by network datacall loading. Manual entry of a PSS NUI (Network User Identity — your ID) and NUA (Network User Address — the destination ID) is on a par with tapping out telephone numbers on the handset switch rather than using the dial/keypad like any sane person would, given the option: it *is* possible, but it's prone to errors and can be very frustrating.

In fact, many of the tales of woe about comms that appear in print can be traced to the use of software that simply isn't fit for its intended purpose. Use suitable software and the problems evaporate.

A lot is being done to overcome these problems with the X25 networks, under the umbrella of the OSI ('Open Systems Interconnect') development and the associated X400 recommendations from CCITT. It is all targeted on the business user and, for the immediate future, is best viewed from the safety of a corporate purchasing budget.

VADS offers an alternative approach. With these newish services you still have to log on to the VADS; but once there, information services are accessible through customised menus or mnemonics. In essence the VADS approach provides a user-friendly front-end; and particular services may offer additional facilities such as error protection, closed user groups, and network management.

VADS are not charities, of course, and you'll pay for the service they provide. But not everyone can dial into PSS at local-call rates, and it may be cheaper to use a VADS with a local access node. Examples are Debenhams' DATEC/COMSHARE and Midland Bank's FASTRAK.

In summary — business users will be looking for reliable performance and ease of use (to save on training costs) as their top priorities. If cost is a problem, however, it's usually safe to economise on the modem (especially for Prestel) because of the relatively benign access conditions. And in particular, if you're contemplating dial-up via PSS, *don't* skimp on the software. ◆

Next month: the Apricot Internal Modem reviewed in harness with Communiqué — and a Workshop on putting the two to work.

Classified

Free Small Ads

TP Group Services

■■■ DISK RECOVERY: problems with deleted files, scrambled hard disks, and the like? We can (probably) help — no fix, no fee! FILE TRANSFER: we can convert files between Apricot single- and double-sided, IBM PC format, PC/AT format, and Sirius — cheap and very quick! TURNKEY CONSULTANCY: we can recommend and/or implement systems using popular packages or custom-written software. We can also convert you from Sirius or Apricot to another species. DESKTOP PUBLISHING: we can produce your newsletters, price lists, press releases etc in near-typeset-quality on our laser printer using our DTP software NEWSWRITER from your disks in virtually any format produced by word processor and/or computer ... Call Roger Gann at TP Group on 01-833 3501.

Apricot Sales

■■■ APRICOT Xi: 10MB partitioned hard disk, 1MB RAM, MS-DOS 3.20, BIOS 3.12, Concurrent CP/M-86, two monitors, carrying case; plus CANON PW1080A matrix printer; plus three word processors, three databases, three comms packages, an integrated package, spreadsheet, GW-BASIC, Turbo Pascal, Mix-C, Eco-C, TRAPDOOR and BYTES diagnostics, both Apricot Technical Reference Manuals, Black Hole disks, both Apricot DOS shells, dozens of utilities and games galore — and a box of spare disks. £1,400 plus VAT ono (no split sale). Contact John Lyth, 01-583 5866 (day) or 0689 55667 (evenings).

Add-on Sales

■■■ Secondhand single-sided Sony D31 3.5in disk drives — in full working order. We have four specimens all priced at £40 inc VAT. Can you give one a good home? If so contact Roger Gann at TP Group, 01-833 3501.

Wants

■■■ APRICOT Xi with manual — preferably HD, but FD or Xen considered. Also DELTA 4 with manual. Contact C Sherwood, 021-233 2997.

■■■ PORTABLE user would like to contact another in South London to exchange information. Contact Geoff Reade, 9 Taymount Grange, London SE23 3UH.

Misc

■■■ KITCHENS: I work for a kitchen manufacturer and am able to buy kitchens heavily discounted because the packaging has been damaged — contents are perfect. Call 0484 545807 after 6pm. ◆

Batch File Recipes:

Automatic upper case, Batch file choose

By Ted Webber

I use this batch file to convert command-line parameters to upper case, so that they can be tested with IF %1=A and so on in a file called U.BAT. It uses the UPPER.COM utility on DEALS FOR READERS disk AP002.

```
ECHO OFF
ECHO U %1 %2 > TEMP.BAT
UPPER < TEMP.BAT > TEMP.BAT
```

For example, if you save this file as W.BAT you can enter a command line like ...

```
A> W TEST DOC
```

This will produce a file called TEMP.BAT which contains one line:

```
U TEST BAT
```

Now when you run U.BAT with multiple IF tests, it will run faster because it's not necessary to test for both upper and lower-case agreements. I use it particularly to select the SW.DEF appropriate to the extension I specify for my edit document, such as LET, DOC, PAS or SCN. Now I'm no longer in trouble if I forget to set CAPS LOCK!

Use CHOOSE

A neater alternative for many of the subroutine problems in batch files, as covered by the *Interactive Batch Files* piece in APRICOT FILE Release 2.7, is a program which sets any of the 10 'error levels' — ASK gives a choice of only two. A C listing for this was published last year in the Australian magazine *Your Computer*; here is a version which compiles with the very cheap Zorland C on my Portable.

```
/* CHOOSE.C — set ERRORLEVEL interactively */
/* Batch file for interactive input of menu
choice, 0-9 */
#include "stdio.h"
main()
{
  int choice;
  static char temp[] = {" "};
  if (fopen("CON","rb") == NULL){ abort("ask:
  Unable to open console"); }
  fputs("Enter your choice: ",stdout);
  while(!isdigit(temp[0] = getche()));
  choice = atoii(temp);
  putchar('\n');
  exit(choice);
}
```

Put this into a batch file and it will prompt for one digit, ignoring anything else. The last line `exit(choice)` sets the corresponding ERRORLEVEL, which must be tested in descending order.

Here's an example of CHOOSE in use, a batch file for the Portable that offers options to FORMAT the floppy in drive A from RAMdrive:

```
ECHO OFF
:START
ECHO ^[E   ^[p FORMAT OPTIONS ^[q
ECHO
ECHO 0. Review options in FORMAT 1.5.0
ECHO 1. Format and copy system files
ECHO 2. Update system only
ECHO 3. Format only
ECHO 4. Intialise an already formatted disk,
including label and system
ECHO 5. Format single-sided 316K (on double or
single disk)
ECHO
REM     Set ERRORLEVEL — test must be in
        descending order
CHOOSE
REM     ERRORLEVEL 6 traps entries 6-9
IF ERRORLEVEL 6 GOTO START
IF ERRORLEVEL 5 GOTO OPT5
IF ERRORLEVEL 4 GOTO OPT4
IF ERRORLEVEL 3 GOTO OPT3
IF ERRORLEVEL 2 GOTO OPT2
IF ERRORLEVEL 1 GOTO OPT1
REM    0 will list all options
REM     CHOOSE accepts one digit only
FORMAT
... etc
```

Mr Potter's Release 2.7 article also advocated the use of CLS to clear the screen. My preference is ECHO ^[E to clear and home the cursor, or ECHO ^[z to reset the screen including the status line. My cleared screens commonly start with a heading — use the top line of the screen and put the heading text in the same ECHO ^[E command that clears the display. Add reverse video (on with ^[p, off with ^[q) and you have the kind of heading in the menu example:

```
ECHO ^[E   ^[p FORMAT OPTIONS ^[q
```

The same technique can be used for text files intended as screen display; just omit the ECHOs.

And Mr Potter's long PROMPT must quickly become irritating! Put it out of the way on the status line, for goodness' sake. And don't forget that the time is updated only when the prompt appears again, so it's better omitted — use ACOLYTE from DEALS FOR READERS instead to give a continuously updated clock. Incidentally, that also frees the MicroScreen to do something more useful than merely tell the time — such as labelling MicroScreen keys set up to do MS-DOS functions at one keystroke. ◆

Report from Bandage & Plaster

Seeing red

Saving bank charges with SuperCalc

By Bob Smith

If you work as an employee (rather than as an employer or for yourself) and you normally live within your means, you probably don't worry about bank charges. So long as you keep in the black, or above the charging limit, there's no need. Well, a few months ago, my wife and I realised that we'd savaged our joint account.

So into the bank to find out the worst. I emerged both frustrated and enraged. Frustrated, because there was no escaping the interest charges on the overdrawn amount; and enraged because I was also now liable for a flat fee plus charges on every transaction, except credits, in the three-month period that encompassed the overdrawn dates — even if that was only a single day in the whole period.

A quick check of recent statements soon showed that the liability could be in the order of £50 to £70 over three months. But there was one escape route. If the account balance could be maintained at an average of at least £500 over the three-month charging period, the transaction charges and flat fee would be waived. Apart from finding the money(!), the task then was to work out in advance how to keep the average balance above this figure. With the armoury of computers and software that I could muster, surely an easy task!

Charging rules

I've checked around the leading banks and they all currently seem to have similar schemes. What will be described here should work with small modifications for all. It is first necessary to build a model, then feed it with the balances over the set three-month period. Any spreadsheet that can handle date arithmetic (as well as the usual functions, of course) will do; of the available Apricot SuperCalcs, you need either SuperCalc 2 or SuperCalc 3.

Let's look at the base requirements for avoiding the bank charges. I'd already broken the first rule of keeping one's account in the black. The next rule is to maintain an average *credit* balance of £500 over a fixed quarterly charging period. This "average credit balance is the *cleared* balance calculated after the deduction of any cheques paid into your account which are still in the process of being cleared".

This last sentence is quoted verbatim from one of the major banks. All the banks have a leaflet on 'free' banking — which is an odd title for a document that actually tells you in horrific and confusing detail how they are going to fleece you once you demur from the straight and narrow!

Anyway, this 'cleared' balance needs further explanation. If all the credits paid into your account are in cash (or from another account in the same branch), the balances shown on your statement represent the cleared balances. But if some credits are cheques drawn on other banks or branches, they are not credited on the same day that they are paid into your account. Thus the statement balances now need some adjustment if they are now to represent the *cleared* balances.

This subtle difference between 'statement' and 'cleared' balances shows up the assumptive trap that most of us fall into when looking at our statements. To be certain, you need to check that your own bank agrees with this description of the difference. If you do so, make very sure you ask precise questions concerning the meanings of 'statement' and 'cleared' balances.

To help you (and to understand the model), here is a summary of the 'normal' rules. Everything going out of your account — cashing of cheques you wrote, cash withdrawals, transfers to other accounts, and the like — is debited from your account on the same day the transaction takes place. Likewise cash payments in or cheques paid in from other accounts in the same branch are credited the same day. The statement and cleared dates are therefore the same for these items.

Not so for other cheques paid in. These need time to be sent through the banking system for verification from the issuing bank. For the major clearing banks (Barclays, Lloyds, National Westminster, Midland, TSB) the normal time to allow is three days (but check with your bank). Cheques from other sources like foreign banks may take even longer, five days or more. So you need to adjust your statement balance for these extra days to make it represent the cleared balance.

The days to allow are, of course, bank working days; and for the purpose of the calculation, these are Monday to Friday only. Note that this excludes Saturday. If you go into a bank that opens on a Saturday morning and pay in a cheque, it won't be cleared till the following Wednesday night. On the other hand, a cash withdrawal will not go through till the Monday night.

(By the way, you can use this to get a 'free' loan by withdrawing cash on Saturday then paying it back on Monday. You are only borrowing from yourself, of course, but at least this tactic should permit your balance to go unchanged — that is, unless your bank decides to process your account on Saturdays as well.)

Evasion!

Time to look at the worksheet. The objective is to achieve a period balance of at least £500 and this balance is shown in cell F3 (£561.15).

BANK.CAL

	A	B	C	D	E	F	G	H
1		--BAL--	Dys	mm/dd/yy	(Work)	Period	Bal reqd	Dys
2					(Col.)	Average	for £500	Rem
3	3/ 1/87					561.15		
4	5/31/87	625.09	2	3/ 3/87	1250.18	625.09	497.19	89
5	91	559.51	1	3/ 4/87	559.51	603.23	496.48	88
6		552.81	1	3/ 5/87	552.81	590.63	495.83	87
7		530.20	1	3/ 6/87	530.20	578.54	495.43	86
8		439.18	3	3/ 9/87	1317.54	526.28	497.47	83
9		445.88	2	3/11/87	891.76	510.20	498.74	81
10		367.71	1	3/12/87	367.71	497.25	500.38	80
11		367.71	1	3/13/87	367.71	486.45	502.06	79
12		.00	3	3/16/87	.00	389.16	521.88	76
13		.00	1	3/17/87	.00	364.84	528.83	75
14		.00	1	3/18/87	.00	343.38	535.98	74
15		.00	1	3/19/87	.00	324.30	543.32	73
16		.00	1	3/20/87	.00	307.23	550.87	72
17		.00	3	3/23/87	.00	265.34	574.82	69
18		30.53	1	3/24/87	30.53	255.13	582.82	68
19		869.86	2	3/26/87	1739.72	304.31	574.13	66
20		858.95	4	3/30/87	3435.80	380.81	555.75	62
21		808.95	2	4/ 1/87	1617.90	408.43	547.31	60
22		960.66	1	4/ 2/87	960.66	425.69	540.30	59
23		947.91	1	4/ 3/87	947.91	441.51	533.28	58
24		894.40	3	4/ 6/87	2683.20	479.25	513.58	55
25		762.05	1	4/ 7/87	762.05	486.90	508.98	54
26		738.52	1	4/ 8/87	738.52	493.52	504.65	53
27		545.30	1	4/ 9/87	545.30	494.85	503.87	52
28		526.50	1	4/10/87	526.50	495.64	503.42	51
29		474.50	3	4/13/87	1423.50	494.16	505.23	48
30		100.05	1	4/14/87	100.05	485.21	513.85	47
31		84.91	1	4/15/87	84.91	476.31	523.17	46
32		61.21	1	4/16/87	61.21	467.29	533.44	45
33		171.85	5	4/21/87	859.25	438.32	578.64	40
34		123.80	1	4/22/87	123.80	432.27	590.30	39
35		122.93	2	4/24/87	245.86	420.82	615.57	37
36		948.34	3	4/27/87	2845.02	448.58	586.20	34
37		959.61	1	4/28/87	959.61	457.39	574.89	33
38		933.61	1	4/29/87	933.61	465.46	563.68	32
39		859.88	1	4/30/87	859.88	472.04	554.12	31
40		839.88	5	5/ 5/87	4199.40	500.33	499.17	26
41		803.25	1	5/ 6/87	803.25	504.92	487.01	25
42		772.15	2	5/ 8/87	1544.30	512.78	462.21	23
43		718.61	1	5/ 9/87	718.61	515.76	450.56	22
44		500.00	4	5/13/87	2000.00	514.90	439.57	18
45		211.90	2	5/15/87	423.80	506.82	468.03	16
46		194.58	3	5/18/87	583.74	494.81	531.13	13
47		394.58	2	5/20/87	789.16	492.31	555.96	11
48		376.46	1	5/21/87	376.46	490.88	573.91	10
49		335.46	1	5/22/87	335.46	488.98	600.40	9
50		1412.29	4	5/26/87	5649.16	531.93	-49.11	5
51		1265.84	1	5/27/87	1265.84	540.36	-377.85	4
52		1231.01	1	5/28/87	1231.01	548.21	-914.13	3
53		940.60	3	5/31/87	2821.80	561.15	ERROR	0
54				5/31/87	.00	561.15	ERROR	0
55				5/31/87	.00	561.15	ERROR	0

The example model shown here is complete for the period (the one of 91 days from 1/3/87 to 31/5/87 — see cells A3,A4,A5 — remember SuperCalc shows all dates in the US *mm/dd/yy* format) and thus the F3 figure is the balance actually achieved in that period.

If the period were not complete, it would show the average balance so far; and in fact this is what appears as the figures below row 3 in column F. Thus row 4 shows that on 3/3/87, two days into the quarter (see D4), the average balance was £625.09. Column G is the 'balance required to achieve £500 for the remainder of the period' and on row 4 showed that it would only be necessary to keep £497.19 in the account for the remaining 89 days (column H).

Column G displays the most interesting data. Notice how the figures are fairly uniform in the early days, but start to change dramatically towards the end of the quarter — even going negative, suggesting you should be taking money out. Don't!

If your target is not £500, substitute your desired figure for the 500 shown in the first part of the formulas in the G column (ie in G4, then Replicate down).

The model will operate for any quarter (or shorter or longer period) by entering the start and end dates in A3 and A4 respectively. You then enter the cleared balances on your account into column B and the number of days for which that balance was true in column C. (The first entry should be on row 4.) The column D date is worked out from the period start in A3 and the number of days so far (sum of column C). E is a working column (column B * column C) for use in columns F and G. It could be hidden in normal use.

The balances can be entered from your statement or balance enquiries made at your own bank's auto teller — with two provisos. Where a credit has been paid in, you will need to adjust the balances to allow for the three days' clearing time as described above (if the credit is not cash or is not from another account in the same branch).

Admittedly, such adjustment could have been made in the model — perhaps by having an extra column to show the number of days, if any, with which to adjust the entered figure. There would, however, have been an extra complexity in calculating 'working days', excluding weekends. If anyone can be bothered to figure it out, it might be worth adding ...

If you look closely at the contents of cells B6 and B7, you can see that what I have done is to enter the statement balance figure together with a subtraction of the cheque amount paid in, before reverting to the statement figure alone after the necessary three days.

Building the worksheet

```
                    &&  CONTENTS  &&

B1    =    "  --BAL--
C1    =    " Dys
D1    =    " mm/dd/yy
E1    =    "  (Work)
F1    =    "   Period
G1    =    " Bal reqd
H1    =    " Dys

E2    =    "  (Col.)
F2    =    "  Average
G2    =    " for £500
H2    =    " Rem

A3    =    DATE(3,1,87)
F3    =    SUM(E4:E55)/SUM(C4:C55)

A4    =    DATE(5,31,87)
B4    =    625.09
C4    =    2
D4    =    A3+SUM(C4:C4)
E4    =    B4*C4
F4    =    SUM(E4:E4)/SUM(C4:C4)
G4    =    (500*A5-SUM(E4:E4))/(A4-D4)
H4    =    A4-D4

A5    =    A4-A3
B5    =    559.51
C5    =    1
D5    =    A3+SUM(C4:C5)
E5    =    B5*C5
F5    =    SUM(E4:E5)/SUM(C4:C5)
G5    =    (500*A5-SUM(E4:E5))/(A4-D5)
H5    =    A4-D5

B6    =    559.51-6.70
C6    =    1
D6    =    A3+SUM(C4:C6)
E6    =    B6*C6
F6    =    SUM(E4:E6)/SUM(C4:C6)
G6    =    (500*A5-SUM(E4:E6))/(A4-D6)
H6    =    A4-D6

B7    =    536.90-6.70
C7    =    1
D7    =    A3+SUM(C4:C7)
E7    =    B7*C7
F7    =    SUM(E4:E7)/SUM(C4:C7)
G7    =    (500*A5-SUM(E4:E7))/(A4-D7)
H7    =    A4-D7

B8    =    439.18
C8    =    3
D8    =    A3+SUM(C4:C8)
E8    =    B8*C8
F8    =    SUM(E4:E8)/SUM(C4:C8)
G8    =    (500*A5-SUM(E4:E8))/(A4-D8)
H8    =    A4-D8

B9    =    445.88
C9    =    2
D9    =    A3+SUM(C4:C9)
E9    =    B9*C9
F9    =    SUM(E4:E9)/SUM(C4:C9)
G9    =    (500*A5-SUM(E4:E9))/(A4-D9)
H9    =    A4-D9

B10   =    367.71
C10   =    1
D10   =    A3+SUM(C4:C10)
E10   =    B10*C10
F10   =    SUM(E4:E10)/SUM(C4:C10)
G10   =    (500*A5-SUM(E4:E10))/(A4-D10)
H10   =    A4-D10

              ... and so on ....

                    &&  FORMATTING  &&

column A    width 9 characters
column B    width 9 characters, money format
column C    width 4 characters
column D    width 9 characters
column E    width 9 characters, money format
column F    width 9 characters, money format
column G    width 9 characters, money format
column H    width 4 characters
```

The other proviso is that where your cleared balance falls below zero and you've gone into the red, just enter zero — as shown between 13/3/87 and 23/3/87. Note here how the column G figure (balance required for rest of period) rises sharply over these ten days.

Comments on the model

From 'Building the worksheet' you can see the formulas entered. If you're interested, you can work them out in detail; but the most important point concerning the formulas is that once row 4 is set up, they can be replicated downwards for as many rows as you think you will need. The example uses rows 4 to 55 as shown in the formula in F3 (the only cell that needs direct manual adjustment if you want more or less rows than the example).

Second, the order of calculation is set by column rather than by row (the default) so to have F3 worked out in one recalc — doing it by row would take two recalculations. By the way, it is not at all necessary to have F3 as such since the same figure is eventually arrived at on row 53 — balance for the very last days in the period. Cell F3 is only there for convenience, to see at a glance at the top of the model what the running balance is so far; it also provided a check on accuracy while constructing the model.

The ERROR values for G53 to G55 appear only because the divisor in these cells has gone to zero (because it is the number of days remaining in the period).

Finally, column H (days remaining) is also strictly unnecessary, but it is convenient to see how many days are left till the end of the period.

Another way?

Luckily for us, our account went overdrawn early in the charging period and thus we were able to use the forecasting element of the model to plan ahead and successfully avoid charges. One of my colleagues was less lucky. She went overdrawn for a couple of days in the middle of the quarter and found a big fat bank charge recorded on the first statement of the next quarter. Anyway, after spending some ten minutes explaining in the minutest detail how she could use this model to avoid a repetition, she interrupted to say she hadn't had to pay the charges. "How come?" says I, astonished. "Oh", she says, "I just rang them up and complained and they agreed to drop them!" Now why didn't I think of that? ◆

Diary Dates

◆◆ September 1987 ◆◆

15-18 DES *Birmingham.* Design Engineering Show — claims to be "Europe's biggest and most important display of solutions in engineering design". *Organiser: Cahners, tel 01-891 5051*

15-18 Pemec *Birmingham.* Established plant management show. *Organiser: Cahners, tel 01-891 5051*

23-27 Personal Computer World Show *London.* Not as essential as it has been in the past, but the lure of 65,000-plus visitors means there will be a lot of exhibitors — should be around 400, though many of them will still be selling to the home-computer users around which PCW was originally based. This year features a desktop publishing section for the first time. *Organiser: Montbuild, tel 01-486 1951*

28-29 National and International Networks *London.* Two-day course subtitled 'The key planning factors' and aimed at large corporate users involved in specifying future requirements and systems; priced accordingly (£345) but looks very meat. *Organiser: IBC, tel 01-236 4080*

◆◆ October 1987 ◆◆

1-7 Data Office Environment *Stockholm.* Should be big — an everything-for-the-office event. *UK contact: BETA Exhibitions, tel 01-405 6233*

5-7 European Seybold Conference *Heathrow.* European version of the prestigious US event on the desktop publishing business organised by Seybold, the acknowledged masters in DTP punditry. *Organiser: Seybold UK, tel 0323 410561*

6-8 Internepcon *Brighton.* Southern and Autumnal version of established manufacturing technology show. *Organiser: Cahners, tel 01-891 5051*

13-15 Computer Graphics *Wembley.* A fascinating day out, even if you aren't interested in the subject matter — probably no more than a hundred exhibitors, but they cover everything from CAD to business presentation. *Organiser: Online, tel 01-868 4466*

13-16 TechMart *Birmingham.* Interesting show for technical directors, R&D people, and the like — covers "new technologies and products from the whole spectrum", aimed primarily at manufacturers. Should be 300 or so stands ... *Organiser: NEC, tel 021-780 4171*

15-17 Desktop Publishing Show *London.* With projected sales for DTP in the UK estimated at £300 million for 1988, this one looks a natural — sponsored by the printing industries' technology centre PIRA, aimed at anyone who produces reports, brochures and the like, including a series of PIRA-run seminars. To be held at the tasty Business Design Centre just up the road from our offices. *Organiser: Database, tel 061-456 8383*

31 October — 1 November Telecoms UK *Coventry.* New event for the comms business, sponsored by the Telecoms Industry Association and a trade magazine. *Organiser: Courtesy Publishing, tel 0372 60233*

Escape plans

Part Three: The Complete ESCape codes in summary

By David Langford

This summary should be used with the narrative in the preceding two parts of this series (APRICOT FILE Releases 2.9 and 2.10) — and it corrects typos and misapprehensions that appeared there. The Summary groups Escape sequences by function, with some duplications for ease of access. Note that underlined items are variable parameters, not to be entered as they stand.

Cursor movement

Code	Dec	Hex	Function
Return	13	[0D]	move cursor to lefthand column
CR	13	[0D]	move cursor to lefthand column
ESC C	67	[43]	move cursor right one space
ESC D	68	[44]	move cursor left one space
BS	8	[08]	(backspace) move cursor left one space
ESC B	66	[42]	move cursor down one line
LF	10	[0A]	(linefeed) move cursor down one line
VT	11	[0B]	vertical tab, but on Apricot moves cursor down one line
FF	12	[0C]	formfeed, but on Apricot moves cursor down one line
ESC A	65	[41]	move cursor up one line
ESC I	73	[49]	move cursor up one line; scroll at top line (reverse line feed)
TAB	9	[09]	move cursor to next tab stop
ESC h	104	[68]	reverse tab — move cursor to previous tab stop
ESC H	72	[48]	move cursor to top left of screen ('home' position)
ESC ;	59	[3B]	move cursor to status line (no enabling of status line required)
ESC x1	49	[31]	enable status line for ESC Y access
ESC Yyx	89	[59]	a three-character sequence — move cursor to specific position designated by y (row+32) and x (column+32)
ESC y1	49	[31]	disable status line for ESC Y access
ESC j	106	[6A]	save current cursor position
ESC k	107	[6B]	restore previously saved position

Erase and delete

Code	Dec	Hex	Function
ESC E	69	[45]	clear current screen window and home cursor
ESC z	122	[79]	reset screen to 'power-on' state and home cursor
ESC M	76	[4D]	delete current line and scroll up any below
ESC N	77	[4E]	delete current character and close up from right
ESC b	98	[62]	erase from start of screen to cursor position
ESC K	75	[4B]	erase from cursor position to end of line
ESC l	108	[6C]	erase current line, preserve cursor position
ESC o	111	[6F]	erase from start of line to cursor position
ESC J	74	[4A]	erase from cursor position to end of screen
ESC +	43	[2B]	erase all high intensity characters (not F series)
ESC —	45	[2D]	erase all low intensity characters (not F series)

Insert

Code	Dec	Hex	Function
ESC L	76	[4C]	insert blank line (scrolling rest of screen down)
ESC P	80	[50]	insert character at cursor position
ESC @	64	[40]	set insert mode: text is henceforth shuffled right to make a space for each new character sent to the screen
ESC O	79	[4F]	turn off ESC @ insert mode

Attributes

Code	Dec	Hex	Function
ESC _	95	[5F]	set current attributes over entire screen [Xi before BIOS 3.1 only]
ESC (	40	[28]	set high-intensity display
ESC)	41	[29]	set low-intensity display
ESC 0	48	[30]	set underline mode
ESC 1	49	[31]	turn off underline mode
ESC 9	57	[39]	set strikeout mode
ESC :	58	[3A]	turn off strikeout mode
ESC p	112	[70]	set reverse video mode
ESC q	113	[71]	turn off reverse video mode

Windows

Code	Dec	Hex	Function
ESC ,yYxX	44	[2C]	set screen window size (top row y-32, bottom row Y-32, left column x-32, right column X-32) and home the cursor within the window
ESC .	46	[2E]	restore screen to default 80 columns and 24 rows (plus status line) and home cursor

Scrolling

Code	Dec	Hex	Function
ESC Qn	81	[51]	scroll current screen window left by (n-32) columns
ESC Rn	82	[52]	scroll current screen window right by (n-32) columns
ESC Sn	83	[53]	scroll current screen window up by (n-32) columns
ESC Tn	84	[54]	scroll current screen window down by (n-32) columns
ESC xD	68	[44]	smooth screen scrolling (F series only)
ESC yD	68	[44]	fast screen scrolling (F series only)

Wrapping

Code	Dec	Hex	Function
ESC v	118	[76]	wrap text at end of each line (default mode)
ESC w	119	[77]	don't wrap at the end of a line

Graphics and fonts

Code	Dec	Hex	Function
ESC *0	42	[2A]	select font 0
ESC *1	42	[2A]	select font 1
ESC *2	42	[2A]	select font 2
ESC 8n	56	[38]	ignore any control function of character n and print the appropriate font character
ESC F	70	[46]	turn on VT52 'graphics' mode
ESC G	71	[47]	turn off VT52 'graphics' mode
ESC }	125	[7D]	set Xi graphics mode (50x25-cell screen)

Keyboard

Code	Dec	Hex	Function
ESC $	36	[24]	put character at cursor position into keyboard buffer
ESC \n	92	[5C]	put character n into keyboard buffer
ESC n	110	[6E]	report current cursor position to keyboard buffer in the format ESC Y yx (compare the 'move cursor' sequence) where y is row+32, x is column+32
ESC 41nm	52	[34]	a four-character sequence — program an unshifted key (n is the key code number, m is the new character)
ESC 42nm	52	[34]	program a Shifted key (n is the key code number, m is the new character)
ESC 43nm	52	[34]	program a Control-shifted key (n is the key code number, m is the new character)
ESC Z	90	[5A]	identify as VT52 terminal by putting the sequence ESC / K into the keyboard buffer so programs can read it

Printer

Code	Dec	Hex	Function
ESC &	38	[26]	send whole screen to printer
ESC '	39	[27]	send current screen line to printer

Cursor appearance

Code	Dec	Hex	Function
ESC 2	50	[32]	set flashing cursor on Xi (not F series)
ESC 3	51	[33]	turn off Xi flashing cursor
ESC x4	52	[34]	set block cursor (not F series)
ESC y4	52	[34]	set underline cursor (Xi prior to BIOS 3.1)
ESC y5	53	[35]	turn cursor on (cancels flashing cursor, if any)
ESC x5	53	[35]	turn cursor off

The 'Environment'

Code	Dec	Hex	Function
ESC `	96	[60]	save environment
ESC a	97	[61]	restore saved environment
ESC xa	120	[78]	set environment flag a, as follows:
ESC xG	71	[47]	reset screen palette (F series only)
ESC x$	36	[24]	set Apricot-compatible mode (F series only)
ESC x1	49	[31]	enable status line for ESC Y access
ESC x4	52	[34]	set block cursor (Xi only)
ESC x5	53	[35]	turn cursor off
ESC x8	56	[38]	set auto LF on receipt of CR
ESC x9	57	[39]	set auto CR on receipt of LF
ESC xD	68	[44]	smooth screen scrolling (F series only)
ESC xE	69	[45]	LCD contrast up (Portable only)
ESC xF	70	[46]	bell volume up (F series only)
ESC ya	121	[79]	reset environment flag a, as follows:
ESC y1	49	[31]	disable status line for ESC Y access
ESC y4	52	[34]	set underline cursor (Xi prior to BIOS 3.1)
ESC y5	53	[35]	cursor on (cancels flashing cursor, if any)
ESC y8	56	[38]	cancel auto LF on receipt of CR
ESC y9	57	[39]	cancel auto CR on receipt of LF
ESC yD	68	[44]	fast screen scrolling (F series only)
ESC yE	69	[45]	LCD contrast down (Portable only)
ESC yF	70	[46]	bell volume down (F series only)

Microscreen

Code	Dec	Hex	Function
ESC W	87	[57]	send display output to MicroScreen only
ESC U	85	[55]	turn on dual output to MicroScreen
ESC V	86	[56]	turn off output to MicroScreen. This is the way to leave the MicroScreen labelled with your own text
ESC c	99	[63]	disable MicroScreen scrolling
ESC d	100	[64]	enable MicroScreen scrolling
ESC e	101	[65]	turn MicroScreen cursor on
ESC f	102	[66]	turn MicroScreen cursor off
ESC r	114	[72]	enable MicroScreen echoing of main display output
ESC s	115	[73]	disable MicroScreen echoing (restores date/time)
ESC <	60	[3C]	display date and time on MicroScreen
ESC g	103	[67]	disable MicroScreen time/date display
ESC /n	47	[2F]	turn on MicroScreen LED lights in pattern n
ESC ?	63	[3F]	activate built-in calculator

F series colour

Code	Dec	Hex	Function
ESC xG	71	[47]	reset screen palette
ESC 5a	53	[35]	set foreground colour to palette index a.
ESC 6a	53	[35]	set background colour to palette index a.
ESC 7a	55	[37]	set screen colour mode according to a, as follows:
ESC 70	48	[30]	80-column two-colour display on F machines, 80 column liquid crystal display on Portable, both with Xi monochrome compatibility
ESC 71	49	[31]	80-column four-colour display on F machines, eight-colour on Portable
ESC 72	50	[32]	40-column four-colour display on F machines, 40-column LCD on Portable
ESC 73	51	[33]	80-column two-colour display as mode 0 on F machines, 80-column two-colour display on Portable

ESC]ac	93	[5D]	set palette code a to colour value c, where a is an ASCII code in the range 0 (ASCII 48 [30]) to ? (63 [3F]) from the table below. For example, in a default two-colour screen ESC]01 could set a blue background, ESC]18 a light grey foreground — and so on, depending on the number of colours available in the palette

Default palette index	Colour	Colour code	ASCII value	Hex value
0	Black	0	48	[30]
1	Blue	1	49	[31]
2	Green	2	50	[32]
3	Cyan	3	51	[33]
4	Red	4	52	[34]
5	Magenta	5	53	[35]
6	Brown	6	54	[36]
7	Light Grey	7	55	[37]
8	Dark Grey	8	56	[38]
9	Light Blue	9	57	[39]
:	Light Green	:	58	[3A]
;	Light Cyan	;	59	[3B]
<	Light Red	<	60	[3C]
=	Light Magenta	=	61	[3D]
>	Yellow	>	62	[3E]
?	White	?	63	[3F]

Note: This is Apricot's own version of the table. APRICOT FILE Release 2.10 featured a different arrangement (late corrections didn't make it in time) which is to be found in Peter Rodwell's Advanced User's Guide to the Apricot.

As indicated in the previous instalment, the colour codes are reliable and are the same in both cases. The default palette is not reliable, and you should always set this explicitly with ESC] commands as above to ensure you get the wanted colour or colours. See the ESC 7n codes for limitations on the number of colours in a palette.

Beep

Code	Dec	Hex	Function
BEL	7	[07]	sound internal beeper
ESC xF	70	[46]	bell volume up (F series only)
ESC yF	70	[46]	bell volume down (F series only)

Miscellaneous

Code	Dec	Hex	Function
Escape	27	[1B]	signal escape sequence
ESC 27	27	[1B]	signal escape sequence
CAN	24	[18]	this code, CANcel (alias Control-X), is documented as 'cancel current ESC sequence'. Its effects are not reliable
ESC iyx	105	[69]	display logo at stated position [Xi before BIOS 3.1 only]
ESC xE	69	[45]	LCD contrast up (Portable only)
ESC yE	69	[45]	LCD contrast down (Portable only)
ESC x$	36	[24]	set Apricot-compatible mode (F series only)
ESC x8	56	[38]	set auto LF on receipt of CR
ESC x9	57	[39]	set auto CR on receipt of LF
ESC y8	56	[38]	cancel auto LF on receipt of CR
ESC y9	57	[39]	cancel auto CR on receipt of LF
ESC [	91	[5B]	lead-in for ANSI escape sequence
ESC |	124	[7C]	not officially used, but it turns on the compressed text mode of the 'Black Hole' 132-column screen driver when this is installed on the Xi

Documented but inoperative

Code	Dec	Hex	Function
ESC #	35	[23]	once documented as 'send screen to keyboard buffer'
ESC X	88	[58]	Sirius line-moving command, never available for the Apricot: swapped the current screen line for one held in an internal buffer
ESC %	37	[25]	originally documented for Xi as 'send current line', but has never worked
ESC]	93	[5D]	originally documented for Xi as 'send status line' but never worked
ESC _	95	[5F]	originally documented for Xi as 'toggle debug mode' whereby 'hex codes for print stream' were supposed to appear as if by magic on the status line — but see 'attributes' above for what it actually did
ESC m1nm	109	[6D]	originally documented for Xi as 'set width for individual character cells', with n-32 and m-32. Never seems to have worked
ESC m2nm	109	[6D]	originally documented for Xi as 'set top and bottom lines for the screen', with n-32 and m-32. Never seems to have worked, though this function is available for windowing in the form of ESC ,
ESC {	123	[7B]	originally documented for Xi as 'disable keyboard'
ESC }	125	[7D]	originally documented for Xi as 'enable keyboard'
ESC £	156	[9C]	representative of several ESC n codes, where n was a character with an ASCII value above 127 [7F], which used to crash the Xi: as of BIOS 3.1 they tend merely to make the cursor vanish until another character is sent

Credits

Director: Dennis Jarrett of APRICOT FILE mercilessly bullied me into writing this

Gaffer: Friedman Wagner-Dobler wrote the æons-old 'Complete Escape Codes' article in 16 BIT COMPUTING magazine, a good survey but now partly superseded by countless (increasingly horrible) Apricot hardware and BIOS releases

Best Boys: Mark Fisher and John O'Harrow of Gateway Users gave freely of their wisdom

Chief Grip: I suppose Roger Gann has to get a mention somewhere

Additional Dialogue: Several hundred Ansible Information customers gleefully pointed out program bugs caused by my early failure to research all the BIOS variations noted above; there are doubtless many more, still lurking in ambush ...

Bug fix: This should be the Master Version of the Escape Codes, with some additional input and editing errors corrected — including the flaw in Part One of this series. In the fourth note of the final column, we accidentally referred to FF, here the hex equivalent of ASCII code 255, as formfeed. Sorry.

New from Deals For Readers

Turbo Pascal Tutor/Compiler

Order no:	AP023
Price:	£15.00

A double-sided disk entirely devoted to Turbo Pascal, consisting of an eleven-chapter tutorial on disk supported by over 60 programs to illustrate the lessons. Also includes a rare public-domain Pascal compiler. You don't need Turbo Pascal to run the routines, but we can supply that as well — see SI048.

C Tutor

Order no:	AP025
Price:	£15.00

Another double-sided disk similar in format to AP023 — disk-based tutorial plus over 60 worked examples. An inexpensive way to get to grips with the programming language of the future.

MANAGER/BIOS 3.1

Order no:	AP026
Price:	£10.00

A double-sided disk featuring the work of Jost Riedel (see his article in this issue). The old MANAGER front-end never worked too well under the latest version of the BIOS; Jost has patched the vital parts so that it now works flawlessy under BIOS 3.1. Jost even corrected a couple of minor bugs in this BIOS too! Plus much improved versions of KEYS and FONT. This is a self-booting disk with MS-DOS 3.2 and BIOS 3.1.2.

Utilities No. 7

Order no:	AP027
Price:	£15.00

Yet more arresting utilities for the Apricot. Star of the disk is Sten Ternstrom's superb keyboard editor — permits the use of the ALT key. Plus a CPM emulator, a humanised way to use EDLIN, the bril LABEL for easy configuring of your Apricot, a clutch of screendumpers for F Series, Portable and Xen, a small database system called SDB, the essential SQUIRE.COM, a bunch of XQTs, some programmers' files in Basic and Pascal, an Apricot emulator to run (some) programs on an IBM, the hard disk de-duplicator ... and a zillion other essentials too numerous too mention! 130 files in all.

Black Hole Disk 8

Order no:	AP028
Price:	£10.00

A fascinating pot-pourri of goodies hitherto hidden from the light of day. Includes a graphics-based version of MANAGER for BIOS 3.1 (thus making it run on all Apricots), a suite of screen dump programs for the PC/Xi to Epson and C Itoh printers, a printer intercept program (substitute a pound sign for the hash) and a Xenix terminal emulation — plus all the latest screen device drivers.

Black Hole Disk 9

Order no:	AP029
Price:	£10.00

Another treasure trove of useful utilities for afiçianados of BIOS 3.1. The two main programs are Windows-style versions of KEYEDIT and FONTEDIT (much improved, featuring pull-down menus and windows). Best with a mouse but useable if you have a keyboard file with an ALT key configured; light on documentation. Plus a number of utilities to transfer Apricot fonts to and from Windows aplications.

Freeway Accounts

Order no:	AP030
Price:	£15.00

A set of two double-sided disks featuring Britain's first shareware accounts suite — Sales, Purchase and Nominal ledgers on one, Payroll on the second. From Freeway Software Limited. Our review in Release 2.7 concluded that it "compares well with many other accounts packages".

Games No. 4

Order no:	AP032
Price:	£15.00

More MS-BASIC and compiled games. A good version of Colossal Cave, a simple psuedo-graphic PONTOON, a kill-the-Zombie game, a pirate adventure, 3-D noughts and crosses, and finally a truckin' game.

Apricot Diagnostics

Order no:	AP033
Price:	£15.00

A clutch of programs that you can run to check on the health of your hardware — RAM, the 8087, screen geometry, the keyboard, mouse, I/O ports, the sound chip, floppy disk drive, even hard disk. Use with caution though!

PC to Xi Upgrade

Order no:	AH019
Price:	£575.00

A Miniscribe 20MB hard disk plus a controller card that replaces floppy drive A in your Apricot PC. Unlike most other conversions, though, this one permits you to boot from the hard disk — and it's a lot cheaper than the direct competitor from Plus 5. Phone us on 01-833 3501 for details.

Double-sided Disk Drive

Order no:	AH020
Price:	£190.00

Double the storage capacity of your old single-sided floppy machine — easy to fit, comes complete with full 'how-to' instructions. These are surplus stock Sony D32 drives, but they're as new. Note: your PC may need AH021 before it will recognise double-sided drives.

New Boot ROMs

Order no:	AH021
Price:	£27.50

Some old PCs have boot ROMs which do not recognise double-sided drives; if your machine is pre-1984, you'll probably need this pair of replacements. Easily-fitted plug-in chips with full instructions.

How to order

Simple — send us a note or a purchase order with the item's name and the reference number as quoted here.

We can accept purchase orders only from companies and other organisations, and only for goods totalling more than £50. For orders totalling less than £50 we must have prepayment. There are three ways to pay:

Cash with order: a cheque drawn on a UK bank, a Sterling money or postal order, or a Eurocheque can accompany your order (make cheques payable to 'TP GROUP')

Girobank transfer: our National Girobank account number is 59 028 1909

Credit card: we accept Access/Mastercharge, American Express and Diners Club (but not Barclaycard/Visa or Connect).

Our prices include VAT and despatch. Your order will arrive with a VAT invoice/receipt.

Full revised Deals for Readers Catalogue with next month's issue

Strategic planning:

How to use all your free memory in an MS-Fortran program

By Eddie Bromhead

In a previous offering I reviewed a method for accessing all of the memory space on an Apricot regardless of how much extra RAM had been added. This was based on an article that appeared in *Byte* magazine, along with my conversion of the IBM PC specifics to Apricot equivalents.

Alas, the principle used in the Loygorri method works only with MS-Fortran 3.20. This was the version which allowed addressing of 'more than a segment' as an array, but had the old memory model. In that, COMMON areas were put at the top of the program's memory allocation with the stack right inside, between code and common data areas ('twixt wind and water). This meant that a stack overflow would corrupt code, leading ultimately (and before something more disastrous happened, one hopes) to a crash from which MS-DOS could recover.

In the new model, stack is at the top of the memory allocation. So if it overflows, it corrupts *downwards* — rather than into code — and this should make it more 'well-behaved', as the program is likely to detect abnormal data and terminate under control.

In multitasking environments such as MS-Networks (and to an extent, Windows) you shouldn't take it for granted that you can use all memory without letting MS-DOS know; the operating system might wish to use some of it for another process, or for that matter, it may need some space to create a file control block. If you want to allocate and use memory dynamically, you must use the services within MS-DOS for doing so.

Now, Microsoft Fortran 3.20 and below was designed to run with MS-DOS 1. Under DOS 1 there could only be one user, or one application, seriously in contention for the use of memory resources. Loygorri's method is fairly satisfactory if this is the case, although it gets places by perverting the intention of MS-DOS and Fortran alike.

Here's an alternative and more general method which should work with all MS-Fortran variants under MS-DOS 2 and 3.

Principles

A Fortran-coded main routine with any name — ABCXYZ, say — calls the Assembler routine MEMMAN. MEMMAN finds the size of free memory and gets MS-DOS to allocate it to ABCXYZ. MEMMAN passes the address to the start of the first called routine, together with memory size, as a long buffer. This routine (Fortran-coded) can break that up into sections for passing to further subprograms.

These fragments illustrate the idea — working versions come later.

```
PROGRAM ABCXYZ
CALL MEMMAN
END
```

MEMMAN then performs its function, passing control to, say, MASTER (that routine has to be in Assembler):

```
SUBROUTINE MASTER ( IBUF, NBUF )
INTEGER*4 IBUF, NBUF
DIMENSION IBUF (NBUF) [HUGE]
```

(Maybe the syntax for the long buffer should be IBUF[HUGE], NBUF.) The routine proceeds, and calls subroutines like AA:

```
CALL AA  ( IBUF(1), 500, IBUF(501), 1000,
         IBUF(1501), 500 )
    .
    .
    .
END

SUBROUTINE AA ( INTEG, I, REALL, J, DUBLE, K )
DOUBLE PRECISION DUBLE
DIMENSION INTEG(I), REALL(J), DUBLE(K)
```

... and so on.

Operation

1. Call Allocate Memory (interrupt 21, function 48) asking for FFFF para. This will fail, returning the amount actually available in BX. That's the size we will eventually get for NBUF(in paragraphs, multiples of 16 bytes).

2. Call Allocate Memory (interrupt 21, function 48) asking for BX para. This will now work, and the segment for its start is returned in AX. Now, if NBUF already exists in the calling program we have an address for it; so we could get this address from the stack and put the value in it. This would make the calling procedure ...

```
PROGRAM ABCXYZ
INTEGER*4  NBUF
CALL MEMMAN ( NBUF )
END
```

3. Now we have to call the first Fortran subroutine. This has two parameters, the addresses of which we have to push on to stack in order. Then we can call the routine; it needs a return address pushed on to the stack, but the Assembler takes care of that. We know the address of NBUF, so that's easy (it's on the stack already, but each subroutine call needs to follow correct protocols). The segment of IBUF is in AX, so PUSH that (addresses go 'segment first', then put a zero offset in to follow). I'm told that the best way to zero AX is to XOR it with itself — jeepers, it saves a whole clock cycle!

4. Do a far RETurn and POP whatever.

There *is* an advantage to calling MEMMAN with NBUF as a parameter — the maximum space allocated is returned (eventually) to the main program.

MEMMAN could be alternatively be named MALLOC to fit with the Unix function of the same name ... although in due course (MS-Fortran version 99?) it will probably cause a clash with a library name.

To be civilised, we need one or two complementary routines to deallocate and reallocate this memory once we find out how much memory we actually require.

I have assumed that the user xxxso the routine MEMMOD merely calls the MS-DOS reallocation function according to a changed value in NBUF. This means that neither MEMMAN nor MEMMOD has any error-trapping at all, and a call to increase memory will fail (unless some has been released and is up for grabs again, of course).

Notes on the called routine MASTER

Pity it has to have a fixed name. It would be nice to pass the name of 'MASTER', but this is difficult because it's a subroutine. A method could be to use the LOCFAR function in MS-Fortran — the documentation says calling LOCFAR with a subprogram name returns the segment:offset address of its entry point. So this might be appropriate:

```
CALL MEMMAN ( LOCFAR(master), NBUF )
```

The reader is left the problem of fixing up the appropriate call ...

IBUF is set to INTEGER*4 type for a number of reasons: first, it's easier to keep track of locations in a memory management scheme if they are all of the same size, and this will be the case in programs which use full-length integers and single-precision Reals. You can easily remember to divide by two for half-length integers and multiply by two for double-precision Reals, although most applications are likely to use four-byte values in the main.

NBUF comes back as paragraphs, each of which is four four-byte integers in length. To save myself brain-ache, I have made IBUF an assumed size array. There are merits in this which make it preferable to setting it as a (4,NBUF) array. I have declared IBUF to be [HUGE]. This could be replaced by a compiler directive to make its addressing trans-segmental. If sub-segment blocks of it are passed to called routines, there's no problem — they do not need to be [HUGE] themselves, and it benefits overall size and speed if in the recipient program the addressing is sub-segmental. The user needs to take care of this ...

Final thoughts

The area of memory above the 'top' of your program is known as the Heap. Heap is definitely required for file control blocks, so you either need to open all files *before* invoking MEMMAN; or shrink the claimed area down to the required area as quickly as possible, and open all files *after* invoking MEMMAN.

Error 1268 is given if there isn't enough room for Heap (which is outside of the area shown in the Linker map). Just for safety's sake, I checked — by trial and error — that MS-Fortran doesn't call REALLOC (function 4A, as in MEMMOD) to enlarge the Heap, but makes fresh MALLOC calls (function 48, as in MEMMAN) if new file control blocks are demanded. If it *had* called REALLOC, we'd need to 'MALLOC and REALLOC' our scratch memory area *before* any file control blocks are created, or *after* they've all been done.

The latter guarantees there's enough memory (if the program runs at all), but the former may fail with no room for the Heap because of a late file open. The latter may be imperative if we only know what size dynamic memory allocation we need after reading a data file.

I rather fancy that MS-Fortran should make separate MALLOC calls for each file control block, if only because this would simplify the re-use of file control blocks freed by file closing. On the other hand, MS-Fortran has no business using file control blocks when the alternative Unix-like handle method is 'preferred' (by Microsoft!). That's a good reason to buy the HWa Fortran Utilities disk I reviewed enthusiastically in APRICOT FILE Release 2.1; you can then use handle-type file operations secure in the knowledge that there are not going to be any nasty CP/M-like file control blocks! ◆

CALLER.FOR

```
      PROGRAM CALLER
C     -------------------------------------------------
C     coded by E.N.Bromhead
C     This program allocates and uses memory dynamically
C     Use and enjoy, but "Let's be careful out there"
C     -------------------------------------------------
C
      INTEGER*4 NBUF
      CALL MEMMAN (NBUF)
      WRITE(*,*) 'CALLED FROM "CALLER", NBUF=',NBUF
      STOP
      END

C     -------------------------------------------------
            SUBROUTINE MASTER (NBUF, IBUF)
C     to be called from an assembler routine "MEMMAN"
C     -------------------------------------------------
C
      INTEGER*4  NBUF, IBUF(*)[HUGE]
      WRITE(*,*) 'Maximum NBUF=',NBUF
C
C     -------------------------------------------------
C     let's suppose we want K: Integer*4 length LK items
C              M: Integer*2   length LM
C              R: Real*4      length LR
C              D: Real*8      length LD
C
C     assumed LK, LM, LR, LD come from an input routine ...
C
      CALL INPUT (LK, LM, LR, LD)
C
C     sort out lengths of arrays in para ...
C
      LENK = (LK-1) / 4  + 1
      LENM = (LM-1) / 8  + 1
      LENR = (LR-1) / 4  + 1
      LEND = (LD-1) / 2  + 1
      JBUF = LENK + LENM + LENR + LEND
      IF (JBUF .GT. NBUF) THEN
             WRITE
             STOP
      ELSE
             NBUF = JBUF
             CALL MEMMOD (NBUF, IBUF)
             WRITE(*,*) ' Shortened to NBUF=', NBUF
      ENDIF
C
C     -------------------------------------------------
C     sort out start positions in IBUF ...
C
      M1 = 1
      M2 = M1 + LENK*4
      M3 = M2 + LENM*4
      M4 = M3 + LENR*4
C
      CALL FOLLOW (IBUF(M1), IBUF(M2),
     1               IBUF(M3), IBUF(M4),
     2               LK,  LM,  LR,  LD)
C
      RETURN
      END
C
C     -------------------------------------------------
      SUBROUTINE INPUT (LK, LM, LR, LD)
C     (not for real ...)
C     -------------------------------------------------
C
      LK = 500
      LM = 1500
      LR = 1000
      LD = 12800
      RETURN
      END
C
C     -------------------------------------------------
      SUBROUTINE FOLLOW ( K, M, R, D, LK, LM, LR, LD )
C     -------------------------------------------------
C     to be called from FORTRAN routine "MASTER"
C     -------------------------------------------------
C
      INTEGER*4  K(*)
      INTEGER*2  M(*)
      REAL*4     R(*)
      REAL*8     D(*)[HUGE]
C
C            perhaps a segment ...
C
      RETURN
      END
```

MEMMAN.FOR

```
TITLE  MEMMAN - MEMORY MANAGER
;
        EXTRN   MASTER:FAR
CSMEM   SEGMENT PUBLIC PARA 'CODE'
        ASSUME  CS:CSMEM
;
PUBLIC  MEMMAN
PUBLIC  MEMMOD
;
MEMMAN  PROC    FAR
        PUSH    BP
        MOV     BP,SP
        MOV     AH,48H
        MOV     BX,0FFFFH               ; give me a megabyte
        INT     21H                     ; get hand slapped
                                        ; BX now has all that DOS has got
        MOV     AH,48H                  ; ok, I'll have that
        INT     21H
        MOV     CX,BX                   ; save the reply
        LES     BX,DWORD PTR [BP+6]
                                        ; move it into NBUF
        MOV     ES:[BX],CX
                                        ; restore the stack
        MOV     SP,BP
        POP     BP
        PUSH    ES
        PUSH    BX
                                        ; NBUF on stack for next call
        PUSH    CX
        XOR     CX,CX                   ; best way of zeroing
        PUSH    CX
                                        ; IBUF on stack for next call
        CALL    MASTER
;
        RET     04
MEMMAN  ENDP
;
MEMMOD  PROC    FAR
        PUSH    BP
        MOV     BP,SP
;
        LES     BX,DWORD PTR [BP+6]     ; put NBUF into
        MOV     CX,ES:[BX]              ; CX for safety
        LES     BX,DWORD PTR [BP+10]    ; cheap way of loading
                                        ; ES with segment of IBUF
        MOV     BX,CX                   ; now required length is in BX
        MOV     AH,4AH                  ; DOS call
        INT     21H
                                        ; restore the stack
        MOV     SP,BP
        POP     BP
        RET     08
MEMMOD  ENDP
;
CSMEM   ENDS
        END
```

Readers' Writes

Your chance to have a say

Warning message

We have had several instances of corrupted FATs on drive B of a 10MB Apricot Xi. We are not getting read or write errors; can you throw any light on the matter?

We have had various suggestions from 'clean the disk' — but I have heard dire tales of disk cleaning kits — to the proposal that we reformat disks every year or so because they can 'age'!

We are getting nervous about various incompatible upgrades, too. We are now running MS-DOS 3.20 and BIOS 3.1; we still use the original MANAGER as the TOOLS option is one of the easiest means to customise a menu (and in particular to change the date). But some utilities no longer work under MS-DOS 3. SETUP can cause strange things in the hidden MS-DOS files; and whatever else you do, *don't* use FORMAT from TOOLS — under MS-DOS 3.20 and BIOS 3.1, the program *doesn't ask which disk you want to format*. Before you can exit, it will take a swipe at the FAT on the default drive — the hard disk — with disastrous results. Isn't it about time Apricot came clean and tidied up all the various utilities so that they work as they originally did?

And we have just found out that the BACKUP-RESTORE programs dated 10-7-84 will corrupt long files under the MS-DOS 3.20/BIOS 3.1 combination — having worked fine for over two years under MS-DOS 2.11 with BIOS 2.4 and 2.7. Be warned; the time you *need* backup is *not* the time to find out it corrupts files ...

We are also running Apricot's HIFIX to fix screen-handling bugs in Pulsar software caused by BIOS 3.1 and Ansible's APP printer programmer. We also use the memory-resident utility WorkMate, which is copy-protected; one of our allowed copies was lost in the hard disk FAT problem since we couldn't uninstall it before the crash.

Comments would be most welcome.

By the way, I am sending this via Telecom Gold as your phone number no longer exists according to BT's recorded message!

Tony Carroll
Collective Components
High Wycombe

See Jost Reidel's article in this issue for more about the peculiarities of MS-DOS 3 and BIOS 3.1. As for the FAT corruption, the consensus of opinion in the APRICOT FILE office suggests a problem with duff tracks in the FAT area; something like the DEALS FOR READERS utility SCAVEN would have helped by locking out bad sectors in the read/write areas, but the only option here does indeed seem to be a complete reformat ...

Sorry about the phone problems during July and August. British Telecom moved our 833 exchange on to System X early last month with absolutely disastrous results — wrong numbers, bad connections, occasionally deadness. And our second line (on to which incoming calls are supposed to switch automatically if the main line — 01-833 3501 — is engaged) has been inoperative most of the time. Hopefully our increasingly aggressive communications with British Telecom will have produced some results by the time you read this.

Escape Codes update

Some comments on *The Complete Escape Codes* by David Langford:

" The ESC + sequence now works again with BIOS 3.1.2 (as supplied with MS-DOS 3.2).

" Scrolling in windows with the ESC Q ... T sequences only works correctly from BIOS 3.1 on. Earlier versions had problems; in BIOS 2.4 the top line of the window is ignored, in BIOS 2.7 both the top and bottom lines are ignored.

" ASCII code 255, though called 0FF in hex, has absolutely nothing to do with the ASCII formfeed control character FF (which has a code of 12 — 0C in hex). ASCII code 255 simply is a DEL with an eighth bit set.

One more tidbit: you stated that poor GW-BASIC doesn't know about ESC. Well, it's true that the standard output does not — but you can simply use this:

```
10 OPEN "CON" FOR OUTPUT AS #1
```

Then you can ...

```
PRINT #1, CHR$(27);"E"
```

... or whatever.

And here's something about the *Inside MS-DOS* piece on the environment in APRICOT FILE Release 2.9 — the /P switch just seems to prevent you from EXITing the new COMMAND (and it also starts execution of the AUTOEXEC.BAT file). But it does not seem to lock COMMAND.COM's transient portion in memory.

I have used the SHELL command in CONFIG.SYS for for quite a while. As the evaluation of CONFIG.SYS seems to be part of SYSINIT, and SYSINT is a part of IO.SYS (rather than MSDOS.SYS), at least Apricot's BIOS writers got a fair chance to mess things up. The complete line I use goes like this:

```
SHELL=A:\BIN\COMMAND.COM A:\BIN /P
```

Jost Riedel
Bad Karlshafen
West Germany

We apologise for the silly blunder on ASCII code 255 — it was over-enthusiastic sub-editing on our part, not David's error.

More about the environment

Roger Gann's excellent *Workshop* on the MS-DOS environment in Release 2.9 includes an example of how to use the environment variables to call one batch file as a subroutine from another.

The solution he offers is ingenious; but there is a simpler one using another of those little known COMMAND switches, namely /C. This invokes a second

copy COMMAND.COM, allowing you to process a second batch file (or COM or EXE file for that matter) and then return to the next line of the original.

Try this example:

```
REM TEST.BAT
ECHO OFF
ECHO  This shows the function
      COMMAND/C
ECHO  The next line is ...
COMMAND/C TEST2
ECHO  ... followed by a return
      to this one

REM TEST2.BAT
ECHO OFF
ECHO  A smug message from
      another file
```

It is of course also possible to have sub-subroutines in the second batch file as long as each new call is preceded by COMMAND/C. If this is omitted you will be returned to the *first* batch file after the new subroutine has been executed.

If none of this works it is probably because you are using too elderly a version of MS-DOS — I can only vouch for 2.11 and 3.1, and apparently the switch is not implemented identically in all versions.

Steve Allen
Dunn Nutritional Laboratory
Cambridge

There's more about this in Simon Potter's *Batch File Workshop* of APRICOT FILE Release 2.7.

By the by, MS-DOS 3.3 — currently available only for the new IBM PS/2 computers — boasts a CALL command which permits the calling of batch files from within batch files without having to load COMMAND.COM repeatedly. Another nice touch is that the DOS 3.3 manual now documents some of the previously undocumented environment features. Finally, you can get rid off the initial ECHO OFF that you see when running a batch file — you use @ECHO OFF and the result is no displayed commands whatsoever.

Of miracles

Poor Norman Mash's tale of woe in APRICOT FILE Release 2.10 looks like a classic case of 'until you've tried it you don't know what to look for'. It is also a sharp reminder that in creating the much cheaper WS4000 from the WS3000, Miracle Technology took out quite a lot of features; yet again, you get what you pay for. Enough of that: the following notes might help to track down his problems.

Connected to an ordinary pulse-dial direct exchange line and driven by ASYNC, there should be no problem in linking to services like Telecom Gold — providing the modem cable is ok, bit rates (300/300, 1200/75 or speed-buffered 1200/1200) are set right, parity is Even with 7 data bits and 1 stop bit.

When using speed-buffered 1200/1200 mode, it is no good dialling V22 access numbers for PSS or Telecom Gold: the modem can qnly talk to V21 and V23 FSK modulated services. With suitable software the above also applies to viewdata at 1200/75 bps or speed-buffered 1200/1200 (I have a nasty suspicion that some software refuses to believe viewdata can be obtained at 1200/1200, so proceed with care on this one).

The question of modems with switchboards can be evil! Switchboards can upset modems in a number of ways:

" Tone dialling is now universal; the WS3000 can cope but the WS4000 needs a £50 optional extra.

" Some older switchboards used dialling methods which are totally incompatible with any modem I can think of. The only known solutions are to use an acoustic coupler, employ a separate exchange line for the modem, or replace the switchboard with one that *is* compatible with the modem.

" Switchboards installed prior to the introduction of BABT regulations (concurrent with BT privatisation) may exacerbate line attenuation under some circumstances, to the detriment of modem performance. 'Low-loss' exchange-switchboard lines fix this one.

" Some experimentation may be needed to set the right delay between the 'outside line' code and the remainder of the number.

Modem manufacturers maintain lists of switchboard with which their products will work correctly. They can be remarkably coy about releasing this information, though a list (usually out of date) often appears in the modem manual. On the other hand, most punters don't get to see the manual until after they have made the purchase.

Mike Florey
Croydon

More miracles — 1

Like Mr Mash I've had a WS4000 since December. Because of similar frustrating experiences (mine were with KERMIT and ASYNC) I bought CHIT-CHAT in January; since then have had only minor difficulties and am generally satisfied with my 4000. So I suspect that most of Mr Mash's troubles were with the software rather than the modem.

I do however criticise Miracle Technology for its glossy catalogue (dated September 1986). That does not make clear what you get in the basic WS 4000 and what to expect from the "host of optional extras". The vague words and jargon mislead the uninitiated. For example the description of the 4000 tells us that "the full autodial and autoanswer facilities ... contribute to making this modem ideal for those users who have little technical knowledge". On the opposite page a list is headed "other optional facilities are also available" and this includes "battery-packed name and number store". CHIT-CHAT includes a number directory, so I don't need this battery option (£57); but it was only by lucky ignorance that I didn't include that option when I ordered my 4000.

What people like Mr Mash and me needed before we bought our modems was very clear and jargon-free explanations — and not, as in Miracle's literature, phrases like 'DTMF tone dialling' and 'custom-configurable process control port'. And of all the jargon surrounding modems the one that maddens me most is 'fully intelligent'; they're not. They have a certain narrow cleverness, and beyond that are totally daft. Your headline 'Caveat Emptor' is highly appropriate.

Brian Read
Reading

More miracles — 2

At the end of APRICOT FILE Release 2.10 you ask what modems readers can recommend.

I have the basic Miracle Technology WS4000 model (with V21 and V23) and it works fine. But I'd suggest you might forget about offering any modem which doesn't support V22, and instead try to locate a V22 modem at an affordable price. I'd find V22 really useful on Microlink, for example, where I have to use V21 for an upload-dominated session (because V23 is limited to 75bps for sending) and V23 for a download-dominated session (because its 1200bps is obviously better than V21's 300bps) — in other words, I have to log on twice.

The additional cost of V22 seems quite irrationally high. For instance, Miracle Technology quoted me £250 plus VAT to upgrade my WS4000. While people (like me, admittedly) go on settling for V21 and V23 modems, the suppliers will take ages to reduce the prices. And if you sell V21-V23 modems to your readers, they probably won't be interested in buying even a cheap V22 modem should you find one.

David Lewis
London

Good point. At present the best price in Britain for 1200/1200bps V22 modems seems to be on the Dataflex Stradcom — RRP £199 plus VAT, our price £200 inclusive — but as DEALS FOR READERS readers will spot that modem is available only as an IBM-compatible internal card (fits the Xen-i but not old-style Apricots). Thereafter you're looking at prices above £350 ... We'll carry on searching for a decent V22 modem, but in the meantime we'll be offering an affordable alternative at the V23 level.

Incidentally, a couple of readers pointed out what appeared to be an anomaly in Release 2.10 — the Norman Mash saga of WS4000 problems was compared with the editor's remark elsewhere that we're inclined to recommend the WS4000. In fact there's no conflict; the WS4000 *is* the best-seller in its class, the price *is* good, there are no availability problems. But we do not carry this modem in DEALS FOR READERS at present because there are other drawbacks to the WS4000. In particular, we aren't too happy with Miracle Technology's technology — the built-in intelligence isn't, very — and the level of Hayes-compatibility is not 100 per cent.

So the current editorial preference is for Pace: does anyone have any experience and/or opinions to contribute?

Index those XQTs!

I now have some 25 XQT files, sourced from the APRICOT FILE public domain utilities disks and Ansible Information's ASD1. But I seldom used them, except P.XQT (print) and SQ.XQT (save and quit), because there are too many to remember all their names and functions. What was needed was a 'help' screen or two.

I solved this problem very simply with ESC I. Make up a list of your XQT files so that it is not more than 23 lines long, including any headings, to make one screenfull. If you have more than will fit on one screen, make a separate file; I have two index files — named XQTNDX for those immediately available on the default disk and XQTNDX1 for the rest. Both index files are also on the default disk. XQTNDX is shown below.

To use this like a help screen, just go 'ESC I XQT' — and hey presto, there it is! Do *not* 'accept' by pressing Return: study the screen, then ESC again to wipe the Help screen.

There's one little problem if you use SuperWriter to compile the index files; the word processor may insist on replacing spaces with tabs when saving the index files. When you then ESC I without 'accepting', such a file looks a mess because the tabs are not expanded. To correct this, save in SYSTEM format, then use the VTYPE utility from DEALS FOR READERS disk AP003 to change the tabs to spaces.

This technique obviously has many applications in looking up information while in the middle of a document. If the index file is more than one screen long, though, the procedure is a bit more tedious — because you must 'accept' all screens until you reach the one you want. Provided you started with a CTRL-B to go to the bottom before ESC I, all the unwanted 'accepted" screens can then be deleted with D.XQT from ASD1. Or you might use ESC F on the inserted file to search for information, before deleting it.

Ted Webber
Boroko, Papua New Guinea

XQTNDX — a reference index to XQTs

Name	Source	Function	Type
ADR.XQT	AP020	Insert keyed address from C-AD	ADRES
NV.XQT	AP020	Type address on envelope	ADRES
DIC.XQT	ASD1	Proofreading routine	DIC
SP.XQT	ASD1	Spell-check including parts of hypenated words	DIC
SPOFF.XQT	ASD1	Recover from error/power loss during SP.XQT	DIC
BD.XQT	AP003	Delete a block from the cursor down	EDIT
D.XQT	ASD1	Delete from cursor to EOF	EDIT
R.XQT	ASD1	Search and Replace across multiple documents	EDIT
RGEN.XQT	ASD1	Generate R.XQT	EDIT
LP.XQT	AP003	Print letter format and resume	PRINT
P.XQT	ASD1	Go to Print menu, save document en route	PRINT
SCP.XQT	AP003	Print a SuperCalc spreadsheet	PRINT
S.XQT	ASD1	Save and Resume at the same place.	SAVE
FMT.XQT	ASD1	For quick on-screen formatted display	SHOW

Xen upgrades

CONTINUED FROM PAGE 1

This system is for the production of specialist journals, marketing bumf and in-house documentation. Interestingly it's not the complete Apricot PageMaker system: Pergamon went for the **Agfa LED printer** — higher price than Apricot's rebadged AppleWriter, but a superior print resolution (400x400 rather than 300x300). The order also includes page scanners (Apricot could do with a scanner to complement its DTP line), big screens and optical character readers. Still, Pergamon says the order was won against "strong" competition on the basis of "cost-effectiveness and inherent speed".

There's another potentially lucrative DTP line for Apricot — the instant-print chain **Prontaprint** is recommending Apricot systems to its 250 UK licencees. The package they're being offered includes PageMaker, the Laser PS8 (that's the AppleWriter), and Microsoft Word. Prontaprint says nationwide distribution and support was a major factor.

Micromail charges held

In coincidental announcements over the past few weeks, Telecom Gold and British Telecom's PSS service have detailed radical pricing changes. **Telecom Gold** has moved from the present time-based tariffs to something more like the Telex charging system based on usage time plus a character count. And the monthly minimum billing, which was dropped only on 1 April, now reappears — albeit at a lower rate.

Current charges for Gold are 11p a minute in peak time, 3.5p off-peak. The new rates start with a £5 per month standing charge; then there's a time charge — 6.5p per minute in peak time, 2p off-peak; and you'll also pay 4p per 512 characters in peak time, 1p at off-peak rates.

Picking out the good news, it seems the first minute of connection and the first 512 characters will be free — so there will be no charge for the 'welcome' messages. And we're assured the character count will not include spaces or blank lines.

Telecom Gold and some of the closed user group operators were a bit miffed at the criticism the move attracted; "as far as we can tell at this time, it seems that most users will not notice any difference in their monthly billing". The official view is that only two groups of users will suffer financially — subscribers who hardly use the system at all and those who send or receive 'large' volumes of data using 1200/1200 baud modems. The former will now have to pay the monthly minimum once again, and won't benefit from the reduction in connect-time charges. The second group will definitely lose out, but then Gold says most users operate at 300 or 1200/75 (and the slower transmission speeds presumably militate against sending lengthy text).

Gold also points out that it hasn't had any price increases in two years, and was actually losing money despite a growth in traffic. The *Guardian* quoted **Phillip Madden**, head of sales at Telecom Gold, as claiming that 12 per cent more characters were transmitted in June — but Gold saw a drop in revenue.

At least Apricot's **Micromail** service — a closed user group on Telecom Gold — is deferring the new Gold pricing structures until October (everyone else started suffering on 1 August). It is also promising "price reductions in other areas", but as yet there's no word on precisely where.

... PSS charges change

As for the new **PSS** charges, everyone applauds the simplification; but the move to an access-time basis will put a premium on modem speed which could mean increases approaching 50 per cent for subscribers using 300 baud. Even at 1200bps you can still expect to pay around 20 per cent more.

The new charges apply irrespective of speed to all dial-up **PSS** users, which means the bulk of us. The rates are **£1.80** per minute at standard rate; **£1.65** at cheap rate; and **£1.35** at 'low' rate. There are no volume charges on dial-up access, of course.

X25 and **X28** leased-line connections are now **30p** per minute at standard rate, **20p** at cheap rate, and **18.5p** at the 'low rate'. Those figures also apply to the second element in Dataline charges, volume per kilosegment. Dial-up charges for **Multistream** are the same.

BT reckons that "on average users will find that the increase in cost is broadly in line with general price movement" since its last rate revision in 1983; in that period "the cost of using the service has fallen substantially in real terms".

Kompass access from Gold

Meanwhile, the latest **Telecom Gold** facility is access to the **Kompass Online** business directory — information on 110,000 UK companies compiled from directories (*Kompass* itself, *Kellys*, the *Directory of Directors*, *British Exports* and *UK Trade Names*). By the end of the year the file is expected to top 200,000 entries. Data on individual companies varies but could certainly be used for marketing and sales leads, product and service availability, and simply contact names. You can search by company name, product, county or number of employees; and mailing lists may be produced in label form. Peak-time access is charged at **87p** per minute, the non-peak rate is **45p**.

Computerworld — part 94

The ill-fated **AT Computerworld** saga appears to be drawing peacefully to a close. Apricot got out of the joint venture some time ago; now the remaining partner **Tandy** has sold the whole operation — reduced from its former aspirations to just three stores in London, Bristol and Coventry. The buyer is a newly-formed holding company headed by some old faces — former Apricot main-Board director **Tony Bryan** and former Apricot sales & marketing director **Derek Swindell** (unfortunate name, that, for someone in the retail game). Tandy and Apricot lines will continue to be stocked, with new products from both companies to be added; other suppliers may figure too, though this isn't part of immediate plans. Said plans do include some vertical marketing, "a 'total-solution' service", and more stores. ◆

Register now

"We have got most of the larger users" says the **Office of the Data Protection** Registrar. "The shortfall seems to be among the smaller users" — and the Registrar estimates that shortfall to be around **100,000** non-registrants. To balance his books, the Registrar is bumping up the registration fee from £22 to **£40** in November; and to encourage latecomers, the dauntingly large registration documents — three separate forms to fill in, the smallest eight pages long — will be simplified into one from mid-September. Also in November, the Registrar's full powers come into effect and the first penalising moves are expected shortly thereafter.

Sage-plus-Compsoft on hold

Publicly-quoted **Compsoft** suspended its shares in July as part of a reverse takeover planned by **Sagesoft**. The Stock Exchange has temporarily blocked further progress pending scrutiny of Compsoft's audited accounts for the half-year to June, but everyone is saying the deal should proceed. Compsoft has been going through a sticky patch ever since it invested rather too much in European expansion a couple of years ago — its main product line, the Delta database manager, didn't have the price or performance advantage to beat the US imports, and Compsoft hasn't been too successful at adding new products.

Sagesoft, on the other hand, has been going from strength to strength in the past couple of years; it is three times the size of Compsoft. Its boss, **David Goldman**, wants a vehicle for more acquisitions — "there has to be rationalisation within the UK. There are too many companies in this area ... We have to create strong business units". Goldman would become MD of the new group. A publicly-quoted firm with few assets and a dicky balance sheet is ripe for use as a 'shell' company, and that largely seems to be the case here. The reverse takeover — which also involves the acquisition of another software house, **Format** — is a classic move which effectively means Sagesoft will become a public company without going through the usual hassles of getting a Stock Exchange quotation. There is some mileage in Compsoft's product line and a lot in its customer base, however, and there isn't much overlap with Sagesoft's products — so the amalgamation looks a good deal all round.

For outsiders, the net effect should be a restoration of Compsoft's share value. A few months ago we anticipated developments and recommended the penny investor try a small flutter on Compsoft; bet that would've paid for your resubscription ...

Dysan deals

Dysan has slipped a bit from the pedestal it once occupied as the dominant manufacturer of floppy disks, but its products still command a lot of respect. It is currently running "the greatest promotion in the history of flexible media" for its dealers, and some of them — including **Action Computer Supplies**, who punted out a press release — are passing the deal on to buyers. Basically, it's three boxes for the price of two: Action's one-box price for ten single-sided 3.5in disks is £25.90, but order two boxes at £21.80 apiece and you'll get a third — bringing the price per disk down to a more reasonable **£1.45**. There's no limit on quantity; order 20 boxes and you'll get 30. The offer runs till the end of September; Action, who we've always liked, is on a free number — **0800 333 333**.

More Moneypower

Moneywise Software has released the first of what it says will be a collection of ready-to-go financial management templates for its **MoneyPower** product ("more than a spreadsheet for less effort"). The templates — pre-drawn models for instant data entry — cover cashflow, financial statements, share analysis, and two business analyses. MoneyPower itself costs **£99**, and at that price it's a good buy in our view; the cashflow template is now included with the package, the others cost **£45** each. Info from **01-337 0663**.

Miracle expands

Top British modem-maker **Miracle Technology** is rationalising its three Ipswich sites into a newly-acquired £750,000 facility. It has also acquired a new MD in **Brian Elson** — formerly head of Scicon and First Computer, lots of industry and top-management experience — to allow Miracle's founders **Jeremy Rodwell** and **Bob Frenzel** to get on with "the co-ordinated development of complementary business ventures".

... Tandata spreads ...

Must be money in modems, for big things are happening at **Tandata** these days. With the relative success of its viewdata and modem operations — **22,500** units sold and a turnover of **£4.4 million** in 1986 — it has formed two new divisions; **Tandata Communications** will concentrate on the established business, **Tandata Cable & Teletext** will deal with the ever-increasing market in data broadcasting and cable technologies.

... Kode konsolidates

Kode International says the arrival of a new company called **Kode Computers** is "a strategic move designed to take the Group further into the corporate market". The rationalisation makes sense — of the constituents, the former **Kode Services** handles maintenance; **Comart** builds and sells computers; and **Kode Limited** is/was a systems designer and integrator. If you fancy a flutter, Kode is publicly-quoted; and the recently-published half-year results were very good — profits up 40 per cent to **£1.3 million** on sales 35 per cent higher at **£16.6 million**. ◆

Protect that data!

Data security for **£4.99**? Well, sort of ... The **Plonker Box** from software house **Merit Computers** is A Good Idea for those of us who use floppies, particularly more than one at a time, in a less than rigorous manner. It's a small lump of plastic with slots in it and a sticky pad on one side; you stick it on to your computer and drop working disks into the slots — keeps 'em away from crumbs, fag-ash, coffee mugs, the cat, etc. Neat idea; dealers and stationers should have it, and we've just added it to our DEALS FOR READERS lists as order no. **AH022** at a despatch-included discount price of £5.00 — that includes a penny mark-up for the postage and to keep our accounting simpler.