

# ATARI

# ST REVIEW

WHAT'S NEW, WHAT TO BUY, WHAT TO PAY

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**ATARI ST REVIEW**

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Quality Software

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- **PICVIEW** instantly displays all Degas and Neochrome pictures.

**PLUS!**

- **DC MOUSE SHIFT** allows use of the right mouse button for some keyboard entries
- **SIREN** an appointments alarm with a difference!
- **TURBO ST** turbocharge your ST with this ace demo



**ATARI ST REVIEW**

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**ISLAND HOPPING** EXCLUSIVE FULL GAME!

An incredibly addictive and colourful, multi-level, multi-difficulty game. Frantic fun and frolics for all! **2**

**WIN!**  
A ROLAND MIDI SET UP!



## MAKING MUSIC

NEW! MUSIC HINTS & TIPS PAGES

## 9-PIN PRINTERS

BUDGET BUYS ON TEST

**WIN!**  
A PRINTER!



ON DISK: MAKE MUSIC WITH DR TIRICC LEARN TO PROGRAM WITH HISOFT BASIC ISLAND HOPPING COMPLETE GAME! AND A HOST OF UTILITIES!

INSIDE: MIDI MUSIC SECTION TRACK BALLS TESTED ST TUNE-UP SCREEN ACCELERATORS TESTED PD PROGRAMS MINI MODEMS PLUS MUCH MORE!





# ARE YOU READY FOR A

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48p per minute all other times.



*The 9-pin is dead, long live the 9-Pin! With the advent of bubble printers, manufacturers are moving away from 9-pin printers which means lower prices for the old, entry level machines. We test the best and find which are the real bargain buys.*

**ST REVIEW ISSUE 4  
AUGUST 1992**



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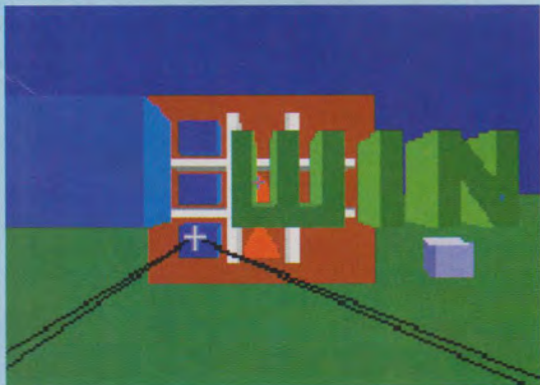
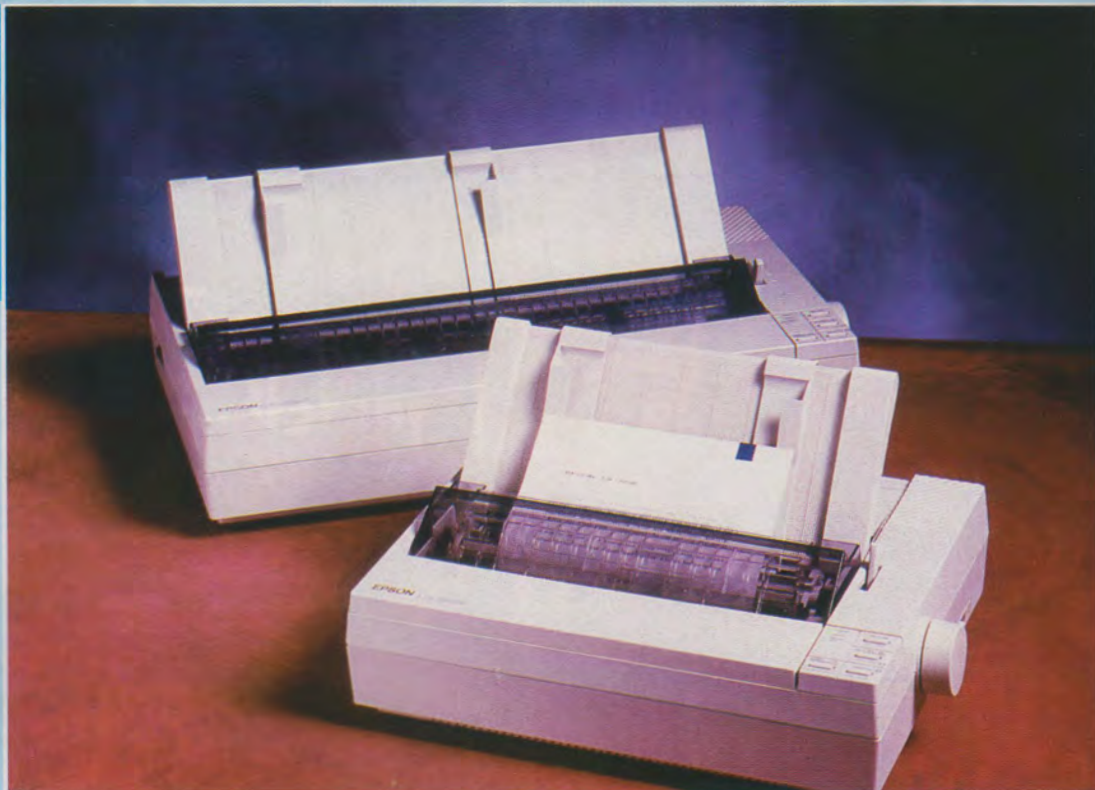
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 Priory Court,  
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 London EC1R 3AU.

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 Tel: 071 972 6700  
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Distribution  
 BBC Frontline Ltd,  
 Park House, Park Road,  
 Peterborough PE1 2TR.  
 Tel: 0733 555161.

Subscriptions: PO Box 500, Leicester  
 LE99 0AA. Tel: 0858 410510

Back issues:  
 PO Box 500 Leicester LE99 0AA.  
 Tel: 0733 898100



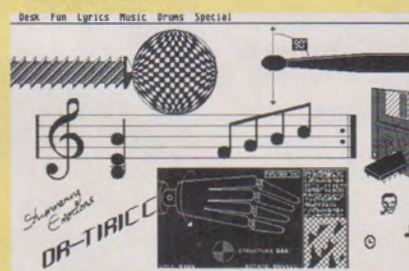
**ON THIS MONTH'S  
COVERDISKS**

**OVER £100 WORTH OF REALLY  
USEFUL SOFTWARE**

Two coverdisks, two commercial products this month with the fully useable, HiSoft BASIC on the main disk. This package is available in the shops for £59.95 but is here in its entirety on disk.

**AND FOR YOUR  
ENTERTAINMENT**

Time to tickle the ivories with the amazing Dr. Tiricc.



This program will help you to compose your own songs on the ST and even has drum patterns and will help you write the lyrics and using its built-in speech, Rap along to the words...

**BUT NO, THERE'S YET MORE...**

A host of useful utilities to make life with your ST even easier...

**UNPACKING THE DISKS**

Starting on page 20, we show you how to use the disks - getting the most out of them with Step-by-Step guides that explain just how to do it.



# FEATURES

## 36 DOT MATRIX PRINTER COMPARISON

9-Pin dot matrix printers are now bowing to the superiority of the bubble jets so there's never been a better time to buy...

## 55 WIN A COLOUR PRINTER

Your chance to enter the high-tech world of colour printing with a Star LC-200 up for grabs in this simple competition.

## 57 POCKET MODEMS

Being able to communicate with other STs using a modem is useful. Once you shrink the size of the modem, it becomes almost invaluable...

## 62 DELUXE PAINT TUTORIAL

Get the most out of Electronic Arts' ST standard graphics package with this easy to follow tutorial.

## 78 WIN FIVE DAYS AT A BELGIAN SPACE CAMP

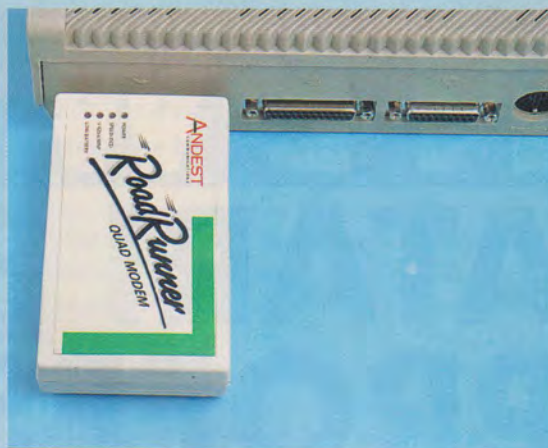
An all-expenses paid trip to Belgium for two to train as astronauts and finally get into the cockpit of a fully-blown Space Shuttle simulator.

## 115 ON THE RIGHT TRACK

Everyone uses a mouse for their ST - or do they? We look at the advantages of Trackballs and come up with some controversial results.

## 120 SCREEN SPEED KINGS

Software screen accelerators make various claims about their speed. We devise our own, comprehensive speed test and then put them all through their paces to see if their original figures were misleading.



PATTERN LIST				TRACK LIST			
PAT	TITLE	START	END	TRK	TITLE	CHANNEL	START
001	Melody Intro	001\001\001	005\001\001	001	Mood Bass (Tun)	- 01 +	On
002	Bass Intro	001\001\001	005\001\001	002	Funk Bass (Bas)	- 02 +	On
003	Bass Intro, B	001\001\001	005\001\001	003	Percussion	- 16 +	On
004	Melody, Bass, P	001\001\001	005\001\001	004	Drum	- 03 +	On
005	False Ending	001\001\001	004\001\001	005	Drums	- 04 +	On
006	2nd Theme	001\001\001	005\001\001	006	Mood Bass, Wah	- 01 +	Off
007	2nd Melody intr	001\001\001	005\001\001	007		- 06 +	Off
008	2nd Melody, Bass	001\001\001	005\001\001	008		- 07 +	Off
009	C Intro	001\001\001	005\001\001	009		- 08 +	Off
010	C Main	001\001\001	005\001\001	010		- 01 +	Off
011	C Endtro	001\001\001	003\001\001	011		- 01 +	Off
012	2nd Theme 2/2	001\001\001	003\001\001	012		- 01 +	Off
013	Endtro	001\001\001	005\001\001	013		- 01 +	Off
014	Melody Int. Wah	001\001\001	005\001\001	014		- 01 +	Off

# REGULARS

## 6 NEWS

The annual trade show of the A.P.R.S. saw the ST widely on display as the choice of professionals. ST Review was there to catch the mood

## 14 FIRST IMPRESSIONS

We take the first look at Domark's **3D Construction Kit II**, Core's **Chuck Rock II**, **Beast Master** and Empire's heralded tank epic, **Campaign**.

## 20 COVERDISKS

Write your own programs and compose your own music! Two, complete and professional packages put the power to create in your own hands! There are also a host of useful utilities to use with your favourite programs.

## 34 SUBSCRIBE TODAY

Get the biggest and best ST magazine pushed through your door every month, without you ever having to walk to the papershop.

## 67 SCREEN SCENE

What are the latest and greatest games on release this month? Our team of hardened pros do battle with the best...

## 97 GAME TIPS

Player guides to **Pacific Islands** and part two of the **Shadowlands**, tips plus lots of others.

## 128 PD ZONE

In the PD Zone this month we spotlight graphic file converters - a must for anyone with a Word Processor or a DTP package. Also there's the latest games, and utilities.

## FOURTH GREAT MONTH!!

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OFFER ANYWHERE!  
TURN TO PAGE 60 FOR  
DETAILS NOW!!

## SCREENSCENE

*The best and the rest - all reviewed and rated*

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## ST BUYER

*The 'Blues' are the pages where real ST enthusiasts can really get to grips with their machine...*

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# NEWS

*This year's APRS Music Show saw the ST clearly in view. Report and pictures by Vic Lennard*

## ATARI FOR THE PROFESSIONALS



*The APRS Show is a trade show aimed at high-end professional users of music, and the ST was to be clearly seen on more than 10 stands.*

**T**he Association of Professional Recording Studios (APRS) held its annual show at Olympia between the 3rd and 5th June this year. This is a trade-only show, and very few members of the public ever get to see the music equipment used by the professionals; which is a shame, as the APRS Show is often used as a launching pad for important products.

Why should ST Review be interested in such a show? The answer lies in the number of manufacturers of professional equipment who still use the ST. In some cases, it is simply because the available software on the ST is precisely what a manufacturer needs to control certain aspects of their product. However, it is also true to say that some products rely on the nature of the ST for their very being.

We went along to take a look at what was on offer, and here's the best of the bunch.

### FRIENDCHIP IN CONTROL

FriendChip launched the K..AT, a small remote controller for the ST last year. This year they added the DC K..AT, a large Desktop Controller Keyboard with sufficient buttons to allow for the control of up to 35 functions on an ST. This is made possible by using key equivalents. For instance, Control M might carry out a certain process within a program; by assigning these key presses to a button on the DC K..AT, the latter can access the same function. In the middle of the DC K..AT is a large rotary wheel which can act as the on-screen cursor, while the two buttons directly above it will work as the left and right mouse buttons. Price is £290; information from Q-Logic on 0796 472001.

*Friendchip's DC K..AT, a new desktop controller for the ST.*



### DIRECT SOLUTION

Plasmelec Systems make an affordable (by professional standards) direct-to-disk recording systems for the Mac, PC and ST.

Going under the name of **ADAS**, it gets around the inherent lack of power of the ST's processor by using an on-board



*Screenshot of Plasmelec's ADAS direct-to-disk system.*

one. The basic system allows you to record two tracks (stereo) of audio direct to a hard disk and then manipulate that recording in various ways. You could record a pop song, cut it into its various sections - intro, verse, chorus and so on - and put it back together in a different order. Version 1.5 was being demonstrated at the show, which certainly puts into doubt all

of the various comments regarding the current demise of the ST.

Prices start at £599; more information from Plasmelec Systems Ltd on 0252 721236.

### AND THE REST...

Other companies were using the ST to demonstrate the computer control capabilities of audio mixers. Soundtracs was using the MIDI Manager page of **Cubase** to handle the levels and stereo panning of its EX-10M mixer while Allen & Heath used it to demonstrate the MIDI muting on its GS-3 mixing desk, the latter having been set up by one of ST Review's contributors, Ofir Gal. Also using a custom Steinberg desk automation program was Soundcraft with its Spirit Auto desk.

Even companies at the top of the tree appreciate the availabili-

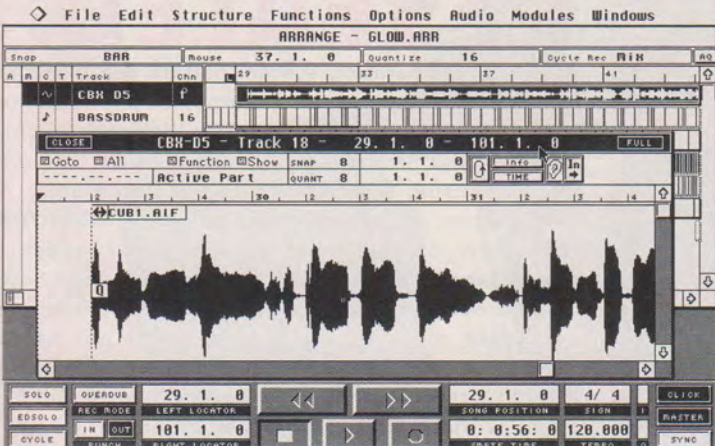


# MUSIC IN VIEW

Previewed at the show, for the first time in Britain, was the Yamaha CBX-D5, a four-track direct-to-disk recorder. Yamaha, renowned for its MIDI synthesisers and sound modules, is branching into affordable digital recording for the first time. What does this have to do with the Atari ST? Rather than have to concern themselves with the visual editing side

for the CBX-D5, Yamaha has left that to various software companies, one of which is Steinberg. Its **Cubase Audio** program is an extension of the excellent **Cubase** sequencer and allows you to treat digital audio on-screen like just another sequencer track. Prices are yet to be announced; more information from Yamaha on 0908 366700 and Harman Audio on 0753 576911.

**Right: The Yamaha CBX-D5 digital audio system with Steinberg's Cubase Audio.**  
**Below: Screenshot from Cubase Audio.**



# LETTER FROM THE EDITOR



*Everyone needs to be certain that the magazine that they buy is the right one for their needs and that it answers all the questions they have. This month, we're making sure that this need is fulfilled and we're looking to involve almost everybody in aspects of the ST that they may not yet have discovered.*

*On the cover disks we have two complete commercial packages that will appeal to everyone. Firstly, we have HiSoft BASIC, which is without doubt both the most professional and the easiest to use programming language available on the ST. Coupled with the Step-By-Step guides that will be appearing over the next few months, this means that everyone who's ever wanted to learn to program now has the perfect opportunity.*

*Secondly, the amazing Dr Tiricc package on disk two gives everyone, with or without a MIDI setup, the chance to compose music on their ST. Inside the magazine, meanwhile, the music plays on with our new MIDI Monthly section, which begins on page 105, whilst those of you wanting to turbocharge your ST will find just what you're looking for in our Tune Up series (page 124) and our rundown of software accelerators on page 120. And for getting around the ST's screen a little quicker, why not try out a trackball? We did, and the results are all on page 115.*

*Add to all this our extensive coverage of Public Domain software, with a round-up of all the latest utilities, including a long, hard look at the best in Public Domain picture convertors and snappers, our great games coverage, and the fact that our Reader Offers are constantly expanding to give you the lowest prices available anywhere on all manner of hardware and software, you're then left with what we believe to be the biggest, most value-packed ST Magazine anywhere.*

**Garth Sumpter, Editor.**

ty and extensive use of the ST. Amek, one of the UK's foremost mixing desk manufacturers, was using a custom-written program on the ST to control various aspects of their latest desk called the Big by Langley (which was named after the head of Amek's research and development department).

**The EX-10M mixer from Soundtracs, controlled by Cubase on the ST.**

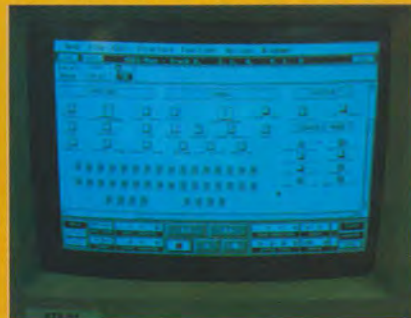


**Close-up of the ST's monitor showing MIDI Manager screen working.**



**Allen & Heath's GS3 mixing desk using Steinberg Cubase on the ST.**

**Close up of Cubase running the MIDI muting on the GS3.**



**Close-up shot of the control program for Amek's Langley mixing console.**



# KNIGHTMARE WINS AWARD

The Golden Chalice Award for Best Adventure Game 1991/2 has gone to Mindscape for *Knightmare*. The Adventure and Strategy Club in London held a poll among its members who judged it best game overall. Based on the ITV show, *Knightmare* is a creative role-playing adventure in which you are challenged to solve complex puzzles, logic problems and riddles. The game was written by Tony Crowther using the same game system that made *Captive* the adventure game of 1990.

If you're having troubles with *Knightmare*, a hints book is now available to dig you out of that dungeon. . .



Tony Crowther, creator of *Knightmare* and *Captive*.

## UK CES?

Discussions are currently under way to investigate the possibility of bringing a version of the Chicago Consumer Electronics Show to the UK. The show is likely to take place towards the end of 1993, and will cover all aspects of home entertainment including computers, television, audio, video, radio and games consoles.

Some of the exhibitors earmarked for the show include Atari, Commodore, Acorn, Sony, JVC, British Telecom, Dixons and many others. It is being planned by Rupert Murdoch's News International.

The Chicago show takes place annually in July and is a focal point for the industry.

## JAIL FOR PIRATE!

Recent action taken by the Federation Against Software Theft (FAST) highlights the current crackdown on computer piracy. Derek Kennedy, 27, who was convicted in June of over 3,000 cases of disk copying and distributing, has now been sentenced to 180 hours of community service and a fine of £200.

Tougher steps are being taken to eradicate software piracy which, claims FAST, is costing the industry millions of pounds each year in loss of revenue from their products.

If you know of someone who is pirating software, you can contact FAST on 0628 660377 with the details.

## STRIKER PLAYS STRIKER

David White, the Manchester City forward, paid a visit to Rage Software in Liverpool recently. He was there to try out their new soccer simulation, *Striker* to the test. David, who scored 21 first division goals last season said: "I've tried a fair few sports simulations, but this is the most realistic. Once you've scored an overhead kick, you're hooked!". . . .



David White trying out *Striker to the Test*.

## MULTI-TOS REVEALED

Atari's new operating system had its debut at the recent ACE '92 show in Toronto, Canada. It was demonstrated by Atari's Bill Rehbock, who showed the multi-tasking capabilities of the machine using GEM, *TOS* and TTP programs. A combination of hardware and software, *Multi-TOS* will allow configuration to the user's specific needs, and it's intelligent enough to spot how much processor time is being used for applications and make more time available if it's not being used. The new Mega STE and TT machines have in-built protection that will allow a program to crash without losing the other programs co-running. As this is a feature of the 68030 processor, this luxury will not be afforded to the ST/FM/E range, but should be seen on the new Falcon 030.

*Multi-TOS* will be available as an upgrade for existing machines and will be supplied as standard with all new machines soon. Speed of application should be almost as fast as existing *TOS*, as the multi-tasking uses mainly unused processor time. Expect to see the new *TOS* early in the new year, following an expected winter release in the States.

## NEW GAMES FROM MINDSCAPE

Two new games are in the offing from Mindscape - *BattleToads* and *D/Generation*.

Expect *D/Generation* to be in the shops soon. A secret experiment is out of control at Genoq Biomedical Labs. The building is in chaos, the internal security system is terminating the workers and a new, terrifying life form has turned against its creators. . . .

And according to the sales hype, those battling toads are mean, green and "they make Turtles look like pond scum!". We'll tell you more about this eagerly-awaited game as soon as it hops into the office.

## SHUTTLE SHUFFLE

Weird. No sooner had ST Review launched Virgin's new *Shuttle* game into Essential Buy status than we were told that it has plummeted in price - and it's now down to £30.99. Check out the review of this mighty new game on page 74 this issue and our competition on page 78.



**SHARE MOBO AND ROBO'S CASH...  
IN THE GREAT BONANZA GIVEAWAY**

# BONANZA BROS.

SAVE UP TO  
THREE QUID ON  
KIXX GAMES\* -  
THEY'RE  
WICKED!!

IT'S  
DAYLIGHT  
ROBBERY!!

## JUST WHO ARE THESE GUYS?

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## SQUEAKY CLEAN MICE

Honeywell have just released a self-cleaning mouse that they claim can be used anywhere! At the moment, it's only available on the PC, but a spokesman says that ST and Amiga versions may follow next year.

## LORICIEL BATTLES PIRATES

French software house Loriciel is looking into legal action after discovering that one of its titles was being distributed through an American PD library. The game, **Baby Jo in "Coming Home"**, was supplied to a leading UK library through an advert in an American magazine, and was sent complete with the US company's label.

A spokesman for Loriciel said: "We are consulting French and American lawyers to see what action we can take. We are grateful to everyone concerned for bringing this to our attention".

**An innocent baby caught in the middle.**



# NEW PRINTERS FOR ALL POCKETS

*Five new printers - from low cost colour models to ecologically sound laser printers, there's something here for everyone. . .*

Kyocera is in the frame with two new printers at the business end of the market. The FS-850 laser printer has a speed of eight pages per minute at under £1600. Also from Kyocera comes the new FS-1500, which it's claimed is the world's first "green" printer. It has unmeasurably low ozone emissions and even the toner cartridge is made of calp, a plastic that burns without giving off toxic fumes!

Meanwhile, Star have announced a replacement for the LC24-10. The LC24-20 is their new entry level 24-pin dot matrix printer, with 10 LQ fonts and a speed of 210 characters per second (high speed draft) and 64cps (Letter Quality). At £259 plus VAT, it's priced to end up on the home user's desks.

Postscript however has always been very expensive - but now Samsung have shaved about £400 off the usual price with their £1499 8 PPM SL-1081P! Light. A good buy for anyone needing Postscript compatibility, it also comes with 2.5MB RAM, a 15MHz processor and 35 resident PS fonts.

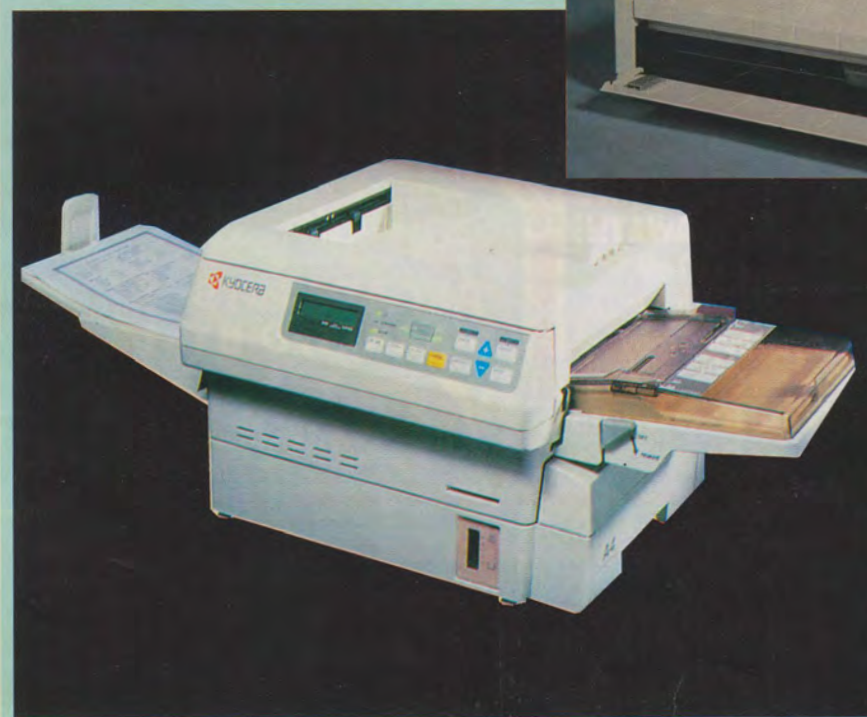
Finally, there's the low-cost Fujitsu B100 lightweight bubble inkjet printer with a price tag of £349. These latest competitors in the printer market will be reviewed in a later issue of ST Review.



**Samsung's new SL-1081P Postscript.**



**Fujitsu's entry into mini printers market.**



**The FS-850 from Kyocera.**

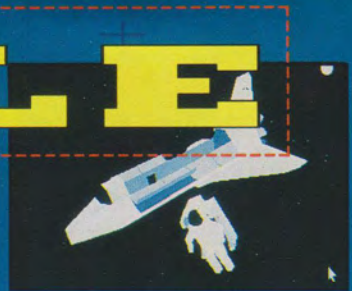


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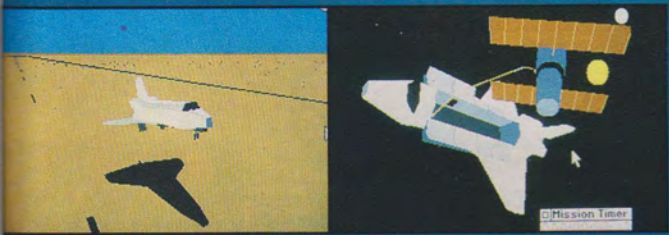
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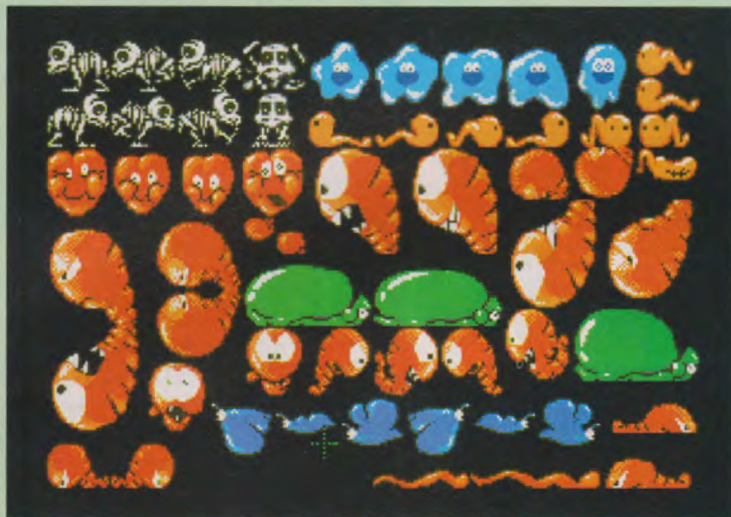
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# FIRST IMPRESSIONS

Steve Merrett gazes into his crystal ball once more to give us the lowdown on what's in store for the ST games world



Large sprites are the order of the day in *Son Of Chuck*: whilst these are proving to be fairly memory-intensive, a quick load between each level will ensure that they all make an appearance in the final game.



Rainbird's excellent OCP Art Studio is being used to produce *Chuck II*'s many sprites. Artist Lee Pullen prefers this dated package as it's more flexible for sprite manipulation.

## CHUCK ROCK II: SON OF CHUCK

More prehistoric fun and games from Core in their follow-up to *Chuck Rock*...

### THE GAMEPLAY

After rescuing his beloved Orphelia from the clutches of the oily Gary Gritter in the first game, Chuck Rock is now the owner of a rather successful car-dealing empire. However, once again Gritter is up to his old tricks, and this time he's kidnapped Chuck himself. There's one ray of hope in this desolate scenario: Son of Chuck (presumably conceived during the events following Orphelia's rescue!).

Clad in his best bearskin nappy, and carrying the latest in toddler clubs, Son of Chuck must make his way across the game's many horizontally-scrolling stages in an attempt to free his father. Whereas the first game featured a mixture of platform, beat-'em-up and puzzle styles, the sequel opts for a more simplistic and console-style approach. As the prehistoric world scrolls by in wonderful parallax in the background, the bouncing

baby runs, clubs and leaps his way through the waves of Gritter's henchmen. As with the first game, though, these adversaries are the normal platform-related nasties, and are made up of cartoon-style creatures and Neanderthals.

### PLUS POINTS

Opting for a "console" style is no bad thing, and *Chuck II* bears more of a relation to, say, *Mario* than the previous game. Graphically, the game is excellent, with parallax and cartoon sprites used to fine effect - particularly the latter, which add to the game's comic look. As the main sprite moves along, a brilliant selection of natives, creatures and the like make an appearance, and all are superbly animated. While the graphics may grab your attention at first, the gameplay is up to the same high standards. Although at the time of writing there are only a handful of levels put together, what exists plays at a fast and furi-

ous rate, with plenty to keep players on their toes.

### BEHIND THE SCENES

As with all of Core's games, *Chuck II* is being developed in-house - with the ST and OCP's *Art Studio* taking on most of the work. The team from the first *Chuck* game has been reunited for the sequel, with graphic artist Lee Pullen supplying the graphics and "Egon" handling the *Snasm*-based coding chores. The project has been in development for nearly nine months, but has been halted twice whilst the team has been dragged on to other "secret" projects. However, *Chuck II* is now back on the front burner and should be released in September.

### FIRST IMPRESSIONS

The first *Chuck* game was a welcome blending of game styles which mixed together perfectly. Although the puzzle element isn't as strong in this sequel, the gameplay is

tighter and faster and this makes for a better-paced game. In addition, Core has obviously been looking at the many console platformers currently doing the rounds, and has taken the best bits from them. Rather than opting for the same route as *Robocod* by using set backdrops, parallax has been added (it was omitted from the first *Chuck* game due to memory restrictions) to add depth to the play area - and this works excellently. In all, *Chuck Rock II* - even at this early stage - looks like being a more than worthy sequel to the original.





# BEASTMASTER



The level scrolls from left to right, with any doors or openings to other areas appearing at the top and bottom of the screen – this is where you'll find the game's many clues and useful objects.



Interacting with any of the people you find is simply a matter of summoning an icon panel and clicking on the required icon. From here, you can give and take objects, or simply type in what you want to say to the character.



As well as fighting capabilities, the main sprite is also quick on his feet and can run across the screen at high speed whilst jumping over any obstacles.

*Thalamus "Beast" Around The Bush in its latest – and possibly greatest – arcade adventure*

## THE GAMEPLAY

After months of apparent inaction, Thalamus is set to return with **Beastmaster**. A quest that even Indiana Jones would balk at, **Beastmaster** sets the player the unenviable task of retrieving "The Guiding Light" – knowledge and wisdom beyond all known bounds. You're not the first person to chase such a dream, and countless adventurers before you have died in their quest for knowledge. However, undaunted, you are set to enter the three stages which make up this massive quest.

Played over a series of horizontally-scrolling stages, **Beastmaster** is a massive arcade/adventure in the style of Psygnosis' **Shadow Of The Beast** games. The difference is that, whereas the Psygnosis games were arcade based, **Beastmaster** is more of an arcade/adventure, with the player both battling against and interacting with the many people and creatures that inhabit the play area. Of course, there are some arcade elements: many of the people you'll meet are also after the "Light" and aren't too keen on you having it. The player's adventurer sprite is a lithe fellow who can run, jump and fight, but should he get into too many scrapes with the aforementioned nasties, he will meet with a nasty end and his mission will be prematurely over.

As well as the scrolling areas, key buildings and plains can be entered through the doors which occasionally appear within the scrolling background and foreground. Here you will encounter other, more important characters, who will aid you in your quest. Such interaction is effected through a simple icon system, and your character can give and take objects or, if inclined, just speak to them.

## PLUS POINTS

Although the name itself makes this game sound like a **Shadow Of The Beast** clone,

such comparison is unfair. **Beastmaster** is a more cerebral arcade/adventure and, although the battle elements are still important, logical thinking is also needed if the characters you meet are to be successfully manipulated. The scrolling works very well, and the doors which lead to secret areas and to important characters are often well-hidden, intensifying the already claustrophobic feel. Add to this a large and varied play area, featuring a wide assortment of graphical styles, and end-of-level guardians, and Thalamus' latest adventure looks extremely promising.

## BEHIND THE SCENES

WJS design is a fairly new development team, but Wayne Smithson, the project leader is the brains behind such Psygnosis hits as **Spellbound**.

The idea for the game came after the team looked at the many arcade/adventures available and wondered which direction to take. With so many concentrating on the arcade elements, WJS decided that a more puzzle-based slant was needed. From here, a storyboard developed – as did the plot – and within the five months of development time spent so far, the game has expanded from their original ideas tenfold.

## FIRST IMPRESSIONS

**Beastmaster** certainly looks the business, and although development is slightly ahead on the Amiga version, Thalamus reckons that the ST game will be identical. The puzzles are large, although not as complex as those of, say, **Beast II**, and they flow logically into each other. The interaction system works well and humorous conversation can be struck up with the many characters you encounter – although if you upset somebody at the start of the game, don't expect them to be helpful next time. Little touches like this make **Beastmaster** an exciting prospect.



# CAMPAIGN

*Empire rolls in the big boys for a tank sim with a difference*

## THE GAMEPLAY

A battlefield in your front room? Yes, if *Empire* has its way. **Campaign** is a massive tank simulation with a difference. Rather than using the customary "through the round window" viewpoints of most games of this genre, *Empire's* game uses complex



*A variety of vehicles are ready for you to use. Each has slightly different controls depending on its power and style of movement.*

3D routines to show the entire play area using filled vectors.

Rather than seeing assorted triangular trees pass your tank through one of several vantage points, you actually see your tank moving through the constantly-updated environment.

The game is set in the dying months of the World War II, with the player set to launch the offensive push which will hopefully end it all. Positioned in Eastern Germany, the player is given complete control over every aspect of the battle - from supplies to the actual fighting - and must ensure that everything runs

smoothly and successfully. No less than 100 vehicles are at your disposal: as well as the expected tanks, the player can take control of assorted trucks, missile launchers and jeeps, all of which handle in different ways. In addition, a variety of guns are also ready for use and can be summoned to bombard key enemy positions. If you are a good leader, everything should start to run smoothly, but if you make a few bad moves, expect your campaign to suffer slightly.

## PLUS POINTS

The most striking thing about **Campaign** is the 3D system. Not only does the tank trundle along smoothly, but the backdrops are panned past and updated, too!

The main plus point in this game's favour, though, is that the gameplay offers an almost unlimited range of scenarios. Several missions are available to the player, and all tie into the overall plan of conquest.

As a result, if you make a bad move in the earlier stages, the enemy will get a greater stronghold later, making your task harder. However, by taking risks and damaging key installations, the enemy menace can be weakened fairly early on in the proceedings. This, effectively, should mean that no

two games that you play will be the same.

## BEHIND THE SCENES

Anyone who has experienced the delights of Rainbow Arts' **Conqueror** will already be familiar with Jonathan Griffiths' name. He took David Braben's incredible **Virus 3D** routines and used them in the tank-based **Conqueror** to create a stunning scrolling game world - the ST had never seen anything like it before! With **Campaign**, he is playing with much larger sprites and a wider game task and, whilst memory is starting to get a little tight, he is still performing miracles with the ST. Tank buff Jonathan is also pulling out all the stops to ensure that the game is accurate, too, and that the tanks and jeeps all behave as their real-life counterparts would.

## FIRST IMPRESSIONS

If you couldn't get on with **Team Yankee** or **M1 Tank Pla-**



*The battle scenes are viewed using a 3D rotational system.*

**toon**, then this is undoubtedly the game for you. **Campaign** is instantly absorbing, yet seems remarkably easy to pick up and play.

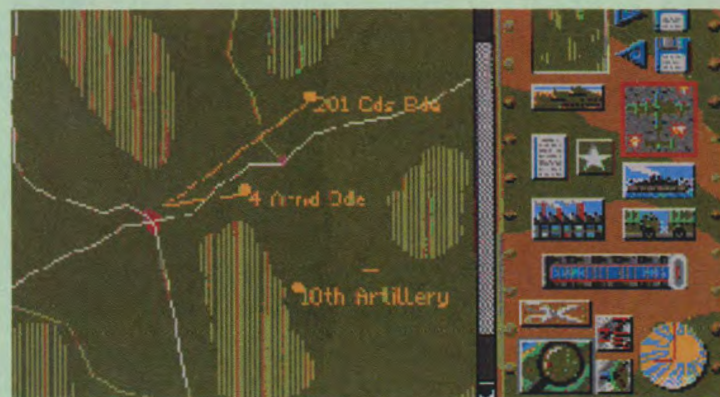
The strategy element is fairly simple to get to grips with, but it isn't until you work further into the missions that you start to see the effects that early battles have had. In addition, the sheer number of vehicles and guns which are at your disposal add even more scope to the action. Scheduled for a release in August or September, **Campaign** could well be the game that tops the well-received **Pacific Islands**.



*The 3D system is a logical extension of his Conqueror routines, with the "patchwork" landscape of the Rainbow Arts game replaced by a single-colour backdrop, but larger and more plentiful sprites.*

**Battlegroup Panzer 35(t)**

Front Armour (mm)	25	
Side Armour (mm)	15	
Rear Armour (mm)	15	
Maximum Armour Penetration (mm)	37	
Maximum Road Speed (km/h)	35	
Maximum X Country Speed (km/h)	20	





## MEMORY UPGRADES

### HCS STE and MEGA STE UPGRADES

HCS STE memory upgrade kits come complete with full instructions designed for the novice. Very easy to install. 2 and 4 Megabyte kits come with Utilities disk/RAM checker/Multi-tasking software.

<b>Upgrade from 520 to 1040 .....</b>	<b>£14.00</b>
<b>To 2 Megabytes .....</b>	<b>£55.00</b>
<b>To 4 Megabytes .....</b>	<b>£110.00</b>

### STF (M) and Mega ST upgrade kits

Xtraram Deluxe plug in upgrading system fits inside the computer. It can upgrade your computer in stages to 1Mb, 2.5Mb\* and 4Mb. The kit comes with comprehensive instructions designed for novices. The kit uses SIMMS, so is easily upgradeable.

#### Frontier Xtraram *Deluxe*

#### Quality SIMM upgrading system

<b>Upgrade from 520 to 1040 .....</b>	<b>£50.00</b>
<b>To 2.5 Megabytes .....</b>	<b>£89.00</b>
<b>To 4 Megabytes .....</b>	<b>£140.00</b>

### Solder in Kit

The solder in kit will upgrade the 520ST to 1Mb. Electronics experience is required as much soldering is needed. Check your RAM chip configuration before ordering: 4 or 16 chips, SMD or DIL.

<b>Solder in kit (all versions) .....</b>	<b>£25.00</b>
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## REPLACEMENTS

The HCS power supply and disk drive upgrades come complete with fitting instructions and plug straight into the ST without soldering. The Power supply produces less heat than the original so is more reliable. The high density drive upgrade kit comes complete with fitting instructions to upgrade a high density format (1.44 MB) in either single sided or double sided drive computers.

<b>Replacement power supply .....</b>	<b>£39.95</b>
<b>Double sided disk drive kit .....</b>	<b>£47.00</b>
<b>High density disk drive kit.....</b>	<b>£67.00</b>

## ACCELERATORS

The AD speed made by ICD fits in place of your microprocessor. It uses a 68000 chip running at a switch able 16MHZ with cache or standard 8MHZ to give virtually 100% compatibility. The 68030 SST for the Mega ST gives phenomenal speed with a 68030 running at 50MHZ!! The SST has space for 8Mb on board RAM, TOS 2 included.

<b>AD Speed ST .....</b>	<b>£145.00</b>
<b>AD Speed STE.....</b>	<b>£165.00</b>
<b>68030 SST - 50.....</b>	<b>£550.00</b>
<b>Fitting for above .....</b>	<b>£35.00</b>

## INTERFACES

The "AdSCSI ST" ICD host adapter gives SCSI output from the STs DMA port, complete with full documentation, DMA cable and hard drive formatting software. Keyboard interface allows the use of external PC compatible keyboards on the ST. Multirez allows the ST to display all 3 ST resolutions on the multisync monitor. The forget me clock sets your STs time and date, with cartridge-through port.

<b>AD SCSI .....</b>	<b>£69.99</b>
<b>AD SCSI Plus (with clock).....</b>	<b>£79.99</b>
<b>Keyboard interface .....</b>	<b>£55.00</b>
<b>Multirez .....</b>	<b>£44.99</b>
<b>Forget Me Clock .....</b>	<b>£16.99</b>

## MONITORS

14" super high resolution 0.28 dot pitch Multisync monitor is compatible with the TT, PC VGA/SVGA and Multirez. SM144 is compatible with all monochrome ST software, all normal controls at the front. Both have picture size and position adjustment.

<b>Multisync colour monitor .....</b>	<b>£280.00</b>
<b>SM144 14" FST Monochrome .....</b>	<b>£115.00</b>

## MODEM 9600

HCS modem 9600 has FAX capability with 2400 throughout data. Fully featured with autodial for all computer formats.

<b>Modem 9600 MNP .....</b>	<b>£139.00</b>
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## PC EMULATORS

PC emulators fit onto the microprocessor in the ST. The computer can then be switched between PC and ST mode. For fitting on the STE or Mega please contact technical by phone.

<b>AT Speed C16 .....</b>	<b>£205.00</b>
<b>AT Speed 8.....</b>	<b>£135.00</b>
<b>PC Speed .....</b>	<b>£90.00</b>
<b>Fitting for above .....</b>	<b>£30.00</b>

The Vortex 386 emulator runs at 16 MHZ and allows true multitasking in PC mode on the ST. Space on board is provided for a 387 CO Processor and 512 K of FASTRAM. Norton factor 15!.

<b>VORTEX 386 SX-16.....</b>	<b>£329.00</b>
<b>387 CO-PROCESSOR .....</b>	<b>£117.00</b>
<b>FASTRAM CACHE .....</b>	<b>£30.00</b>

## SPECTRE GCR MAC EMULATOR

The Spectre GCR cartridge allows the ST to emulate the Mac giving 20% more speed than the Mac plus with 30% bigger screen area! It is fully compatible with ST hard drives. When used in conjunction with the SST it can beat the fastest macs. The megatalk board fits the Mega ST to allow connection to Mac specific peripherals, LAN network and Mac SCSI.

<b>SPECTRE GCR (Inc. 128K Roms) .....</b>	<b>£299.00</b>
<b>Megatalk Board .....</b>	<b>£250.00</b>

## SCSI ADAPTERS

ICD host adapters to connect SCSI devices to the ST via the DMA port complete with DMA lead, software manual. AD SCSI Plus comes complete with built in clock.

<b>AD SCSI .....</b>	<b>£70.00</b>
<b>AD SCSI Plus .....</b>	<b>£80.00</b>

## HOW TO ORDER

Enquires and Credit card orders please Fax/Phone between 10.30 am and 6.00pm Mon to Sat on (081 777 0751)

Enquiries cannot be taken by post.

For mail order please send description of goods and cheque/PO to:



**HCS**  
35 Hartland Way, Shirley,  
Croydon CR0 8RJ



Prices include VAT and P & P



Goods normally dispatched within 2 working days.

E & OE

**5  
YEAR  
GUARANTEE  
ON  
MEMORY**

**14  
DAY  
NO QUIBBLE  
MONEY BACK  
GUARANTEE**



# 3D CONSTRU

*Incentive struck gold with their original Virtual Reality designer. Can they do it a second time? Tony Dillon takes a look...*

With the phrase "Virtual Reality" a bit of a catchword at the moment, Incentive's original **3D Construction Kit** was guaranteed to do well.

That isn't to say that it didn't do so deservedly. It was, and is, an excellent package, with a few flaws concerning the simplicity of the shapes you could create and the slightly limiting command language it incorporated. Incentive now thinks that it has come up

with something better, and I, for one, am inclined to agree.

The new package gives you new shapes, and new effects give a better control over the worlds that you can now create. With the new package, creations that are even better than the well-received **Castle Master** should be within everyone's grasp. For those of you that remember the original product, here's a list of the commands and enhancements that Incentive has incorporated.

## YOUR FLEXIBLE FRIEND

The centre of the package – as before – is the 3D world modelling itself. On top of all the original building blocks, Incentive has added two new ones. There's a sphere, to give your games a more natural feel, and there's the flexicube. A flexicube differs from a normal cube in the way it can be reshaped. For most other objects, the only

thing you can do with them is pull the faces around perpendicular to the centre of the shape, stretching them but not altering any of the angles. A flexicube is reshaped by pulling the corners rather than the faces, allowing you to build a lot of shapes you couldn't have in the original, at least without sticking a lot of other shapes together.

A much-needed reference point when reshaping objects comes in the form of highlighted points. With the original, if you tried to edit a shape while viewing it from an angle other than face on, it was a little tricky to predict which side would start moving when you pressed a stretch button. Now, the side you are going to move is highlighted by points at each corner of the face before you move it, so there's no need for irritating and time-consuming mistakes.

## NOT FADE AWAY

There are a couple of new features when displaying objects. Firstly they can be set to fade when shot, or when another, similar condition is met. Similarly, they can be set to resonate between two states or just displayed transparently, letting you see through them into the area behind. Ideal for windows and forcefields.

Secondly, objects can be displayed in wire-frame mode. Naturally this is much faster, but can be used to

great effect when building pylons and the like.

Finally, objects can be made intangible, so you can walk through them. Link this with the Video playback option and the wireframe option and you have a pretty neat teleporter.

## BREAK FOR THE BORDER

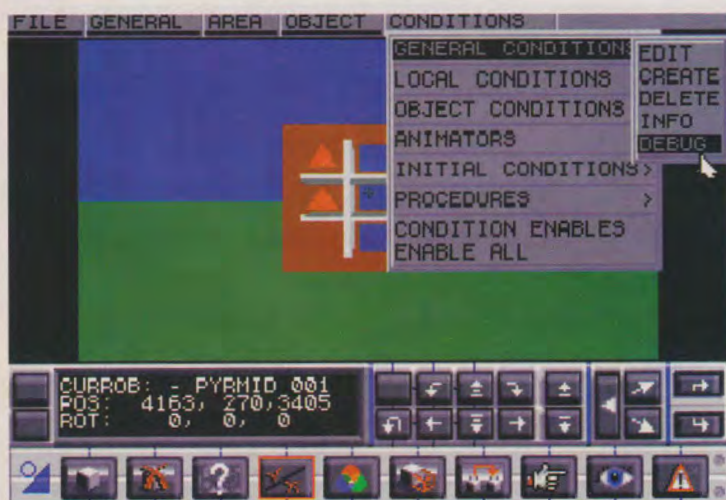
In the new kit, the border serves more functions than to just close off the view window. For a start, you can have as many borders as you like, all of which are loaded in one at a time. This gives you scope for entering vehicles, for example, or if you go underwater, you can tint the whole thing blue.

You can also add sprites to the border and animate them. The sprites can be placed anywhere on the screen, but unfortunately don't interact with the main 3D area. Even so, they can still be used to great effect, for example should you be in combat, you could have a red splash appear every time you hit something. This may be a bit tasteless, but who wants taste anyway?

There are two new instruments you can add to your instrument panels – dials and timers. Both are accessed in the same way as any other instrument, from the command language. Dials are displayed as circles with movable radii, and timers are bars that gradually disappear. This lets you add new challenges to your games, such

## NOTHING BUT REPEATS

In a game like **Damocles 2**, there are a lot of places where the player must relinquish control to allow a computer-controlled sequence, as would happen if, say, you got into a taxi and the driver took you to a location without you having to do anything. **Kit II** has something similar up its sleeve. Video Record/Playback allows you to record walks and actions around your world and then play them back from a command in the improved command language. The scenes are recorded by clicking on record, and then playing the scene as though you were playing the game. No more text messages saying "You have been marched off to prison by the guards." Now you can actually show the way to the prison and show yourself being thrown in.



The new look menu bar, with a few new tasty options. The one to look out for is the in-built conditions debugger, that will let you single step through your conditions, while telling you exactly what they are



As before, objects are coloured by clicking on the extensive palette and then clicking the face you want coloured. A 3D colouring book!

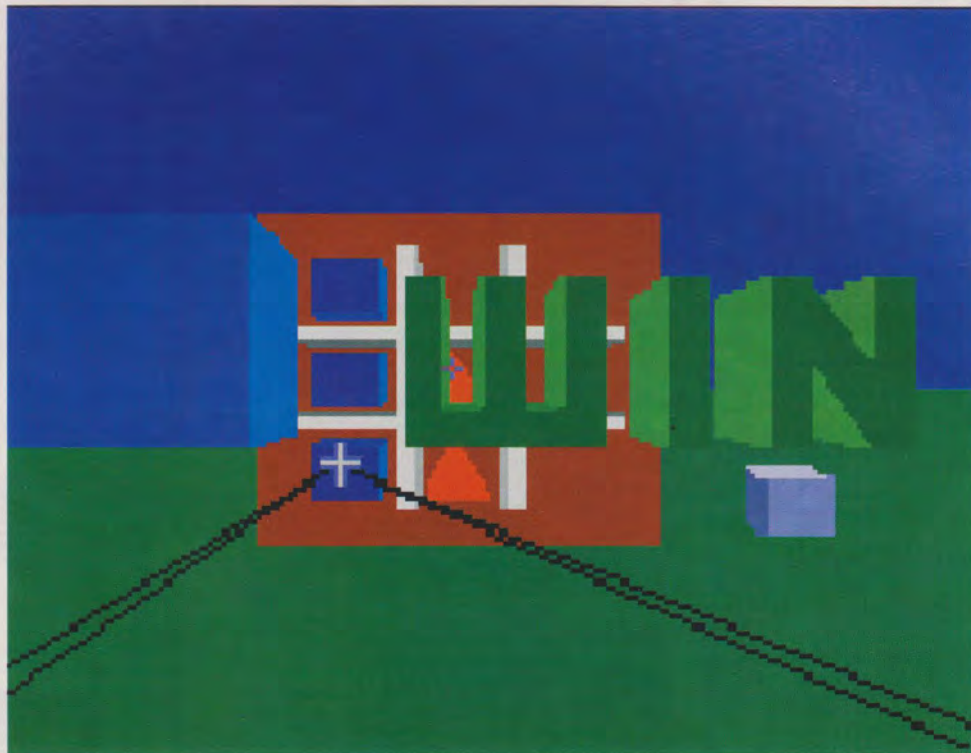


# CONSTRUCTION KIT II

## SOUND EDITOR

The new sound editor is a boon for novices. It allows you to completely control the way a sound is replayed during the game. There are eight effects you use to modify or add to a sound, including fade and vibrato, any or all of which can be set in any order and act for any length of time, simply by clicking on a box in the main window, setting the effect and its duration.

You can also select the channel or channels the sound is to be played across. If you have an STE, you can set up some interesting stereo effects by panning sound from the left to the right channels, or even playing it through all four just for that extra special warning sound.



*Yes, it's Noughts And Crosses. Not the most incredible idea for a game, but because of some of the shapes needed, it couldn't have been done on the original Kit.*

as timed bombs, or races against the clock to escape from certain locations.

## EASIER THAN LINGUAPHONE

The programming side of the kit has undergone an almost complete overhaul since the original, and now boasts twice as many commands as before, and what a set they are! From performing all the original functions, to calling everything you've read here, you can now change the palette of objects during the

game, handy for simulating the effect of a light being switched on.

Also, conditions have been made easier. For example, in the previous *Construction Kit*, a program of moderate size was needed to tell the computer that if the player should walk into whichever object was the door, the program should move that player to the next location.

Now, clicking on an object and clicking on the "Door" option automatically makes it a door, thus making move-

ment between locations much easier.

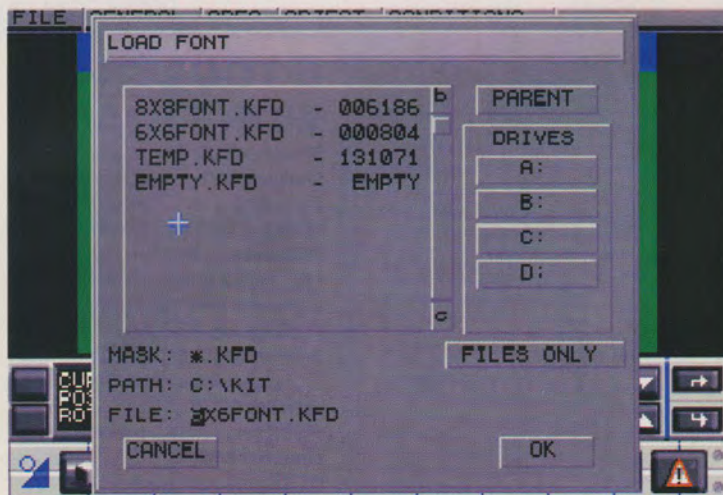
Programmers should have a much easier time when dealing with more complicated programs, thanks to the inclusion of Procedures. These named subroutines can be jumped to from any point of the game, happy in the knowledge that once they have completed their task, they'll return to the point they jumped from. This saves rewriting all those repetitive routines you keep finding yourself using.

## WHEN AND WHERE

*3D Construction Kit II* should hit the shops in early September, priced around £50. For your money you'll get an instructional video, the main program disk, a clip art disk filled with objects designed by members of the official Kit Club, a colour catalogue of all the objects supplied and the same impressive packaging as the first. And of course we'll be carrying a full review just as soon as we can get our hands on a copy.



Two new ways of seeing things. At the top is one of the brand new objects, the sphere, and that's happily nesting on top of a flexicube displayed in wire-frame mode.



One way you could always tell that a game had been designed on the original kit was by looking at the standard font used. Kit II lets you load in your own fonts, giving your game a little more originality.



# COVER DISKS

*Our second exclusive package is one of the funniest, most manic music programs ever written. Dr Tiricc will inspire you to write lyrics, compose drum patterns and create music via the ST monitor or a MIDI synth. It will also do impersonations, make decisions, hold a lucid conversation and even insult you*



**D**r Tiricc runs in high or medium resolution. If you're working in colour, double-click on DR\_TIR\_C.PRG; if you're using a mono monitor, double-click on DR\_TIR\_B.PRG.

To be safe, run **Dr Tiricc** straight from power-up and be sure to re-boot your computer after use. This is because **Dr Tiricc** uses a custom speech program which requires some cheating with the ST's operating system. On loading the program, the wacky load-up picture presents itself, with the various menu options at the top of the screen. Making sure that the monitor volume is turned up to about halfway, let's get some...

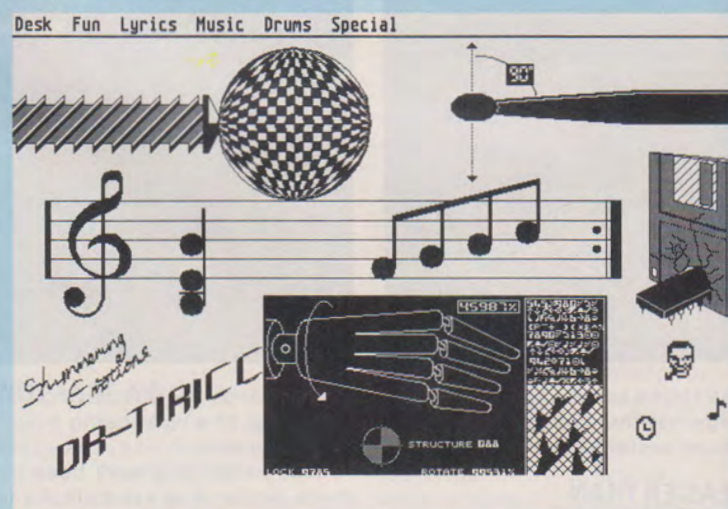
## INSTANT FUN

Go to the Desk heading and click on "About Dr. Tiricc"; you'll be greeted with the suitable welcome of "Hello darlings, my name is Doctor Tiricc"!

The Fun heading has five options. The first of these, Opinion, allows you to have an intelligent conversation

with the doctor, who will happily criticise your work. Whatever you do, don't ignore his request for you to type in your name, otherwise one will be selected for you and as he doesn't know whether you are male or female, mistakes are likely to occur. **Dr Tiricc** is more than capable of holding its own against any argument or criticism of yours. After your conversation has finished,

*This is what Dr Tiricc should look like when you first load the program.*



# DR TIRICC

**DR TIRICC • INTRINSIC TECHNOLOGY • 0.5 MB • MUSIC/LYRIC PROGRAM**

## IF YOUR DISK WON'T LOAD

Remove all cartridges and peripherals and try again. If it still won't load, send it to: ATARI ST REVIEW, PC Wise, Merthyr Industrial Park, Pentreebach, Mid Glamorgan CF48 4DR, with a brief note outlining the problems. They will send a replacement. Ring the PC Wise Helpline on (0443) 693233 for any urgent problems. It's open between 10.30 and 12.30 during weekdays. While we make every effort to check for all known viruses, we can accept no responsibility for damage caused by viruses which may have evaded our detectors.

Desk Fun Lyrics Music Drums Special

Decision Maker

Enter the question

Should I  
Get Up This Morning?

You must be out of your mind

*The Decision Maker – you can now blame Dr Tiricc when you turn up late for work.*



## MIDI AND THE MEDIC

If you own MIDI equipment, Dr Tiricc can use this to playback. Go to the Special heading and select MIDI Set; from here you enter the MIDI channel for the Music followed by the MIDI channel for the Drums.

If you have created a drum pattern, select MIDI from the Drums heading to hear your creation. For Music, you also select MIDI and then set the Key, Tempo and number of loops before playback starts.

Generally use MIDI channel 10 for drums; the majority of synths have this channel assigned to percussion.

Recital is a bizarre collection of sayings and phrases while Impersonation provides imitations of famous personalities or ideas. There's about 30 of each and they appear randomly, so feel free to go back to these time and time again.

Executive Toys are normally used to help businessmen to make decisions. Well, you don't need to be a high-flier to use this feature of **Dr Tiricc**. If you choose Decide, type in a question and get an immediate response with an uncanny (but totally random) degree of accuracy. Saying brings forth a typical executive expression, a "buzz" phrase which can be used in an office or wherever people congregate.

### ENTERING PHRASES

Load in the file T\_SONG.LYR and choose Hear Song; once you've had enough, press on the Control key two or three times.

You'll see the lyrics appearing on-screen along with the letter "w" several times. This is used to add a pause whenever required - the length of

the pause is set from the Lyric Delay in the Special menu. The defaults are 100 (half a second) for the standard end of a sentence and 200 (one second) each time a "w" occurs. You can change these delays whenever you want to.

Now go to Randomise and set a number of phrases - perhaps 30 or so. **Dr Tiricc** will randomly select from the phrases of the Song lyric, construct a new song and immediately go through the new lyric, line by line; again, press on the Control key two or three times when you want **Dr Tiricc** to stop.

How do you put your own lyrics together? Select Phrase and type in a series of expressions; these can be from one word to whole sentences although shorter phrases work better. **Dr Tiricc** will repeat every comment that you type in and keep them in memory. Try typing in the following phrases:

Help me, wake up, in, the, mornings.

You can hear the entire lyric by using the Hear Song option; you may find that the delay between one word and the next is too long: if so, go to the Special heading, select the Lyric Delay option and enter 0 at the two prompts. Use Hear Song again and you'll hear the difference.

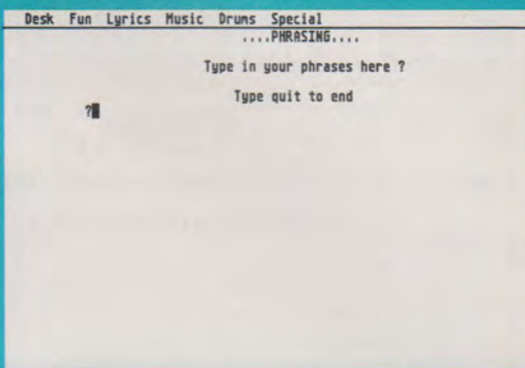
Now select the Randomise menu option and decide how many phrases long you want the lyric to be. As five phrases have been typed in, let's choose five for the final number of phrases. **Dr Tiricc** selects five of the typed-in comments and displays them, and while it is possible that you might get "Help me wake up in the mornings", it is very unlikely as there are 3,125 alternatives for just these five phrases! If you want to hear the same lyric again, use Hear Random.

### SAVING THE RAVING

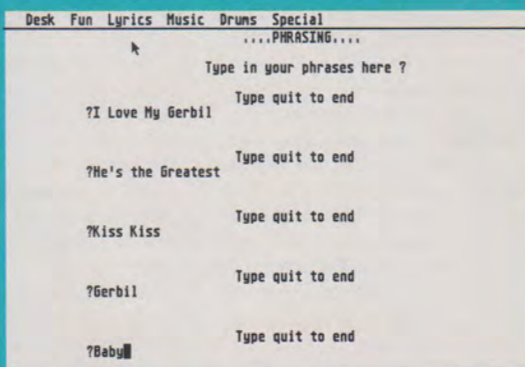
The more phrases you type in, the more interesting the results are, but the longer it

## STEP BY STEP

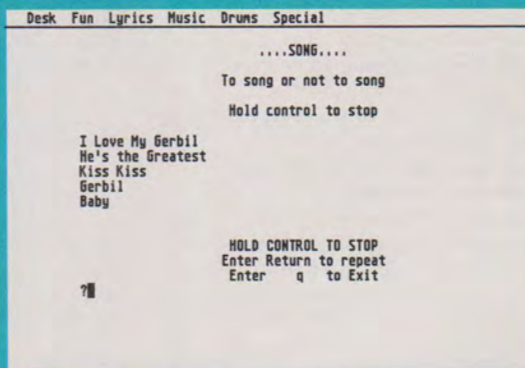
- 1 **The Lyric part of Dr Tiricc requires you to type in a number of phrases.**



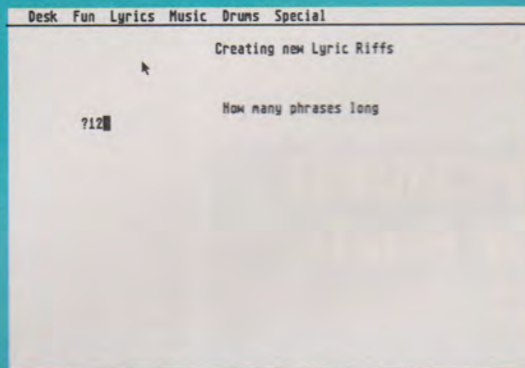
- 2 **Here's a suitable set with which to create a killing lyric.**



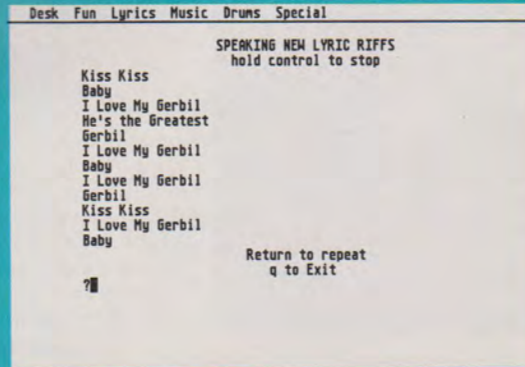
- 3 **Hear Song makes Dr Tiricc speak your phrases back to you in the order that they were typed in, but the fun really starts when ...**



- 4 **... you use Randomise and choose a number of lines which you want Dr Tiricc to create ...**



- 5 **... with interesting results - "I love my Gerbil, baby, I love my Gerbil".**



## SOME HINTS AND TIPS

● Combine lines entered manually with those created by Dr Tiricc.

● Try different sounds with each line - try swapping a hi-hat sound with a tom sound.

● Try different tempos like half and double speed. A tempo of 0 plays at the default, positive numbers speed up, negative numbers slow down.

● Combine a number of patterns together in your sequencer to create the drum track for a song.





Desk Fun Lyrics Music Drums Special

TO INPUT MUSIC  
Enter 0 as pitch to End

2=Half 4=Quarter 8=Eight 16= Sixteenth 6=dotted Quarter 12=dotted Eighth

Enter notes pitch and duration

Pitch , Length  
?f,8

You want to create your own tune? No problem – use the Input option to write it directly onto the score.

takes. No problem; go to Save and choose the Entered option. This will bring up the File Selector and let you save your series of comments to disk. Use a new disk, not the *Dr Tiricc* master. You can continually add to *Dr Tiricc*'s vocabulary by loading in your phrases, going to Append Phrase and typing in further comments. These are added to your file which can then be saved to disk again.

If *Dr Tiricc* comes up with a particularly good lyric that you don't want to lose, again use the Save option but this time you must select Created instead of Entered.

Type in a file name on the File Selector and then save it to disk. You can also keep a copy of the lyric on paper by using the Print facility which prints out to a standard Epson 9-pin printer.

### RHYTHM 'N' RIFF

The Drum side of *Dr Tiricc* lets you create a four-part (or instrument) drum pattern of

up to 32 steps. If you think of each step as being either a beat or a rest, this means that up to four sounds can exist at the same time. The parts are known as "Lines": line 1 is bass drum, line 2 is snare drum, line 3 is hihat and line 4 is a synth tomtom.

Now for some instant results; set the number of steps to 16 from the Change Res option and go to Create Riff. This is for automatic rhythm creation.

You'll be asked to enter a line number; select 1 for the bass drum. Now decide how busy you want the bass drum to be; 1 is the most busy, 5 the least active. For a bass drum, a reasonable value might be 3 or 4.

*Dr Tiricc* will create the part and display it on screen as a series of 1s and 0s. Press 9 to finish and then go to the either the Grid or List options; your bass drum line will either be shown graphically or as words. Finally, select Hear and the bass drum line will play.

If you go back to Create Riff and select a different line number, you can build up the rhythm section for a song. You can also use the Enter Riff option to key in your own beats. If you select a line which has already been programmed, you will overwrite it; the Clear option will erase all lines.

Once there is more than one instrument playing, playback via the ST's monitor speaker becomes inaccurate. This is because the drums are effectively "mouth drums" and *Dr Tiricc* can only make one drum sound at a time! Line 1 sounds like a "doo", line 2 like a mouth pop, line 3 like a breath in and line 4 like a

## TIRICC THE TERRIBLE

Answer the following questions and you could win £20 worth of software:

- 1) What is "Tiricc" an anagram of?
- 2) Why?
- 3) Which aspect of *Dr Tiricc* do you most like and why?

Send your entry to Tiricc The Terrible, Atari ST Review,

30-32 Farringdon Lane, London EC1R 3AU.

### TOP OF THE TIRICCS:

Send the editor of ST Review your favourite *Dr Tiricc* creation or interpretation. The winner will get his or her entry published in the magazine and a £20 record/book token.

## STEP BY STEP

Desk Fun Lyrics Music Drums Special

TO CREATE MUSIC

Enter 1 for Major  
Enter 2 for Melodic Minor  
Enter 3 for Harmonic Major  
Enter 4 for Harmonic Minor  
Enter 5 for Enigmatic  
Enter 6 for Oriental

?f

Desk Fun Lyrics Music Drums Special

TO CREATE MUSIC

Enter 1 for Major  
Enter 2 for Melodic Minor  
Enter 3 for Harmonic Major  
Enter 4 for Harmonic Minor  
Enter 5 for Enigmatic  
Enter 6 for Oriental

?5  
How many bars ?16

Desk Fun Lyrics Music Drums Special

B	DOTTED EIGHTH	18
Rest	HALF NOTE	48
C	DOTTED QUARTER	36
A#	EIGHTH NOTE	12
B	SIXTEENTH NOTE	6
A#	DOTTED EIGHTH	18
B	DOTTED QUARTER	36
B	DOTTED EIGHTH	18
F#	HALF NOTE	48
A#	EIGHTH NOTE	12
B	QUARTER NOTE	24
A#	HALF NOTE	48
B	EIGHTH NOTE	12
B	SIXTEENTH NOTE	6
E	HALF NOTE	48
C#	HALF NOTE	48
F#	DOTTED EIGHTH	18
TOTAL NOTES		62
Return to continue		

?f

Desk Fun Lyrics Music Drums Special

Return to continue

?f

1 Choose a scale to set *Dr Tiricc* into tune-creating mode

2 Let's go for 16 bars of "Enigmatic"

3 ... which results in a total of 62 notes which you can hear by using the Noteplay program on the *Dr Tiricc* disk.

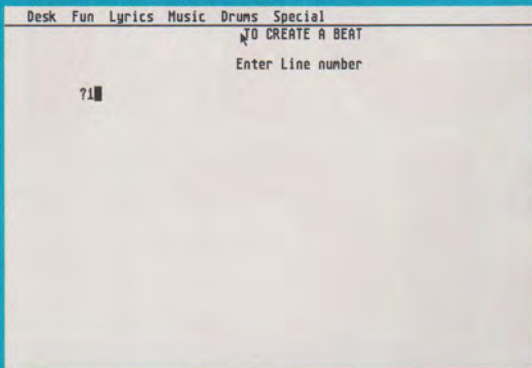
4 The tune can also be seen on a stave in time-honoured form.

## A COUPLE OF HINTS

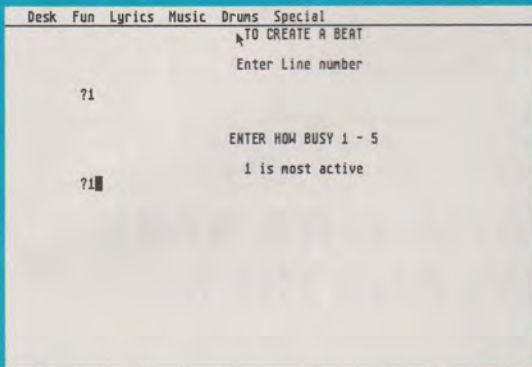
- Use the music creations as bass lines by transposing them -12 or -24.
- Always save as a MIDI File; you never know when *Dr Tiricc* will come up with a really worthwhile offering.
- Put a number of them together in your sequencer and create chord sequences; you may only like a three note run, but that may be sufficient to set you writing an entire song.



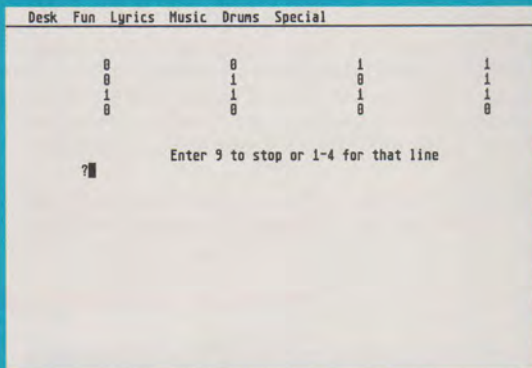
# STEP BY STEP



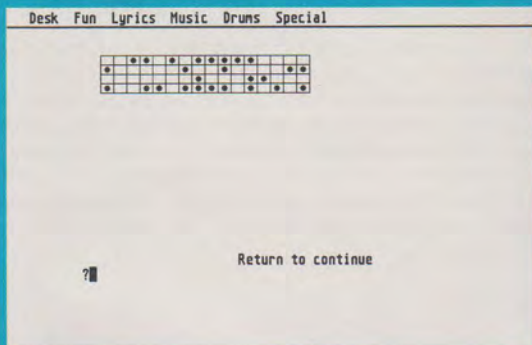
**1** There are four drum lines. Start by creating the beat for line 1, the bass drum.



**2** Decide how busy you want this to be - this drummer must have a very strong foot.



**3** The bass drum pattern: 1 shows a beat while 0 shows no beat. Now repeat this for the other three lines to get the snare drum, hihat and toms.



**4** The grid shows the four different lines: each star shows where there is a beat.

mouth click. Individual lines playback without problem; multiple lines, however, will be a little inaccurate.

You can save your drum patterns to disk and retrieve them by using the Save and Load commands; drum patterns are saved with a .DRM extension. You also get a second file selector for saving your drum pattern as a MIDI File (.MID) which lets you load it into a sequencer for editing and working with. If you don't want to save as a MIDI File, click on Cancel.

## MUSICAL LINES

Under the Music menu are the various options to help you write a tune of up to 16 bars. Selecting Create gives you the option of various scales such as Major or Minor along with "moods" like Enigmatic or Oriental. Then choose a number of bars and watch *Dr Tiricc* automatically write a tune; each line gives you a note and length of note in words and numbers. There

are 96 divisions to a whole note so a quarter note is worth 24, an eighth note is equal to 12 and so on.

You want to look at the creation? Go to Score and view it on a musical staff. As for hearing it, *Dr Tiricc* will quite happily sing it to you via the Hear selection, but his voice is, to put it politely, a little less than tuneful.

You can also Input your own notes and Print out to an Epson-compatible printer. Save and Load works in the same way as for the Drum section. Music is saved as a .MSC file; you are also provided with the chance to save as a MIDI File (.MID).

There is a separate program called Noteplay which lets you load in .MSC files and hear them played, again from the Monitor's speaker. You are prompted to choose a .MSC file for playback, from disk drive A, followed by the number of times, or number of loops, that you want to hear the tune.

## A WAY WITH WORDS

And it can rap with you . . .

*Dr Tiricc* will not create finished poetry or song lyrics for you - that would defeat the point of having fun in the process. It is meant to inspire you, to create a spark from which you can develop a finished idea. In this way, the final collection of words is down to your own unique interpretation and imagination. All of this happens within the Lyrics menu.

For an instant result, drop down the Lyrics menu and select Load. On your master disk you should find a file called RAP.LYR. Load this, select Hear Song and listen to *Dr Tiricc*, computer rapper extraordinaire.

## JOIN THE CLUB!

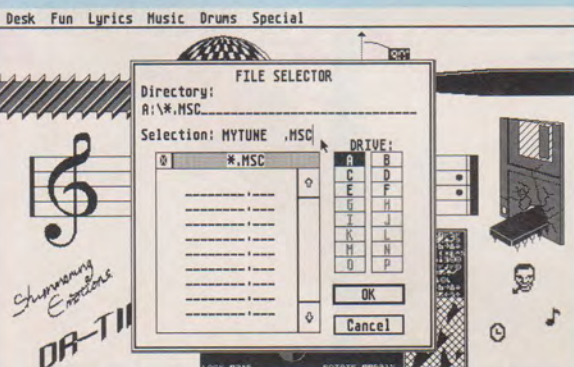
Become a member of the *Dr Tiricc* Club! Register with Intrinsic Technology Ltd and you'll be informed of updates, new products and the latest offerings from the *Dr Tiricc* Club. Send a blank disk and a stamp-addressed envelope and you'll receive it back with some lyric libraries on-board.

As a member of the *Dr Tiricc* Club, you are welcome to contribute to the club newsletter disk; you can send in lyrics, music and drum creations.

### THE FOUR STAR £5 OFFER:

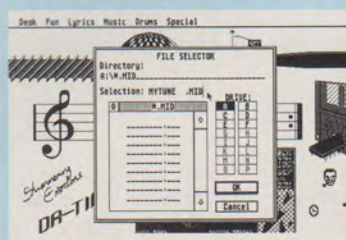
- For £5 you can get a £20 package including:
- TIRICON.PRG, a document utility which allows you to convert ordinary text files into *Dr Tiricc* format - usually worth £15.
- A disk of *Dr Tiricc* Lyric Libraries worth £3.
- The official *Dr Tiricc* manual.
- A disk of musically related useful PD worth £2.

Register with: Mail Order Dept STR, Intrinsic Technology Ltd, 4 Auckland Court, London SE27 9PE  
Tel/Fax: 081-761 0178



Save your tune as a .MSC file which can be loaded into the Noteplay program ...

... or as a .MID file for use with your sequencer.





With the full version of HiSoft Basic on this month's coverdisk, you too can now write your own programs using the best ST Basic available and our own series of step-by-step tutorials

# HISOFT BASIC

HISOFT BASIC • HISOFT • 0.5MB • PROGRAMMING TOOL

**H**iSoft **BASIC** is one of the most professional, yet easy-to-use languages available for the ST. It is already widely used by thousands of people, and once learnt, **BASIC** can be easily programmed across different computers.

## PROGRAMMING WITH HISOFT – PART ONE

From the reputable software house that gave us fine products such as **Turbo ST**, **Tempus**, **Proflight Tornado** simulator and many more, comes this excellent programmers development package.

**HiSoft BASIC** consists of an integrated editor and compiler which unlike most **BASIC** packages, produces fast and efficient machine code. A program can be written, edited, debugged and compiled all directly from the editor, making it easy to write and refine your programs. Written by Dave Nutkin and Andy Pennel, both respected ST authorities, it also supports direct access to the GEM libraries, allowing the creation of desk accessories as well as standard programs.

**HiSoft BASIC** includes extra facilities for the experienced programmer, such as the ability to create your own libraries, linking C and Assembler routines and so on. Also on disk is Profile, a simple but useful utility that will provide statistics about the efficiency and speed of your program as well as pointing out where most time is spent.

To get started simply double-click on the HBASIC.PRG icon and off we go...

## USING THE EDITOR

The **HiSoft Basic** editor has the standard GEM interface, which looks and behaves like many popular word processors. You simply type in the commands and press Return to move to the next line. You can also use the Backspace, Delete and cursor keys to move around the text. One useful key command is Control+Y which deletes a whole line of text. All the standard file operations can be found under the File menu and a useful addition is the Save option, which saves the file without displaying the file selector. When developing a program it is easy to crash the system so remember to save your work before running the program. **BASIC** programs are normally given the extension .BAS, and a typical file name will be HELLO.BAS.

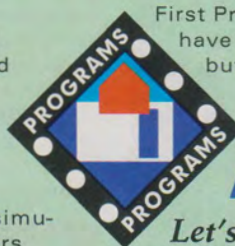
The program menu is where you compile and run your programs. To try your program you simply select Run from this menu, the editor will disappear, and after a brief pause your own program will run. When your program has finished, you will be returned to the **HiSoft Basic** editor so you can continue with your work.

Now you are just about ready to try your first program, just type in

**PRINT "My First Program"**

then select Run from the Program menu. HiSoft Basic now goes into action, translating the commands into machine code. This takes a few seconds and, when finished, the text - My

First Program - will appear on screen. Congratulations! You have just written a computer program; it is a simple one, but it shows that programming needn't be difficult.



## STATEMENTS, VARIABLES AND THE REST...

Let's take a closer look at the program.

The PRINT command is used to display text on screen. The text must be inside quotation marks, otherwise **BASIC** won't recognise it as such. If you need some text to appear in the program several times, there is a short cut. This may seem confusing at first, but don't worry, it is easier than it looks. **BASIC** supports text variables, and these can be given any name as long as it ends with the dollar symbol \$. Try the following example:

```
a$="This Is "
b$="My Second Program"
PRINT a$
PRINT b$
PRINT a$+b$
```

'some text is assigned to a\$  
'some text is assigned to b\$  
'this will print the full text

The program now adds the two text variables a\$ and b\$ to construct a whole sentence. Check the screen shot to see if everything works correctly.

The apostrophe (') is used to add remarks to a program; these are ignored by **BASIC** and are only there to remind you what each line of code does. It may seem unimportant now, but when you have written programs with hundreds of lines, you would simply be lost without these remarks, so don't be lazy...

A very useful command is the INPUT statement which is used to let the user of the program type in some text. Once the user hits return the program will continue to the next line. Here's how to use the command:

```
PRINT "Type in your name..."
INPUT a$
b$="Hello "
PRINT b$+a$
```

'program waits for the user to type in name

This Is  
My Second Program  
This Is My Second Program

Type in your name...  
? ST Review  
Hello ST Review

Program terminated - press a key to exit

Program terminated - press a key to exit



**BASIC** can of course handle numbers as well as text; variables can be assigned, numerical values and standard arithmetic operations such as addition, subtraction and the rest are also supported. Numeric variables do not use the \$ sign, and can have any name you like. These will be used in our next example, a program to convert kilometres to miles:

```
PRINT "Type in miles to be converted"
INPUT m      'm is the number of miles typed in by the user
k=m*1.605    'k is the number of kilometres
PRINT k
```

3

There is a more efficient way of writing the last program:

```
INPUT "Type in miles to be converted";m
PRINT m*1.605      'calculate and print result
```

4

Try running the program and you will find that, effectively, it produces the same result. This is a good example of how a program can be made more compact and efficient. Note the way the INPUT command has been used. This is a very useful form of INPUT as it allows you to precede the variable with instructions for the user on the same line.

## IFS AND BUTS

*In most programs there will be a need to act differently depending on user input*

```
INPUT "Type in a number ";k
IF k>5 THEN PRINT "The number is bigger than 5"
IF k<5 THEN PRINT "The number is smaller than 5"
```

5

Try running the program typing different numbers each time. If you input 5, the program will not print anything because we have not included 5 in the conditions. You can try to add a line like...

```
IF k=5 THEN...
```

HiSoft Basic also supports the SELECT CASE statement which is very similar to IF...THEN. The same program using SELECT CASE would look like this:

```
INPUT "Type in a number";k
SELECT CASE k
CASE>5 : a$= "The number is bigger than 5"
CASE<5 : a$= "The number is smaller than 5"
END SELECT
PRINT a$
```

7

Note how we used the variable a\$ instead of using PRINT for each case. It is also advisable to use the Tab key to indent the text as it makes the program more readable.

## SMOOTH OPERATORS

*Most computer programs require some mathematical operations, mostly simple ones, but don't be alarmed...*

**HiSoft Basic** supports a wide range of mathematical operators in addition to +, -, \* and /.

For this month's program we will use the modulus operator, which is used to divide two numbers and give the remainder. For example 5 MOD 4 will produce 1, because when you divide 5 by 4 the remainder is 1. Check the following examples:

```
5 MOD 5=0
5 MOD 3=2
6 MOD 3=0
```

There are various other operators that can be used in conjunction with IF...THEN. For example, AND can be used as follows:

```
IF a=8 AND b=7 THEN PRINT "OK"
```

This means that both conditions must be true for the program to print OK to the screen.

Another operator we will use is OR, which for our purposes is similar to AND; its main use is in IF...THEN statements. Here's an example -

```
IF a=8 OR a=4 THEN PRINT "FINE"
```

Now 'a' has to be either 8 or 4 for the program to print FINE - any values other than 8 or 4 will be ignored and the program will not print FINE.

## LOOP-DE-LOOP

*Sometimes it is useful to have the program repeat an operation instead of having to write the ..*

As you would expect, there are several ways to do this and for this month's program we will use the FOR...NEXT format. Try the next example:

```
FOR i=1 TO 10      'start loop and increment i from 1 to 10
PRINT i
NEXT i             'bottom of loop, when i=10 the loop will end
```

The FOR...NEXT loop uses the variable 'i' as a counter, each time the loop repeats, the variable will increase until it is 10 in this particular case - at which point the loop is exited and the program ends.

Before you continue, try to incorporate some of the commands you've covered so far:

```
FOR i=1 to 10
PRINT i
SELECT CASE i
case<5 : a$= "i is smaller than 5"
case=5 : a$= "i equals 5"
case>5 : a$= "i is now bigger than 5"
END SELECT
PRINT a$
IF i=10 THEN PRINT "This is the end of the loop"
NEXT i
```

7

## WHICH DAY OF THE WEEK





## WERE YOU BORN ON?

Ever wondered which day of the week you were born on? Or which day New Year's Eve will fall on at the end of the century? This month's program, *Which Day*, will tell you just that

The first step is to look at the problem and how it can be solved. If we knew what day of the week it was on 1.1.1901, then all we would have to do is to find how many days have passed since, then divide the result by seven using MOD. Lets start by writing a simplified version of the program, ignoring leap years for the moment and assuming that 1.1.1901 was a Sunday.

Save the program with the name WHICHDAY.BAS to disk then try running it to check that everything is working; it will not

```
INPUT "Type in day of the month";day      'user input with prompt
INPUT "Type in month";month
INPUT "Type in year";year
```

'now find how many days have passed since 1.1.1901 to the beginning of the input year

```
ouryear=year-1901
yeardays=ouryear*365
```

'how many whole years since 1901  
'how many days in those years

```
SELECT CASE month
CASE=1:monthdays=0
CASE=2:monthdays=31
CASE=3:monthdays=31+28
CASE=4:monthdays=31+28+31
CASE=5:monthdays=31+28+31+30
CASE=6:monthdays=31+28+31+30+31
CASE=7:monthdays=31+28+31+30+31+30
CASE=8:monthdays=31+28+31+30+31+30+31
CASE=9:monthdays=31+28+31+30+31+30+31+31
CASE=10:monthdays=31+28+31+30+31+30+31+31+31
CASE=11:monthdays=31+28+31+30+31+30+31+31+30+31
CASE=12:monthdays=31+28+31+30+31+30+31+31+30+31+30
END SELECT
```

'now find how many days have passed since beginning of year

```
ourdays=day-1
```

'how many days since beginning of month

'now add all results to find how many days since 1.1.1901

```
howmanydays=yeardays+monthdays+ourdays
```

```
weekday=howmanydays& MOD 7
```

'divide result and return remainder

```
SELECT CASE weekday
```

'if remainder is 0 then

```
CASE 0:a$="Sunday"
```

'it's a Sunday

```
CASE 1:a$="Monday"
```

'if 1 then it's a Monday

```
CASE 2:a$="Tuesday"
```

'if 2 then it's a Tuesday...

```
CASE 3:a$="Wednesday"
```

```
CASE 4:a$="Thursday"
```

```
CASE 5:a$="Friday"
```

```
CASE 6:a$="Saturday"
```

```
END SELECT
```

```
PRINT "_____"
```

```
PRINT "This date falls on a "+a$
```

'print the result to screen

give you correct results because we have ignored all leap years and assumed that 1.1.1901 was a Sunday, which is not necessarily true. Lets deal now with the leap year factor.

Leap years occur every four years, if the year number can be divided by 4 then it's a leap year. The MOD command is ideal for problems like this: to work out if a year is a leap year we simply divide by 4 and find the remainder using MOD. If the remainder is 0 it's a leap year. So we add the following lines to the program, just before SELECT CASE month:

```
FOR i=1901 to year-1
```

```
IF i MOD 4=0 THEN INCR yeardays
```

```
NEXT i
```

We only want to check the years from 1901 to year-1, because we will deal with the actual input year separately. The

```
1
i is smaller than 5
2
i is smaller than 5
3
i is smaller than 5
4
i is smaller than 5
5
i equals 5
6
i is now bigger than 5
7
i is now bigger than 5
8
i is now bigger than 5
9
i is now bigger than 5
10
i is now bigger than 5
This is the end of the loop
```

Program terminated - press a key to exit

```
Type in day of the month? 31
Type in month? 12
Type in year? 1999
-----
This date falls on a Sunday
```

Program terminated - press a key to exit

FOR...NEXT loop repeats, and whenever a leap year is found, we'll use the INCR statement to increment yeardays. The last thing to check is whether the input year is also a leap year; if it is, we have to check if the input month is later than February

(month>2). If so we have to add another day to the calculation. So we can add the following line:

```
IF year mod 4=0 AND month>2 THEN INCR yeardays
```

Run the program and check it against known dates. You will find that the results are incorrect; they're always two days off. This means that 1.1.1901 was not a Sunday but a Tuesday. Now we have to adjust the end part of the program -

```
SELECT CASE weekday
CASE 0:a$="Tuesday"
CASE 1:a$="Wednesday"
CASE 2:a$="Thursday"
CASE 3:a$="Friday"
CASE 4:a$="Saturday"
CASE 5:a$="Sunday"
CASE 6:a$="Monday"
END SELECT
PRINT "_____ "
PRINT "This date falls on a "+a$
'print the result to screen
```

The program is now fully working and you can test it with different dates. It does have a limitation though, because leap years are omitted every 100 years. 1900 and 2000 aren't leap years, so the program will produce the wrong days when asked about years before 1901 or after 1999. You can try to add a few lines to the program to solve the problem yourself. The final program is included on the cover disk for your reference.

## COMPILING TO DISK

So far the programs and examples have been compiled to memory, but when a program is complete it is possible to compile it to disk. The compiler will then produce a PRG or TOS file which can be loaded directly from the desktop, just like professional programs.

Before compiling to disk it is always a good idea to double-check your program by running it several times and making sure everything is working correctly. Then select Compile from the Program menu. You will be presented with a rather large dialogue box. It's best to ignore the various options for the moment and just click on the Disk button then on the Compile button, this will start the by now familiar compilation process. When finished the compiler will return you to the editor where you can quit *HiSoft Basic* (but not before you save your work!). You will now find a new file on your disk called WHICHDAY.TOS. Double-click on the file and your first 'real' program will start... How about that?



## A QUICK GUIDE TO THE HISOFT BASIC MENUS

### FILE

New - Start a new program  
 Load - Load a program from disk.  
 Save - Save a program to disk without file selector  
 Save As - Save with file selector  
 Print Block - Will print the marked block if a printer is connected  
 Insert File - Merge a file from disk to existing program  
 Delete File - Delete any file from disk (use with care)  
 Quit - Quit HiSoft Basic

### SEARCH

Find - Search for text  
 Find Next - Search for next occurrence of text  
 Find Previous - Search for previous occurrence of text  
 Replace - Replaces a single

occurrence of text with new text  
 Replace All - Replace all occurrences of given text with new text

### OPTIONS

Goto Line - Used to quickly locate a program line  
 Goto Top - Go to the beginning of the program  
 Goto Bottom - Jumps to the end of the program  
 Preferences - Set editor options such as indent, text buffer, backups etc.

### PROGRAM

Compile - Compiler options and compile to disk option  
 Run - Compile program and run immediately  
 Jump to Error - Quickly locate compilation errors in your programs

Run Other - You can run any program from here without having to quit HiSoft Basic first (RAM permitting). Use file selector to select program and click OK to start program. Useful to check your own programs when compiled to disk.

- Backspace - Deletes character left of the cursor.
- Delete - Delete current character.
- Control+Y - Delete whole line.
- Undo - Undelete a whole line.
- F1 - Mark beginning of block.
- F2 - Mark end of block.
- F3 - Save block to disk.
- F4 - Paste block to cursor position.
- Shift+F5 - Delete block.

### WHAT IS BASIC?

Computers may appear to be complex machines, but in fact there is a very short list of "words" a computer needs to understand, which makes it easy for us to master the vocabulary. Unfortunately, computers don't speak English but a language called machine code. For that very reason, several programming languages have been devised which allow the programmer to instruct the computer in what is, more or less, a familiar tongue. BASIC acts as an interpreter between the programmer and the computer, eliminating the need to learn complex machine codes and allowing easy access to programming. Like English, BASIC reads from left to right and from top to bottom and so is a more "familiar" language with which to program. BASIC only supports about 200 commands, and of these only a dozen or so will be needed for you to write your first program.

## THE COMMANDS

PRINT - Use this statement to print text and numbers to screen. Text must be inside quotation marks like - PRINT "Hello"

INPUT - Normally used with a prompt, for example INPUT "Type a number, please";a  
 When an INPUT statements is encountered by the program, it pauses and waits for the user to type something and/or hit Return.

IF...THEN - The most common conditional statement. Used to make the program act according to the IF...THEN conditions.  
 IF a=6 THEN PRINT "Good Morning"

SELECT CASE - This is similar to IF...THEN.  
 SELECT CASE a  
     CASE=1:(do this...)  
     CASE=2:(do that...)  
     CASE>5:(do nothing...)  
     CASE ELSE:(do something...)  
 END SELECT

FOR...NEXT - This is one the various BASIC loops.  
 FOR i=1 to 5  
     (do something...)  
 NEXT i  
 The loop will be repeated 5 times, the variable i is used as a counter. Any commands inside the FOR...NEXT will be repeated

five times.

MOD - The modulus is used to divide two numbers and produce the remainder, 6 MOD 4 will produce 2, 8 MOD 4 will give 0. This can be used to check if a number can be divided by a second number and give a whole number (no fractions) as a result.

\$ - The dollar symbol is used to indicate that a variable will contain text rather than a number. a\$= "Some text"

DEFINT a-z - This limits all variables in the program to \*whole\* numbers between -32768 and 32767. This results in a more compact and efficient code, a faster program to you and me. If the number is required is outside this range then the & must follow the variable name. For example -  
 a=31000  
 b&=150000

INCR - To increment a variable we use the INCR statement.

INCR a  
 a=5

"a" will now be 6.

DECR - Has the opposite effect to INCR.

## SOFT OPTIONS

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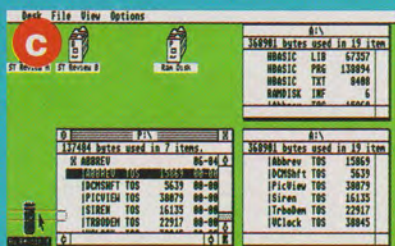
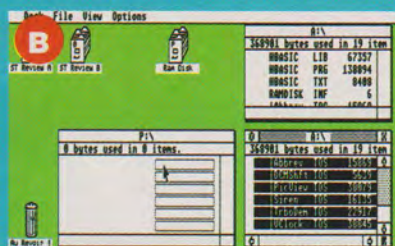
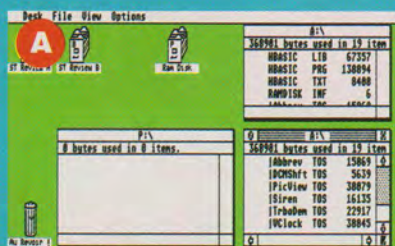




# WORKING WITH YOUR COVER DISKS

## STEP BY STEP

- 1 Format a standard double-sided, double-density disk from the desktop.
- 2 Power-up your ST with Cover Disk #1 in the disk drive. You should see a brief loading screen telling you that a 350K RamDisk is being loaded into memory. If you start up in low resolution, change to medium resolution.
- 3 You should see three windows on-screen (Figure A); the one labelled P:\ is a RamDisk which is going to be used to get some of the programs onto the disk you've formatted. Grab the six programs in the bottom right window and drag them to window P:\ (Figure B). These will now be loaded from Cover Disk #1 into RamDisk P.
- 4 Double-click on |ABBREV.TOS in P:\; it will go through a self-extraction procedure and should result in a folder called ABBREV. Drag the |ABBREV.TOS file from window P:\ to the trashcan and delete it (Figure C).
- 5 Now do the same for the other five programs on the RamDisk; double-click to extract to a folder and delete the .TOS version from P:\.
- 6 Put your disk into the disk drive, grab the six folders on P:\ and drag them to the icon for disk drive A. The 6 folders and 20 files will then be copied to your disk.
- 7 Put Cover Disk #1 back in the drive and delete the AUTO folder. This will ensure that the RamDisk doesn't load into memory when you start working with HiSoft BASIC 1.
- 8 Turn the ST off and power-up with Cover Disk #2 in the disk drive. Grab |Hopping.PRG and |Train.PRG in the bottom right window and drag them to window P:\.
- 9 Put your disk back in the drive, grab the two programs in P:\ and drag them to the icon for disk drive A. The two files will be copied to your disk.
- 10 Finally put Cover Disk #2 back in the drive and delete the AUTO folder. This will ensure that the RamDisk doesn't load into memory when you start working with Dr Tiricc. Turn your ST off, put whichever disk you want to start with into the drive, power-up and away you go.



With two major programs, a couple of games and various utilities, you're bound to be chomping at the bit. But first, follow these instructions. . .



## DEGAS & NEOCHROME VIEWER

PICVIEW • MIN MEMORY 0.5MB • APPLICATION BY DESKTOP DESIGNS

If you have lots of Degas and Neochrome pictures and need to see them quickly, PicView fits the bill perfectly

Users of **NEODESK** will know of the picture file viewer; double-click on any .NEO files and view them instantly. **PicView** provides this facility via two programs.

**NeoView** works with **Neochrome** pictures (.NEO) which are only in low resolution. Click on NEOVIEW.PRG to highlight it and go to Install Applications under the Options heading in the menu bar. Set the Document Type to NEO, the Application Type to GEM and click on Install. Now double-click on any .NEO file to instantly view it from the desktop. If you are in high or medium resolution, you can still view the picture albeit incorrectly.

**DegasView** works with high, medium or low resolution (PI3, PI2 or PI1) Degas pictures. Click on the DEGAVIEW.PRG to highlight it, go to Install Applications under the Options heading in the menu bar, set the Document Type to PI?, the Application Type to GEM and click on Install. Now double-click on any .PI? file to view it from the desktop. If you're in the wrong resolution, you'll be able to see a version of the shot.

Having set up the application, try double-clicking on NOFIRE1.NEO or NOFIRE1.PI1 to display the excellent example that we have included. Once you've seen them, just click on either mouse button.



# VCLOCK

**VCLOCK 1.4 • MIN MEMORY 0.5MB •  
DESK ACCESSORY BY STEVE WILSON**

*VClock is the ultimate ST clock desk accessory  
– once you've seen it you'll never be without it!*

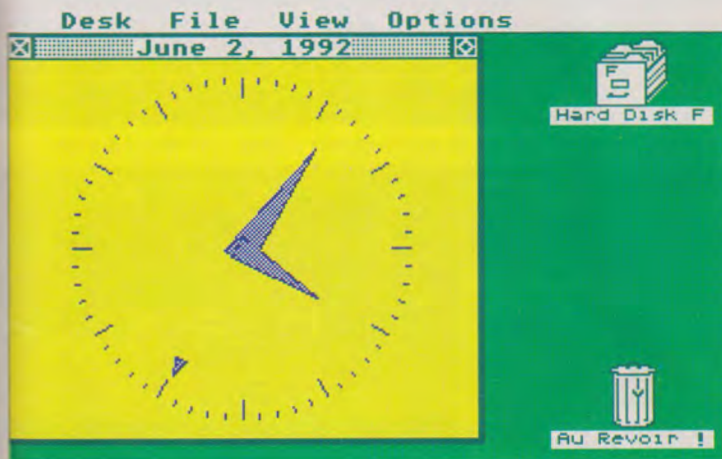
Copy the VCLOCK.ACC, VCLOCK.RSC and VCLOCK.INF to your boot disk. Re-start your ST and you should find **VClock V1.4** under the Desk menu heading. Click on this in order to make **VClock** appear.

Unless you have a clock cartridge or a clock chip in a hard drive, the chances are that the correct time will not be shown. Use CONTROL.ACC, the standard Atari ST desk accessory, to set the correct time.

To resize **VClock**, simply click on any point inside the clock-face and drag the rectangle which appears to the size you wish. If you click inside the window, it will automatically resize to the point you have clicked. To get rid of it, click in the top left-hand corner box.

To configure **VClock** to your personal taste, hold down the Control key and left-click in the window to bring up the Display Options box. Here you can select between analogue and digital display and whether the date and seconds are shown. The background and foreground colours can also be chosen. Click on Save and **VClock** will start up in exactly the way that you want it to each time.

A .PRG version is also included for use with **MultitOS** when it becomes available.



# ABBREVIATOR ST

**ABBREVIATOR ST • MIN MEMORY 0.5MB • PROGRAM OR  
DESK ACCESSORY**

*Fed up with making spelling errors?  
Abbreviator ST can automatically alter them  
for you*

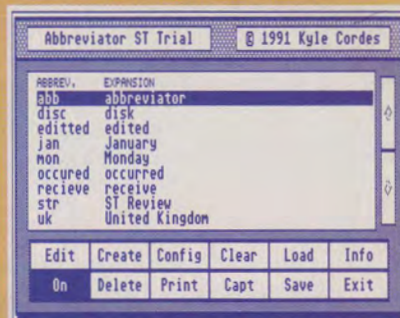
**Abbreviator ST** lets you type in an abbreviation into any software supporting text such as a word processor, desktop publisher, spreadsheet, database and so on, and then expands it to its full size automatically.

Put the ABBREV.ACC and SAMPLE.ABR files onto your boot-up disk and re-start your ST; Abbrev. ST should appear under the Desk heading. Click on this to drop down the Abbreviator ST Trial window. You should see seven abbreviations in the list, courtesy of the American writer; this demo version allows you to have up to nine abbreviations in memory at once, while the full version allows hundreds (you can see the greyed out scroll bars on the right side of the abbreviation list). All of the other functions work in this excellent demo.

Create lets you key in an abbreviation and its expansion, Edit (double-click on an abbreviation) allows you to change an existing insertion, Delete gets rid of a single entry while Clear empties out all abbreviations. Load and Save (active in this demo) effectively let you have a different file per program that you use and Print allows you to keep a hardcopy of your abbreviations. Capt is very useful; it captures the last 200 keystrokes and then lets you edit the result as a single abbreviation.

Config allows you to set-up **Abbreviator ST** for your computer. The Buffer Size is the amount of memory taken up, which can be a minimum with this demo version and the Hotkey lets you turn Abbreviator on and off.

If you simply want to edit abbreviations, change the .ACC extender to .PRG and double-click on the program - Capture won't work, but other facilities remain the same.



# ISLAND HOPPING

**ISLAND HOPPING • MIN MEMORY  
0.5MB • COLOUR ONLY • PROGRAM  
BY JOHN SHEPHERD**

*This Boulder clone will bring back memories.  
A well-constructed, five-level game to keep  
you amused*

A variety of obstacles await the unwary in this bounce-'em-up. It's a good example of what can be done with a little imagination and a good knowledge of **STOS** programming.

Double clicking on |HOPPING.PRГ reveals a delightful title screen and a list of special tiles. These include number tiles (score points), green slime (slows you down), shield (limited indestructibility), teleports, diamond (extra time in bonus games), stepping stones (dangerous – they sink!), springers (for bigger jumps) and the champions cup for an extra life.

Pressing space will then take you on to the level selection screen. Start on level one, press fire and away you go. Con-

trol is simple; forward to go forward, back to go back. It's wise to keep moving forwards, as you'll need the extra time it buys you later on. The hardest job is selecting the route that'll get you onto the next island and, if you're anything like us, you'll be addicted before long!





## DC MOUSE SHIFT

DCMSHIFT • MIN MEMORY 0.5MB • AUTO PROGRAM

*The right mouse button doesn't do much, right? Wrong – not when you use DC Mouse Shift!*

**DC Mouse Shift** can emulate the Control, Alternate or either of the Shift keys making many mixtures of keyboard and mouse commands much easier to perform.

Double-click on DCMSHIFT.PRG from the desktop and decide which of the four available keys you want the right button to emulate; you are offered each of them in turn. You then have to decide whether you want **DC Mouse Shift** to work only from the desktop or in programs as well. Once you have finished configuring the program, place it in the Auto folder on your boot-up disk; if you haven't got one already, create one using the New Folder option under the File menu heading. Now re-boot and you should see a panel appear telling you that DC Mouse Click is active.

How does **DC Mouse Shift** make life easier? A couple of examples: If you set it up to emulate either of the Shift keys, you can select lots of individual files by holding down the right button and clicking with the left: If you have TOS 1.4 or higher (Mega STE, STE and some MEGAs), assign the Control key to the right button and move files by holding down the right button and dragging with the left.

## TURBO ST DEMO

TURBO ST 1.6d DEMO • MIN MEMORY 0.5MB • DESK ACCESSORY

*Turbo ST gave a very favourable showing in our tests on screen accelerators in this issue. Ride the fast lane for 15 minutes ...*

**Turbo ST** has been around for four years and is felt by many to be the best screen accelerator when used under typical conditions. Place TURBOST.ACC on your boot disk and restart the ST. You'll find **Turbo ST Demo** under the Desk heading.

## TRAIN SET

TRAIN SET II DEMO • MIN MEMORY 0.5MB - COLOUR ONLY • PROGRAM

*Put your station master's hat on for this one and run your own rail network!*

You are the controller of a rail network and have to supervise the collection of the mail. Each train is sent out by you (or the computer if you're too slow!) and has it's own colour coded mail to pick up. Your mission is to guide the trains around the track by clicking on the intersections to get them to pick up the right coloured mail. If you get the wrong colour, then that junction will explode and be out of service for the rest of the game. Your repaired train

will be returned to the station and you can start again. The game is over when all the mail is collected, if you pick up the wrong coloured mail four times or two trains collide.

At each junction, you have the option to send the train in each of three directions, and each train has its own timetable. There is a gauge of when the trains are due to leave so you can judge when to release them and which way they're going.

Each train is controlled by using its individual, colour-coded control panel at the bottom right

## IT'S THE COPS!

SIREN • MIN MEMORY 0.5MB • DESK ACCESSORY

*It's silly season time with Siren, the manic police car desk accessory*

**Siren** sends a police car along the bottom of your screen along with siren and engine sounds. The frequency of its appearance is set via the SETSIREN.PRG.

Place SIREN.ACC onto your boot disk and re-power. Double-click on SETSIREN.PRG, locate the copy of SIREN.ACC that you are

using and enter the new time interval in minutes and seconds – try using 60 minutes for the equivalent of an hour chime!

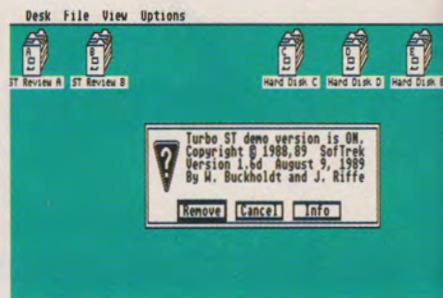
Be careful not to set the time interval too short;

each time the police car appears, it stops the ST in the middle of whatever it is doing, including saving to disk or loading a file!

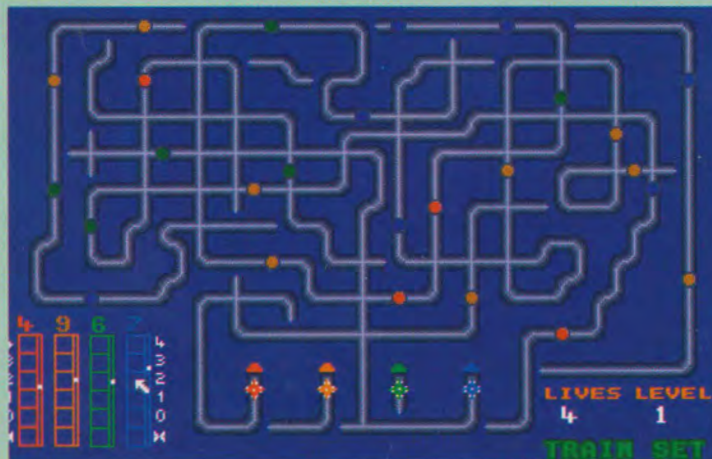


To instantly see the effect of having **Turbo ST** installed, click on Desktop Info... under the Desk heading and see the information box instantly appear. Now click on **Turbo ST Demo** and click on the Remove box to disable it. Select Desktop Info... again, but this time you'll see it scroll down instead of immediately appearing. Convinced?

This demo will run for 15 minutes and will then de-install itself; if you are running a GEM program, a dialogue box will appear and a bell will ring to tell you; with a **TOS** program, you will get the bell and the screen changing colours for two seconds.

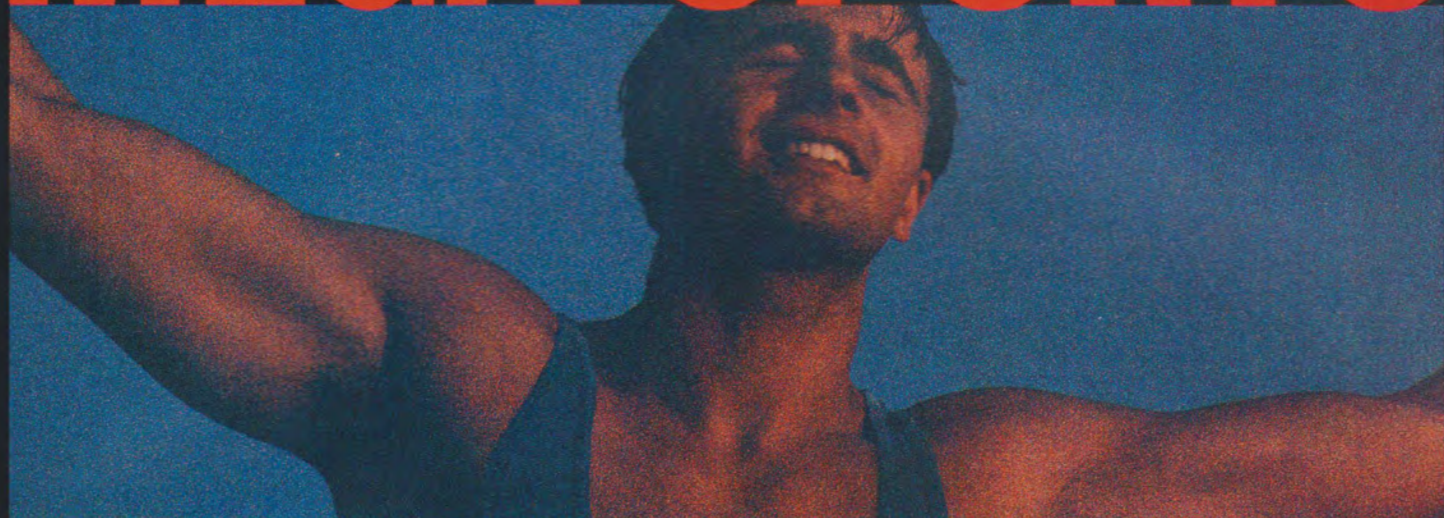


of the screen. If it becomes behind schedule, it goes onto auto pilot and will happily go around on its own and make a nuisance of itself – you have been warned!





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# NEXT MONTH

## HARD DISKS ALL THE INFORMATION YOU NEED ABOUT MASS STORAGE



*Next month the ST searchlight will be centring on hard drives for your ST as we look to see which are the best for your system.*

**E**verybody wants a hard drive, don't they? Or are you still quite content to wade around a desk covered in disks? Not a cheap item, a hard drive remains an essential purchase for anyone who wants to store data - whether programs or text files - or for anyone who wants to get the best out of their machine.

And to get that extra something, we'll be looking at the best drives on the market - from 40 MB drives which give you enough storage space for your working programs to top-of-the-range models that are removable metal disks that can store over 40 MB and give you portable mass storage.

If you need more memory, don't forget to find out about it before you buy.

## PLUS SO MUCH MORE!

● **MONITORS** - Think that your eyesight makes the Atari desktop look a bit fuzzy on your colour TV screen? Think again. Once you've experienced the difference that a colour monitor makes you'll never change. Unless of course you need the ST's high resolution mono mode. We'll be viewing both colour and high resolution B&W monitors.

● **TUNE UP YOUR ST** - Turn your ST into a rip-roaring Mac-beater as Andrew Wright looks at Replacement

File Selectors that give you more control over your files.

● **FAXMODEMS** - Designer technology that offers amazing value for money. For the same price as a mid-range fax machine you can have the convenience of a high-speed modem and a fax that prints directly to your screen.

### FOR GAMEPLAYERS

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*Soccer* is the strongest contender for the Jules Rimet trophy of computer sports games. Will it take *Kick Off*'s crown? Plus a new-look VFM section will give you the low-down on even more budget games than ever before.

### ON DISK

● A full commercial utility that just about everyone can use, plus a few surprises. How can we top this month's amazing giveaways? Just wait until next month to find out.

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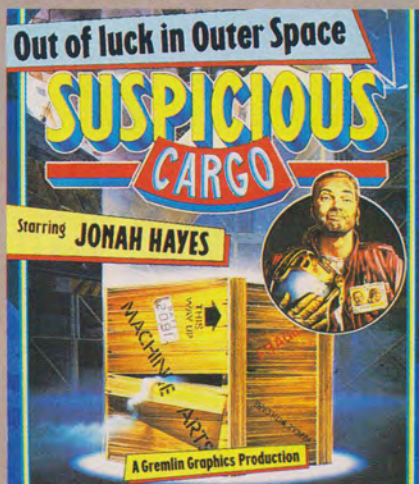
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# AFFORDABLE

**There are a lot of 9-pin dot matrix printers still available these days. While some are specialised and expensive, the majority will suit almost any pocket, with prices ranging from £100 to £300. John Mallinson takes a look at the most popular printers and delivers his verdict**



## WHY BUY A 9-PIN?

**T**hese old workhorses still sell in large numbers, although 24-pin and inkjet machines have dropped in price. Go to any computer show and you will see streams of people heading home clutching their new 9-pin printers. Visit your local garage or builders' merchant and your bill will almost certainly appear from a grimy 9-pin printer. People on a tight budget, whether at home or in the office, and businesses that need fast reliable printing of invoices and miscellaneous stationery that doesn't need to be of the highest quality, are the main users of this type of printer.

Home and business users look for different things from a 9-pin printer. The home user needs a fairly fast machine which is easy to use and has a decent selection of typefaces; while the business user will want the fastest, most reliable printer with good paper handling. The range that is currently available is enough to suit both groups.

### NINE PINS

The print head has a vertical row of nine needles which are 1/72 of an inch apart and strike the paper through a ribbon. Characters are made of dots which are usually organised in a 9 by 11 grid pattern.

Draft printing uses the minimum number of dots to make up a character - if you look closely you should be able to count them, and also see that they are quite large. Best quality (Near Letter Quality) printing makes the characters seem more solid by going over them once, moving the paper by a fraction, and then going over them again. You can still see the dots in NLQ print outs but they appear less obvious because of the overlap.

On all machines the printing of draft text is bi-directional (one line printed left to right, then down to the next line which is printed right to left) whereas, on the cheaper machines at least, NLQ printing is unidirectional (each line is gone over twice in the same direction). This explains why draft printing is often four times as fast as NLQ.

### PAPER

Paper feeding options can be critical in a printer that is going to be used for business. Any printer can use single sheets loaded by hand, while even the cheapest machines can be fitted with a cut sheet feeder, and all of them have some sort of tractor mechanism with spiked wheels or bands which grip the sides of perforated paper (variously known as computer, listing, or fanfold paper).

Single sheet loading can be semi-automatic: you position the paper, then press a button or pull a lever to advance the paper round the roller. Fully automatic loading does it for you when the printer detects that there is a sheet in the right position. Either method can result in scrunched-up paper which you have to retrieve by hand.

Tractor mechanisms either push the paper into the printer and round the roller to the print head, or pull it out of the printer, dragging it past the print head. Both have advantages and disadvantages which is why many printers have both. Push tractors behind the print head give you the convenience of tearing off the paper at exactly the length you want so you won't waste much. Also you can put fanfold paper back into the machine and out of the way so that you can print the odd single sheet, or use the sheet feeder, without having to remove the continuous paper altogether.

Pull tractors above the print

head control the paper movement more precisely (and therefore may improve print quality), and are usually recommended for labels or multi-part forms which can get scrunpled if pushed. Some machines with pull tractors also have a loading slot in the bottom of the printer; this gives the paper a straighter path to the print head which lessens the risk of jamming. It also makes labels less likely to come off their backing and gum up the works.

### NOISE

Noise is the biggest problem with all dot matrix printers. Fingernails on a blackboard are worse, but the high pitched tearing noise from printers can be unpleasant enough. In general the more expensive the machine, the better built it will be and the more money will have been spent on silencing it. Some printers have a "quiet print" mode, which works by doubling the number of passes the print head makes per line (and thus halving the print speed).

### CHEAP COLOUR

Several 9-pin printers can print in colour by using a special CMYK ribbon. C stands for cyan (blue), M for magenta (purplish red), Y for yellow, and K is black. The ribbon is effectively four colour ribbons joined edge to edge, so to print the different colours it has to be moved up and down in front of the pins of the print head. This is done by a small motor.



An old favourite, courtesy of IMPrint and the Citizen Swift 9.



# LUXURIES

EVERY POPULAR  
9-PIN PRINTER  
UNDER TEST

By printing the four basic colours over each other you can end up with seven in all – green, for instance, is produced by printing a line in yellow and then over-printing it in cyan. The result of this is that colour printing is slow. It is also three or four times more expensive than printing with a black ribbon.

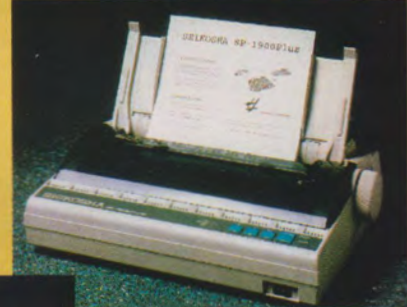
There are several graphics programs which let you draw or print colour pictures – *Degas* and *IMPrint* are two examples. The DTP program *PageStream* can produce colour on a 9-pin printer, but don't expect marvellous results. The word processors *Protext* and *First Word Plus* have colour printer drivers, so you can liven up your letters or projects with snappy coloured headings. If you are thinking of getting a colour model you may find an ST dealer who will sell it with some kind of colour printing utility which will at least let you do colour screen dumps.

Are the results worth the extra cost? It's certainly fun, and to get anything much better you will have to pay a great deal more. Having said that, the results are fairly crude and the range of colours is limited. Solid blocks of colour look good, but don't expect any subtle shading. The print outs tend to be rather stripy, which is a feature of all graphics printing on dot matrix printers. The Bugs Bunny picture opposite, which was produced via *IMPrint* on a Citizen Swift 9 is pretty typical of the results you can get.

## THE TESTS

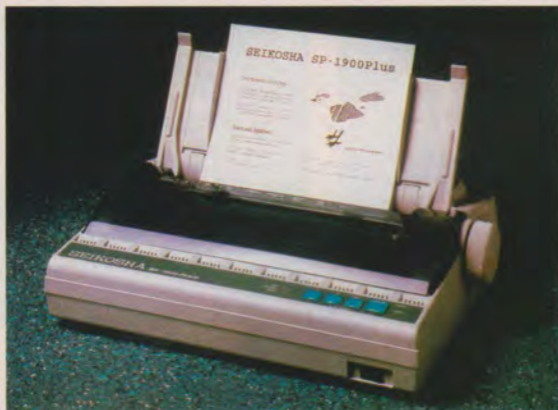
We've looked at these machines from the point of view of their design, build and ease of use, and also their speed and print quality. There are great differences in speed, but surprisingly little variation in print quality between them, though some have more and better fonts. They were timed with text pages using their internal fonts with two standard word processors, *Protext* and *First Word Plus*. They were also timed whilst printing a page of text and graphics from *That's Write*, which prints in graphics mode – much slower, but giving a wide selection of typefaces.

The four colour models were also tried out using *IMPrint*, a simple and inexpensive program which gives you a fair degree of control over how your graphics will appear.





# SEIKOSHA SP-1900+



Seikoshas budget SP-1900+.

**The most basic machine in Seikoshas large range of dot matrix printers may not be the smartest looking, but then looks aren't everything. . .**

Paper feed possibilities on this machine are single sheet with semi-automatic loading, push tractor, or an additional cut sheet feeder. You can even park fanfold paper out of the way so that you can use single sheets without unloading it.

On the control panel there are four LEDs and four membrane-type switches which control the usual functions of switching between draft and NLQ, changing typeface and so on. For additional operations, such as changing type pitch and margin setting, you operate a menu system from the control panel. The options are printed on the cover over the print mechanism; you select them by using the control buttons to move the print head against them and then press the Set button. This is an effective alternative to a greater assortment of control panel buttons and lights.

## TYPEFACES

There are two NLQ typefaces, Serif and Sans Serif. Both are clear and legible and the draft font is

*The Seikoshas SP-1900+'s font printouts are a bit faint, but quite readable.*

Seikoshas SP-1900  
Draft mode abcdefg  
Serif abcdefg  
Sans serif abcdefg  
Italic, bold, underline

acceptable. Seikoshas supplies either fabric or carbon ribbons for its machines: the carbon ribbon gives sharper characters.

Although it lacks some of the features of pricier models, the SP-1900+ is easy to set up. The absence of a pull tractor and bottom feed, the minute print buffer and the limited number of fonts are signs of cost cutting. It is noisy and one of the slowest models tested, but you can put that down to the price.

**"Light and small, simple to use, very cheap"**

**NAME: SEIKOSHA SP-1900+**  
**COMPANY: SEIKOSHA UK LTD**  
**CONTACT: 0753 685873**  
**PRICE: £155**

<b>DESIGN</b>	☆☆☆☆☆
<b>CONSTRUCTION</b>	☆☆☆☆☆
<b>EASE OF USE</b>	☆☆☆☆☆
<b>PRINT QUALITY</b>	☆☆☆☆☆
<b>SPEED</b>	☆☆☆☆☆
<b>FEATURES</b>	☆☆☆☆☆
<b>INSTRUCTIONS</b>	☆☆☆☆☆
<b>VALUE FOR MONEY</b>	☆☆☆☆☆

## ADDITIONAL PRICES

**FABRIC RIBBON: £5.50**  
**CARBON RIBBON: £7.20**  
**SHEET FEEDER: £98**

**OVERALL 65%**

# EPSON LX-400



Epsons elegant LX-400.

**One of the better machines on test, with a higher price that reflects its quality**

Epson makes no bones about it in its glossy printer guide: 9-pin dot matrix printers are for printing out data (listings, labels and the like), not for word processing or DTP. In the business market they are probably right, but they seem to be overlooking the people with a mortgage who have to take money out of their own wallets to buy computer gear.

This is a very clean-looking machine, simple in design, basic in functions. Paper feeding is by single sheets with semi-automatic loading, or pull tractor with rear loading. The tractor arrangement is rather crude as the mechanism is not built-in: you have to remove the paper guide from the top of the machine, take out a plastic plug and then slot in the tractor unit. This only takes 10 seconds, but it makes swapping between fanfold and single sheets rather annoying and leaves you with plastic bits on your desk. Another possibility is to use the optional paper roll holder, especially useful for labels.

## SWITCHES

On the control panel there are three membrane switches and four lights, and everything is unambiguously labelled. You can switch between NLQ and draft quality, and Roman and Sans Serif typefaces very easily, but adjusting the print pitch (10, 12 or

*The Epson LX-400 produces average quality printing at a low price.*

Epson LX-400  
Draft mode abcdefg  
Roman abcdefg  
Sans serif abcdefg  
Italic, bold, underline

17cpi) is an intricate business.

It involves going into what is called SelectType mode and then pressing one of the switches so many times for 10 pitch, so many times for 17 – all with no guidance, apart from a few bleeps. The market leader should do better than this.

This machine looks better made than many, and it also printed text faster than its manufacturer's specifications would suggest. It is quieter than some.

In value for money terms the Epson LX-400 doesn't score too well as you can get machines at this price that do more – but then they aren't Epsons!

**"A neat machine, basic in functions, looks solid"**

**NAME: EPSON LX-400**  
**COMPANY: EPSON UK LTD**  
**CONTACT: 0442 61144**  
**PRICE: £169**

<b>DESIGN</b>	☆☆☆☆☆
<b>CONSTRUCTION</b>	☆☆☆☆☆
<b>EASE OF USE</b>	☆☆☆☆☆
<b>PRINT QUALITY</b>	☆☆☆☆☆
<b>SPEED</b>	☆☆☆☆☆
<b>FEATURES</b>	☆☆☆☆☆
<b>INSTRUCTIONS</b>	☆☆☆☆☆
<b>VALUE FOR MONEY</b>	☆☆☆☆☆

## ADDITIONAL PRICES

**FABRIC RIBBON: £5**  
**SHEET FEEDER: £79**  
**ROLL HOLDER: £25**  
**SERIAL INTERFACE: £36**

**OVERALL 65%**



# PANASONIC KX-P1170



Lots of features in Panasonic's cheapest, the KX-P1170.

**Panasonic's cheapest machine gives the competition a run for its money**

Although the price of this machine is low, the features are all there. As you might expect, construction is flimsy compared to more expensive machines, but it looks as if it should stand reasonably heavy use. There is a full range of paper feed options: single sheet with semi-automatic loading, push tractor with paper loaded from the rear, pull tractor with paper fed from below, and an optional cut sheet feeder. Most printers have separate mechanisms for push and pull: you either move the tractor device from one position on the machine to another, or the pull device is an extra. The Panasonics use the same built-in mechanism for both, which makes life simpler.

## FUNCTION MODE

The front panel has decently sized and clearly labelled membrane-type switches. You can go into a Function mode to set typeface, print pitch, and paper length using a clearly laid out chart with LED's to show what you are doing. Since most settings can be made from the front you shouldn't need to use the dip switches which lurk inside the machine under a plastic cover. You won't

*This machine has three NLQ fonts, but Prestige & Bold PS are rather busy.*

Panasonic KX-P117  
Draft mode abcdef  
Courier abcdefg  
Prestige abcdefg  
Bold PS abcdefg  
Italic, bold, und

need to refer to the manual often, but it is quite useful.

Text printing is fast, but the graphic text printed from *That's Write* took a long time. There are three decent NLQ fonts, and the draft font is easily readable.

This machine is easy to set up and use. It has no obvious drawbacks and there are more facilities than on most other machines at the price.

**"Lots of features, good value for money"**

**NAME: PANASONIC  
KX-P1170  
COMPANY: PANASONIC  
BUSINESS SYSTEMS  
CONTACT: 0344 853943  
PRICE: £185**

DESIGN	★★★★☆
CONSTRUCTION	★★★★☆
EASE OF USE	★★★★☆
PRINT QUALITY	★★★★☆
SPEED	★★★★☆
FEATURES	★★★★☆
INSTRUCTIONS	★★★★☆
VALUE FOR MONEY	★★★★☆

## ADDITIONAL PRICES

**FABRIC RIBBON: £5.50  
SHEET FEEDER: £69  
SERIAL INTERFACE: £35  
32K ADDITIONAL MEMORY: £55**

**OVERALL 75%**

# SEIKOSHA SP-2400



The Seikosha SP-2400 - the faster elder brother of the 1900+.

**The sophisticated "older brother" of the SP-1900 packs in a lot of features at a low price**

The size, weight and shape of this printer are identical to those of the SP-1900, but this one offers more features. The control panel looks classier, with membrane switches which appear to be sculpted, though they aren't. Another, more dubious, improvement is the addition of bleeps and squeaks which you unfortunately can't turn off.

More usefully though, the print buffer has been enlarged to 18K (about 10 pages of type) and there is a built-in serial interface as well as the parallel one. Paper feeding is the same - single sheets, optional sheet feeder, push tractor. The other main improvements are in printing speed and the number of typefaces available.

## DRAFT MODES

There are three draft modes depending on the character pitch used. Normal draft is at 10cpi, speed draft at 12 cpi and super speed at 15cpi. This reduces the line length and hence and the time taken to print a page which goes down from 30 seconds in normal draft mode to about 23 seconds in super speed mode.

*The Seikosha SP-2400: you'll find two or three that you like out of this group.*

Seikosha SP-1900  
Draft mode abcdef  
Sans serif abcdef  
Courier abcdefg  
Prestige abcdefg  
Script abcdefg  
Gothic abcdefg  
Italic, bold, und

The five NLQ typefaces are Courier, Sans Serif, Prestige, a rather untidy Script and a medium bold Gothic sans serif. You're unlikely to find a printer driver to let you switch between them from software (this applies to many of the other printers as well), but you can select them from the control panel before printing.

Typeface, margins, and print pitch are set using the same menu system as on the SP-1900. As mentioned before, this is a slightly crude but straightforward way of doing things.

**"Good value, fast, decent selection of typefaces"**

**NAME: SEIKOSHA SP-2400  
COMPANY: SEIKOSHA  
UK LTD  
CONTACT: 0753 685873  
PRICE: £199**

DESIGN	★★★★☆
CONSTRUCTION	★★★★☆
EASE OF USE	★★★★☆
PRINT QUALITY	★★★★☆
SPEED	★★★★☆
FEATURES	★★★★☆
INSTRUCTIONS	★★★★☆
VALUE FOR MONEY	★★★★☆

## ADDITIONAL PRICES

**FABRIC RIBBON: £5.50  
SHEET FEEDER: £98**

**OVERALL 70%**



# AEG OLYMPIA NP 60



Simple but over-priced, the AEG NP 60.

**If you like things plain and simple, this machine will definitely appeal to you**

You are much more likely to find this printer in an office equipment retailer than in your high street computer store. It is remarkably heavy for an 80-column printer, weighing more than the two Seikoshas put together - if weight means sturdiness then this must be a well-built machine.

You are not given many paper feed options. The choice is simply between single sheets with semi-automatic loading or fanfold using the push tractor. It was the only machine on test without an optional sheet feeder, and even loading single sheets is not made very easy.

On all other machines the paper load button or lever advances single sheets to the correct position for the top of the page. Not here. You have to release the paper lever at the right moment or the sheet will foul the printer's top cover and you will have to wind it back by hand. This suggests that it was only really designed for use with fanfold paper.

## SIRENS

Another particularly irritating feature is the little snatch of electronic melody, resembling a police siren, that it plays when it runs out of paper. Life is noisy enough without this.

*The AEG Olympia NP 60: not much choice here, but it has a true italic font.*

AEG Olympia NP 60  
Draft mode abcdef  
Near letter quality  
Italic, bold, und

The control panel is very simple, and contains four modestly-sized membrane switches. Alongside it, under a sliding cover, is a bank of dip switches. There's little chance of confusion here about which font you have selected as there are only two: draft and an anonymous NLQ. Neither are interesting, but both are legible.

Printing speed is reasonable for the price. On the other hand, the price seems much too high for a printer with such a low overall specification.

**"Very basic and expensive for what it offers"**

**NAME: AEG OLYMPIA NP 60**

**COMPANY: AEG OLYMPIA**

**CONTACT: 0753 630111**

**PRICE: £199**

DESIGN	☆☆☆☆☆
CONSTRUCTION	☆☆☆☆☆
EASE OF USE	☆☆☆☆☆
PRINT QUALITY	☆☆☆☆☆
SPEED	☆☆☆☆☆
FEATURES	☆☆☆☆☆
INSTRUCTIONS	☆☆☆☆☆
VALUE FOR MONEY	☆☆☆☆☆

## ADDITIONAL PRICES

**FABRIC RIBBON: £4.48**

**SERIAL INTERFACE: £30**

**OVERALL 55%**

# STAR LC-20



The LC-20, an excellent budget bargain from Star.

**Star's budget model is easy to use and has a good range of fonts**

This printer superseded Star's best-selling LC-10 last year - although it has a higher list price than some, it's heavily discounted in the shops and therefore often actually turns out to be one of the cheapest to buy.

The styling of this machine is simple, but it does look a little old-fashioned when you compare it with some of Star's other models. The build quality seems to be adequate, although you can't really expect to buy a heavy duty printer at this price.

The paper options include single sheet with semi-automatic loading, optional cut sheet feeder, and a built-in push tractor. There is only the rear loading path for fanfold paper and there is no pull tractor option.

## CONTROLS

On the control panel there are four buttons and 10 lights. They are labelled clearly and you shouldn't need to spend more than a few minutes reading the manual to learn all you need to know about setting up and running this fairly simple machine.

From the control panel you can choose to swap between three of the NLQ typefaces. These are in this case Courier, Sans Serif and Orator, the latter being larger than the others and all in capitals. There is a second Orator font which has upper and lower case

*Star LC-20: clean and legible font printing.*

Star LC-20  
Draft mode abcdef  
Courier abcdefg  
Sans serif abcdef  
ORATOR (CAPS) ABC  
Orator abcdefg  
Italic, bold, und

and which can be easily selected from software.

Star's typefaces are simple, clear, and they do print quite well. The manufacturers have avoided the temptation of having complicated twiddly typefaces which really can't be expected to print well on this type of machine.

The noise level from the LC-20 is about average for a cheap machine and there is a quiet printing option which, as is often the case, cuts noise and speed in proportion. Unfortunately, it tends to make printing excessively slow, and this will perhaps make the user more inclined to put up with the noise.

**"Easy to use, pleasant fonts, good value"**

**NAME: STAR LC-20**

**COMPANY: STAR**

**MICRONICS UK LTD**

**CONTACT: 0494 471111**

**PRICE: £199**

DESIGN	☆☆☆☆☆
CONSTRUCTION	☆☆☆☆☆
EASE OF USE	☆☆☆☆☆
PRINT QUALITY	☆☆☆☆☆
SPEED	☆☆☆☆☆
FEATURES	☆☆☆☆☆
INSTRUCTIONS	☆☆☆☆☆
VALUE FOR MONEY	☆☆☆☆☆

## ADDITIONAL PRICES

**FABRIC RIBBON: £4**

**SERIAL INTERFACE: £55**

**SHEET FEEDER: £65**

**OVERALL 68%**



# CITIZEN SWIFT 9



M-1309 Citizen Swift 9 – a colour machine shown here in mono.

**Cheap colour printing and a well-written manual make this printer good value**

The Citizen Swift 9 has been around for a couple of years but has all the features of more recent machines and can give you colour at a reasonable price.

It doesn't seem as solidly constructed as some, but Citizen backs it with a two-year warranty. This is a noisy machine, but there is a quiet mode which prints at a lower speed.

## CONTROLS

The control panel is a nice feature. One four-position switch controls four menus, each with four buttons for their four items. There is a built-in tractor for push feed which you can move to the top of the machine and use for pull feed from the back or through a bottom slot. There are two types of sheet feeder. One is automatic, while the other, costing less, is more of a paper stacker and you have to pull a lever to load each sheet.

The colour apparatus is easy to install, and you can use an ordi-

*The Citizen Swift 9 – Times is rather clogged up, but the others are good.*

**Citizen Swift 9**  
 Draft mode abcdefg  
 Times roman abcdefg  
 Sans serif abcdefg  
 Courier abcdefg  
 Magenta  
 Cyan  
 Violet  
 Yellow  
 Orange  
 Green  
*Italic, bold, und*

nary black ribbon without taking the colour motor out again. Printing is reasonably fast and there are three NLQ typefaces (Times, Sans Serif, and Courier). The Swift 9 comes with a hefty manual, which is well-written and clear.

**"Versatile, good controls, but noisy"**

**NAME: CITIZEN SWIFT 9**  
**COMPANY: CITIZEN EUROPE LTD**  
**CONTACT: 0895 272621**  
**PRICE: £239**

<b>DESIGN</b>	☆☆☆☆☆
<b>CONSTRUCTION</b>	☆☆☆☆☆
<b>EASE OF USE</b>	☆☆☆☆☆
<b>PRINT QUALITY</b>	☆☆☆☆☆
<b>SPEED</b>	☆☆☆☆☆
<b>FEATURES</b>	☆☆☆☆☆
<b>INSTRUCTIONS</b>	☆☆☆☆☆
<b>VALUE FOR MONEY</b>	☆☆☆☆☆

## ADDITIONAL PRICES

**BLACK RIBBON: £2.90**  
**COLOUR RIBBON: £15**  
**COLOUR KIT: £38**  
**PRINTER STAND: £23**  
**SEMI-AUTOMATIC SHEET FEEDER: £40**  
**AUTOMATIC SHEET FEEDER: £84**  
**SERIAL INTERFACE: £30**

**OVERALL 77%**

# BROTHER M-1309



Brother's competent M-1309

**Brother's only 9-pin printer offers five typefaces**

This is Brother's only 9-pin, apart from its wide carriage version, the 1709 (£345). It's smaller and lighter than some and has a decent selection of fonts.

Paper feed arrangements are for single sheets, optional cut sheet feeder, or tractor. The tractor is normally installed in the push position for paper fed in through the back but can be quite easily moved to the top of the machine so that paper can be pulled in from the bottom or back. There are two plastic legs which you flip out to raise the back of the printer to give more ground clearance when using bottom feed. Loading is semi-automatic at the touch of a button, but, should the paper go in crooked, there is no way of releasing the roller to reposition it manually - you have to eject the paper and start again. (Not many printers these days seem to have a roller release lever.) Fanfold paper can be parked out of the way to put in single sheets.

## COMPLICATIONS

The control panel arrangement compares badly with other machines such as the Panasonics. Six multi-function buttons with lights mean that there are no dip switches, but you have to reach

*The Brother M-1309 offers a nice selection of well printed fonts.*

**Brother M-1309**  
 Draft mode abcdefg  
 Prestige abcdefg  
 Quadro abcdefg  
 Brougham abcdefg  
 Gothic abcdefg  
*Italic, bold, und*

for the book if you want to change the defaults. There are a series of tutorials to guide you through the intricacies of this menu system.

There are five typefaces, including the draft font. In NLQ mode you are offered Prestige, Gothic, Brougham (a slightly different serif face) and Quadro (a squarish sans serif). Of these Gothic, which is the simplest, prints best. Print speed is good for its price.

**"A reasonable performer, but relatively expensive"**

**NAME: BROTHER M-1309**  
**COMPANY: BROTHER BUSINESS MACHINES**  
**CONTACT: 071 387 5060**  
**PRICE: £239**

<b>DESIGN</b>	☆☆☆☆☆
<b>CONSTRUCTION</b>	☆☆☆☆☆
<b>EASE OF USE</b>	☆☆☆☆☆
<b>PRINT QUALITY</b>	☆☆☆☆☆
<b>SPEED</b>	☆☆☆☆☆
<b>FEATURES</b>	☆☆☆☆☆
<b>INSTRUCTIONS</b>	☆☆☆☆☆
<b>VALUE FOR MONEY</b>	☆☆☆☆☆

## ADDITIONAL PRICES

**FABRIC RIBBON: £9.95**  
**SERIAL INTERFACE: £35**  
**SHEET FEEDER: £99**  
**32K MEMORY: £27.95**

**OVERALL 60%**



9-pin Printers Tested

# STAR LC-200



Colour at a good price – the Star LC-200.

**This colour printer offers lots of extra features**

Star was one of the first firms to sell colour dot matrix printers but, unlike most other manufacturers, it doesn't sell colour kits which can be used to convert ordinary machines. It's probably cheaper to do it this way so you may get better value.

Even if you're not interested in its colour facilities, the LC-200 has a lot of features which still make it well worth considering.

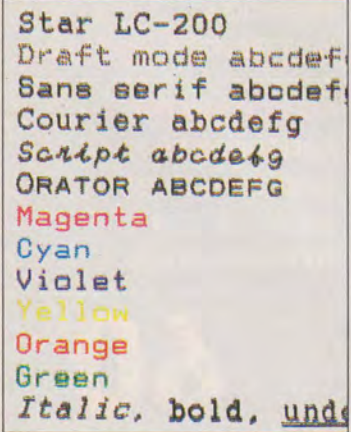
Paper feeding is by single sheets with semi-automatic loading, optional sheet feeder, push tractor from the rear, pull tractor with paper fed from below. The tractor arrangement is very similar to that on the Panasonics: only one mechanism for both push and pull. You can get a paper roll holder as well.

**SPEED**

This is not the fastest of the machines that we tested, but fortunately it does make up for the lack of speed by offering good print quality.

You are given the choice of four NLQ fonts – Courier, Sans Serif, Script, and Orator, which uses small and large capitals through-

*The Star LC-200: four more good fonts from Star.*



out. There's no Times or Prestige: as on the LC-20, Star has opted for simple typefaces and the resulting print outs are all the more satisfactory.

Control panel arrangements are simple and clear and, as there are no dip switches, you get templates to go over the panel so you can make the extra configuration settings fairly painlessly.

Colour printing works fine, and a particularly nice feature is that the colour ribbon can be changed to the cheaper black one with very little difficulty.

**"Prints well, good value, quiet"**

**NAME: STAR LC-200**  
**COMPANY: STAR MICRONICS UK LTD**  
**CONTACT: 0494 471111**  
**PRICE: £259**

- DESIGN ★★★★★
- CONSTRUCTION ★★★★★
- EASE OF USE ★★★★★
- PRINT QUALITY ★★★★★
- SPEED ★★★★★
- FEATURES ★★★★★
- INSTRUCTIONS ★★★★★
- VALUE FOR MONEY ★★★★★

**ADDITIONAL PRICES**

- BLACK RIBBON: £5.50
- COLOUR RIBBON: £11
- SHEET FEEDER: £65
- PAPER ROLL HOLDER: £29
- SERIAL INTERFACE: £55

**OVERALL 80%**

# OKI ML 280



Fast for its price – the OKI ML-280.

**A printer that puts speed over quality**

The external design of this machine, and even the pictures in the manual, are curiously dated. The control panel contains good old-fashioned buttons: these may be a bit wobbly, but they are proper buttons nonetheless.

Some aspects of the construction do seem a little flimsy: fitting the single sheet paper support is a struggle, and looking for the dip switches is similarly alarming – remove a plastic cover and there, down a deep dark hole, is the printed circuit board with the switches sitting right on it.

Another slightly odd feature is that there are different versions which are either Epson or IBM compatible and have either a parallel or serial interface – this must be quite a headache for the distributors but useful for us.

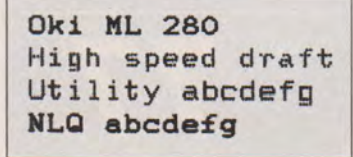
Unfortunately, the model that was supplied for test was IBM compatible and the lack of a suitable printer driver meant that we weren't able to assess its graphics printing speed with the *That's Write* test page.

**LIMITATIONS**

On a more positive note, the ML 280 is quick; in fact, it's probably one of the fastest machines available at any price, going up to 240cps at 10 pitch or 300 at 12. You are, however, limited to one rather undistinguished NLQ typeface (Courier) or one of two draft modes.

The paper feed options are all there: push tractor, single sheets or optional feeder, pull tractor or paper roll holder, rear or bottom

*The Oki ML 280 gives below average print quality.*



loading. Surprisingly, it was also one of the quieter machines.

Overall, this is an easy printer to use and the control panel has none of the potentially confusing multi-function buttons beloved of other manufacturers attempting to save money. Print pitch and quality are clearly indicated by more than the usual number of indicator lights.

This is a machine designed for the more mundane office tasks, in which it should perform well.

**"A fast but crude machine, with poor print quality"**

**NAME: OKI ML 280**  
**COMPANY: OKI SYSTEMS UK LTD**  
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**£324 SERIAL INTERFACE)**

- DESIGN ★★★★★
- CONSTRUCTION ★★★★★
- EASE OF USE ★★★★★
- PRINT QUALITY ★★★★★
- SPEED ★★★★★
- FEATURES ★★★★★
- INSTRUCTIONS ★★★★★
- VALUE FOR MONEY ★★★★★

**ADDITIONAL PRICES**

- RIBBON: £5.95
- SHEET FEEDER: £130
- PAPER ROLL HOLDER: £30
- PULL TRACTOR: £36

**OVERALL 57%**



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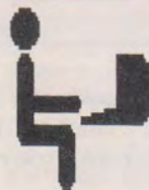
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# PANASONIC KX-P2180



Another star from the Panasonic stable – the KX-P2180.

**Panasonic's newest machine offers optional colour and quiet printing**

This is the newest of Panasonic's three 9-pin machines and has a prominent "quiet printing" logo on the box, printer and manual. The print mechanism is better enclosed than most, but the publicity material which states that it is "quieter than ink-jet and laser printers" has to be taken with a bushel of salt. A super-quiet mode slows printing to a crawl, but makes it easy on the ear.

Panasonic's usual full range of paper options are included: single sheets, optional sheet feeder, rear and bottom loading of continuous forms, push and pull tractor.

Single sheets are loaded automatically (and accurately) as soon as you slide them down behind the roller.

### LAYOUT

The control panel has the same clear layout and ease of use as the other Panasonic models, but the

*The Panasonic KX-P2180 offers an interesting mix of six NLQ fonts.*

**Panasonic KX-P2180**  
 Draft mode abcdefg  
 Roman abcdefg  
 Sans serif abcdefg  
 Courier abcdefg  
 Prestige abcdefg  
 Script abcdefg  
 Bold PS abcdefg  
 Magenta  
 Cyan  
 Violet  
 Yellow  
 Orange  
 Green

number of buttons has risen to seven and the lights to 12. Three NLQ typefaces (and draft mode) can be selected from the panel, and there are three more which can only be set with software commands. The range of faces is Courier, Prestige, Bold PS, Sans Serif, Script and Roman; they print well but not fast.

**"Lots of features, optional colour, quiet, a bit slow"**

**NAME: PANASONIC KX-P2180**

**COMPANY: PANASONIC BUSINESS SYSTEMS**

**CONTACT: 081 550 5209**

**PRICE: £270**

DESIGN	★★★★☆
CONSTRUCTION	★★★★☆
EASE OF USE	★★★★☆
PRINT QUALITY	★★★★☆
SPEED	★★★☆☆
FEATURES	★★★★☆
INSTRUCTIONS	★★★★☆
VALUE FOR MONEY	★★★★☆

### ADDITIONAL PRICES

- RIBBON: £8.50
- COLOUR RIBBON: £16
- SHEET FEEDER: £89
- COLOUR KIT (INC RIBBON): £45
- SERIAL INTERFACE: £39

OVERALL **77%**

# STAR LC-15



The inexpensive wide carriage Star LC-15.

**Similar to the LC-20, this printer doesn't show its age**

Superficially, this printer has much in common with the LC-20, but it is in fact the 136-column model of the LC-10 and has been around for nearly three years – quite a long time in the world of 9-pin printers. Its age, however, isn't obvious from its appearance and capabilities.

The limited paper feed options are one drawback with the LC-20. They have been improved upon in this printer by the addition of an optional pull tractor unit – this sits on top of the machine and feeds through a bottom slot.

Single sheet loading takes place at the touch of a button, rather than at the pull of a lever as is the case on the 20 – this may appear to be a minor difference, but it is one which makes it more pleasant to use.

### TYPEFACES

This machine shares the typefaces of the LC-20 (Courier, Sans Serif and two versions of Orator), all of which print well.

Star claims that there are eight NLQ fonts for the LC-15: they arrive at this by providing an italic version of each typeface. Most word processors make italics by slanting normal characters; a true italic font has different characters from the upright (Roman) version. Star's italics look slanted but not otherwise different so we've cut the font count back down to four

*The Star LC-15: Star's usual good selection.*

**Star LC-15**  
 Draft mode abcdefg  
 Courier abcdefg  
 Sans serif abcdefg  
 ORATOR (CAPS) ABC  
 Orator abcdefg  
 Italic, bold, und

in the buyers guide chart which appears on page 52.

Controlling the machine is relatively simple. The panel lets you set font (upright or italic), pitch (10, 12, 17 or proportional), and adjust the paper feeding; all of the functions are clearly marked. There are two internal banks of dip switches which you shouldn't need to touch.

This is a very satisfactory mid-priced wide carriage machine – it's nothing fancy and isn't particularly fast, but points in its favour are that it's easy to use and not too noisy.

**"Good value wide-carriage machine"**

**NAME: STAR LC-15**

**COMPANY: STAR MICRONICS UK LTD**

**CONTACT: 0494 471111**

**PRICE: £299**

DESIGN	★★★★☆
CONSTRUCTION	★★★★☆
EASE OF USE	★★★★☆
PRINT QUALITY	★★★★☆
SPEED	★★★☆☆
FEATURES	★★★★☆
INSTRUCTIONS	★★★★☆
VALUE FOR MONEY	★★★★☆

### ADDITIONAL PRICES

- RIBBON: £5.50
- 128K MEMORY: £49
- SHEET FEEDER: £150
- PULL TRACTOR: £39
- SERIAL INTERFACE: £55

OVERALL **72%**





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# EPSON LX-1050



The wide carriage Epson LX-1050

**Epson's 132-column model has many plus points, reflected in its price**

There are three models in Epson's LX range, the 400, this 132-column model and the LX-850 which is an 80 column printer of similar design but billed to print slightly faster at 40cps in NLQ mode. The LX-850 has a list price of £229 (selling for about £143), falling between the Seikosha SL2400 and Brother's M1809.

Faster than the LX-400, the 1050 and 850 have more expensive and smarter control panel buttons and more sophisticated paper feed arrangements, but share its only two NLQ typefaces.

### FEEDING

The 1050 has a built-in push tractor and optional pull tractor, but it can only feed paper from the rear: this is not a serious disadvantage for most domestic users, but other manufacturers usually recommend the more direct bottom feed route for multi-part forms and labels. Single sheet feeding at the touch of a button worked very well and didn't cause the paper jams you might find on other low-priced machines.

There are two draft modes in addition to the Roman and Sans Serif NLQ typefaces. High-speed draft prints at a goodly 200cpi and remains legible.

You can make most of the nor-

*The Epson LX-1050: little choice but legible.*

Epson LX-1050  
Draft mode abcdefg  
Roman abcdefg  
Sans serif abcdefg  
Italic, bold, underline

mal printer settings from the control panel and there is an unusually accessible bank of 12 dip switches which you probably won't need to touch.

For some reason switching between 10 and 12 pitch has to be done from software (or the dip switches) rather than the panel, although you can select 17cpi (condensed) from there.

This is a high-quality machine which is pleasant to use and works well, but, of course, you have to pay for its virtues.

**"A good machine with speedy draft modes, not cheap"**

**NAME: EPSON LX-1050**  
**COMPANY: EPSON UK LTD**  
**CONTACT: 0442 61144**  
**PRICE: £329**

**DESIGN** ○○○○★  
**CONSTRUCTION** ○○○○★  
**EASE OF USE** ○○○○★  
**PRINT QUALITY** ○○○○★  
**SPEED** ○○○○★  
**FEATURES** ○○○○★  
**INSTRUCTIONS** ○○○○★  
**VALUE FOR MONEY** ○○○○★

### ADDITIONAL PRICES

**RIBBON: £6.75**  
**SHEET FEEDER: £139**  
**SERIAL INTERFACE: £36**  
**PULL TRACTOR UNIT: £39**

**OVERALL 70%**

# STAR ZA-200



Fast and quiet – the Star ZA-200.

**This Star model is surprisingly fast and quiet for its size**

This is a massive machine with a bonnet as long as a Cadillac's. It's a fast, well-constructed, heavily insulated piece of apparatus, made to go on for ever.

It looks much like a grown-up LC-200, better built, with more control panel buttons and options. The pull tractor is an optional extra and fits on top. That means that when using it you have the choice of rear or bottom feed. On the Panasonics and LC-200, where the same mechanism is used for both push and pull, you can only feed continuous stationery from below. With rear loading on the ZA you can fit the paper onto both push and pull sprockets, which should give you the ultimate in paper stability. There are two optional cut sheet feeders, single and dual bin.

### TYPEFACES

The four NLQ typefaces are the same as on the LC-200. They don't print better or worse, just one and a half times quicker. Colour printing, too, is obviously speeded up by the ZA's faster mechanism. A minor problem with most very fast machines is

*The Star ZA-200 gives the expected Star quality.*

Star ZA-200  
Draft mode abcdefg  
Sans serif abcdefg  
Courier abcdefg  
Script abcdefg  
ORATOR ABCDEFG  
Magenta  
Cyan  
Violet  
Yellow  
Orange  
Green  
Italic, bold, underline

that they shake as the print head rushes back and forth.

This was the least noisy machine that we tested, better even than Panasonic's "quiet printing" KX-P2180. It shows it can be done, but you have to pay for the assets of better design, construction, and baffling.

This is a very impressive machine, but it definitely benefits from a large and sturdy desk.

**"Very high quality, fast and surprisingly quiet"**

**NAME: STAR ZA-200**  
**COMPANY: STAR MICRONICS UK LTD**  
**CONTACT: 0494 471111**  
**PRICE: £399**

**DESIGN** ○○○○★  
**CONSTRUCTION** ○○○○★  
**EASE OF USE** ○○○○★  
**PRINT QUALITY** ○○○○★  
**SPEED** ○○○○★  
**FEATURES** ○○○○★  
**INSTRUCTIONS** ○○○○★  
**VALUE FOR MONEY** ○○○○★

### ADDITIONAL PRICES

**BLACK RIBBON: £5.50**  
**COLOUR RIBBON: £12.50**  
**SHEET FEEDER (SINGLE BIN): £99**  
**SHEET FEEDER (DUAL BIN): £359**  
**PULL TRACTOR: £34**  
**SERIAL INTERFACE: £69**  
**128K MEMORY: £49**

**OVERALL 85%**



# OKI ML 320



Oki's fast and businesslike ML 320.

**This printer is well suited to business users**

Oki claims that this machine, along with the wide carriage 321 (£549), have a third of the market for fast 9-pin printers.

This is a very fast printer, which is well-built and solid. It's probably not the sort of thing the home user would consider, but it is extremely well suited to most commercial needs.

Immediate impressions are that it is solid, heavy and well designed - and it is certainly in quite a different class from the much cheaper ML 280.

The machine's paper handling choices are either single sheets with semi-automatic loading, the optional cut sheet feeder (two varieties), push tractor from the rear, an optional pull tractor from below, or both push and pull from the rear.

## FAST AND QUIET

Overall, this was the fastest printer that we tested - apart, that is, from Oki's ML 3410 which costs £850 more. In spite of its speed, some efficient baffling kept it fairly quiet. It has a quiet printing mode which, as we have seen with other machines, reduces speed by up to half.

There are four typefaces: a dotted high speed draft, a slightly slower and more dense 'utility' draft, and Courier and Sans Serif NLQ fonts. The NLQ fonts are utilitarian rather than elegant.

This lack of variety of fonts can

*Oki ML 320 - utilitarian rather than elegant.*

Oki ML 320  
High speed draft  
Utility mode abcd  
Courier abcdefg  
Sans Serif abcdef  
Italic, bold, und

probably be explained by the obvious concentration on the business market. Oki obviously believes that its intended users will be more interested in speed than pretty type.

The control panel is well endowed with buttons and indicator lights, and overall the printer is very easy to use.

Oki has abandoned dip switches for this machine and instead uses a printed out menu system for setting up all the defaults. This is quite straightforward, so you won't need to pore over the manual to get to grips with it.

### "Very fast and well-built"

**NAME:** OKI ML 3320  
**COMPANY:** OKI SYSTEMS UK LTD  
**CONTACT:** 0753 531292  
**PRICE:** £449

DESIGN	☆☆☆☆☆
CONSTRUCTION	☆☆☆☆☆
EASE OF USE	☆☆☆☆☆
PRINT QUALITY	☆☆☆☆☆
SPEED	☆☆☆☆☆
FEATURES	☆☆☆☆☆
INSTRUCTIONS	☆☆☆☆☆
VALUE FOR MONEY	☆☆☆☆☆

### ADDITIONAL PRICES

**RIBBON:** £5.95  
**SHEET FEEDER (SINGLE BIN):** £130  
**SHEET FEEDER (DUAL BIN):** £376  
**PULL TRACTOR:** £35  
**SERIAL INTERFACE:** £55

**OVERALL** **82%**

# PANASONIC KX-P1695



The Panasonic KX-P1695 - fast, wide carriage printing at a reasonable price.

**This model follows the other Panasonics in its simplicity and value**

Like the other Panasonics, this model is well constructed and easy to use. Paper options include single sheets with optional sheet feeder, front, bottom or rear loading of continuous stationery and push and pull tractor.

## SELECTION

There is a good selection of typefaces (Roman, Sans Serif, Courier, Prestige, Script and Bold PS), all of which are quite attractive. The NLQ printing rate is fast, and draft mode is exceptionally rapid. Neither mode is very noisy, but there is a quiet switch which halves print speed: this reduces the noise from the print head but doesn't silence the print mechanism.

Control panel arrangements are like those on other models in the Panasonic range, although there are some extra options. You can make a variety of settings (page length, default NLQ font, pitch etc) and then save them to the printer's internal memory as what are termed macros; and you can have three different macros for commonly used set-ups. They are retained in the printer's memory after switching off, and can be recalled at the touch of a couple of

*The Panasonic KX-P1695 offers a good variety of legible fonts.*

Panasonic KX-P1695  
Draft mode abcdefg  
Roman abcdefg  
Sans serif abcdefg  
Courier abcdefg  
Prestige abcdefg  
Script abcdefg  
Bold PS abcdefg  
Italic, bold, und

buttons. You can also print out a list of the macros settings.

There are no dip switches here, instead the emulation, character table and so on are changed from the control panel - you probably won't need to do this more than once but you will then need to refer to the manual.

If you need a versatile, fast, and very reasonably priced wide carriage printer you really need to look no further.

### "Good value, fast, easy to use"

**NAME:** PANASONIC KX-P1695  
**COMPANY:** PANASONIC BUSINESS SYSTEMS  
**CONTACT:** 081 550 5209  
**PRICE:** £495

DESIGN	☆☆☆☆☆
CONSTRUCTION	☆☆☆☆☆
EASE OF USE	☆☆☆☆☆
PRINT QUALITY	☆☆☆☆☆
SPEED	☆☆☆☆☆
FEATURES	☆☆☆☆☆
INSTRUCTIONS	☆☆☆☆☆
VALUE FOR MONEY	☆☆☆☆☆

### ADDITIONAL PRICES

**RIBBON:** £5.50  
**SHEET FEEDER:** £149  
**32K EXTRA MEMORY:** £55  
**SERIAL INTERFACE:** £35

**OVERALL** **85%**



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Double Dragon.....	8.99	Megasports*.....	19.99	T.N.T 2 *.....	19.99
Double Dragon 2.....	8.99	Mega Traveller 1 (1 Meg).....	19.99	Team Yankee.....	19.99
Double Dragon 3.....	16.99	Mega Traveller 2 (1 Meg).....	19.99	Team Yankee 2.....	19.99
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Godfather Action.....	19.99	Predator.....	6.99	Yogi & Greed Monster.....	6.99
Gods.....	16.99	Projectyle.....	8.99	Zool Station*.....	16.99
Graham Gooch*.....	19.99	Race Drivin.....	16.99		

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- Cheetah 125+ .....£6.99
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- Compo Pro Extra.....£14.99
- Quickshot 3 Turbo .....£9.99
- Quickjoy Jetfighter.....£10.99
- Quickjoy Topstar.....£16.99

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- 50 x 3.5" DSDD.....£23.99
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### Branded Disks

- 3.5" DSDD .....1.25 ..Each

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**STEREO  
SPEAKERS FOR  
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**EXTERNAL DRIVE  
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**STEVE DAVIS  
SNOOKER  
NOW ONLY £7.99**

**FLIGHT OF THE  
INTRUDER  
NOW ONLY £14.99**

**FIRST SAMURAI  
NOW ONLY £9.99**



# IBM 2381



The excellent IBM 2380 – we actually looked at the wide carriage 2381.

**This functional and versatile machine comes from IBM**

You may not recognise IBM as a major printer manufacturer, and although it's not a household name, the company has become quite well established in this market; their printers are aimed at the business user so you definitely won't see them in your high street computer store.

The 2381 is a wide-carriage machine, but there is also an 80-column version, the 2380, with a list price of £399 and selling for around £265.

The 2381 is a hefty hunk of machinery that looks functional and is actually very versatile; it is, however, very noisy in use.

There is a plethora of paper feed options and it is the only printer that we tested which offers front loading. It can take single sheets from the front, fanfold paper using either a push or pull tractor from the front or a pull tractor from below, and there's an optional cut sheet feeder complete with single sheet bypass.

The paper handling capabilities of this printer are excellent, and with single sheets there is an auto-loading mechanism which serves to pull the paper into the right position.

## NO DIPS

Default printer settings are made using a printed-out menu which is easy to master: this system avoids the need for dip switches. The control panel on the front has a sensible selection of buttons and lights and is straightforward

*The IBM 2381: not much choice but clear and well printed.*

IBM 2380  
Draft mode abcdef  
Courier abcdef  
Gothic (sans serif)  
Italic, bold, und

to use. The manual is a tremendous plus point for this machine as it is very readable.

There are two NLQ typefaces, Courier and Gothic (Sans Serif), both of which are clear and sharp, and a draft font which is, surprisingly, entirely legible.

According to the manufacturers, the high-speed draft mode should print 50 per cent faster again but didn't do so in our tests.

There are two particularly useful control panel options provided. These are font and pitch lock which let you make settings on the machine which can't be overridden by software.

**"Fast, sturdy, very good paper handling, noisy"**

**NAME: IBM 2381**  
**COMPANY: LEXMARK INTERNATIONAL**  
**CONTACT: 0628 481500**  
**PRICE: £499**

**DESIGN** ☆☆☆☆☆  
**CONSTRUCTION** ☆☆☆☆☆  
**EASE OF USE** ☆☆☆☆☆  
**PRINT QUALITY** ☆☆☆☆☆  
**SPEED** ☆☆☆☆☆  
**FEATURES** ☆☆☆☆☆  
**INSTRUCTIONS** ☆☆☆☆☆  
**VALUE FOR MONEY** ☆☆☆☆☆

## ADDITIONAL PRICES

**RIBBON: £6.84**  
**SHEET FEEDER (150 SHEETS): £175**  
**SERIAL INTERFACE: £90**

**OVERALL 85%**

# OKI ML 3410



They don't get quicker than the Oki ML 3410.

**To round off, we look at a top-of-the-range model**

At nearly £1,300, this machine is well outside the range of the other printers covered in this round-up and hardly falls into the category of low-priced printers.

However, it is worthwhile looking at what this kind of money can buy in comparison with the facilities and quality offered by the other printers that are under test in this issue.

A machine of this type is obviously not meant for domestic use. Its role is, rather, sitting in an office or warehouse, printing out miles of invoices, address labels and so on.

For the price, a laser printer would be faster and print infinitely better, but on a laser you can't use multi-part forms and the running costs are much higher. Also, the sort of uses that people have for machines like this don't demand high-quality print.

## BUILD

As you might expect this machine is built like a battleship. It is large and sturdy and there are lots of paper feed options, although at this price I feel the pull tractor could have been included.

You can get a power feeder for fanfold paper which sits under the machine and uses a second push tractor mechanism.

This is an easy machine to operate with a clearly laid out control panel. There are no dip switches, instead you make basic settings

*The Oki ML 3410 – reasonable workmanlike fonts.*

Oki ML 3410  
Utility mode abcd  
High speed draft  
Courier abcdefg  
Gothic abcdefg  
Italic, bold, und

with a printed out menu system.

Printing is very fast indeed. NLQ printing is done in two passes as on other 9-pin printers, but it is bi-directional which speeds things up enormously.

Print quality is adequate, but the two NLQ faces (Courier and Gothic) are dull examples of their kind. Again, Oki is obviously aiming at the serious business user and provides fonts that reflect this – functional but nothing fancy. There are also two draft modes which give very legible print.

**"Very fast; can't be compared to the others!"**

**NAME: OKI ML 3410**  
**COMPANY: OKI SYSTEMS UK LTD**  
**CONTACT: 0753 531292**  
**PRICE: £1,295**

**DESIGN** ☆☆☆☆☆  
**CONSTRUCTION** ☆☆☆☆☆  
**EASE OF USE** ☆☆☆☆☆  
**PRINT QUALITY** ☆☆☆☆☆  
**SPEED** ☆☆☆☆☆  
**FEATURES** ☆☆☆☆☆  
**INSTRUCTIONS** ☆☆☆☆☆  
**VALUE FOR MONEY** ☆☆☆☆☆

## ADDITIONAL PRICES

**RIBBON: £24.95**  
**SHEET FEEDER (SINGLE BIN): £165**  
**SHEET FEEDER (DUAL BIN): £475**  
**POWER FEEDER: £289**  
**PULL TRACTOR: £79**

**OVERALL 85%**



# BUYERS GUIDE HOW THE PRIN

Printer	RRP ex vat	Street price	Size in cm (h,w,d)	Weight (kg)	Warranty (1)	Print width	Paper parking	Colour
Seikosha SP-1900+	£155	£88	11, 38, 28	3.3	1 yr RTD	80 col	⊕	—
Epson LX-400	£169	£103	9.1, 37.7, 30.8	5.1	1 yr RTD	80 col	—	—
Panasonic KX-P1170	£185	£104	13.3, 42.3, 34.1	6.9	1 yr RTD	80 col	⊕	—
Seikosha SP-2400	£199	£119	11, 38, 28	3.3	1 yr RTD	80 col	⊕	—
AEG Olympia NP60	£199	£150	9.5, 43.5, 35.5	9	1 yr RTD	80 col	—	—
Star LC-20	£199	£104	10.8, 38.4, 28.7	4.7	1 yr RTD	80 col	⊕	—
Citizen Swift 9	£239	£152	13, 41.2, 32	5.4	2 yr RTD	80 col**	⊕	⊕*
Brother M-1309	£239	£146	13.7, 44.4, 17.76	5	1 yr on site	80 col**	⊕	—
Star LC-200	£259	£146	13.5, 44, 33.4	6.3	1 yr RTD	80 col	⊕	⊕
Oki ML 280	£269	£225	8, 36, 27.5	4.5	1 yr RTD	80 col	—	—
Panasonic KX-P2180	£270	£165	13.2, 42.4, 34	7.1	1 yr RTD	80 col	⊕	⊕*
Star LC-15	£299	£176	12.7, 59, 33.2	8.5	1 yr RTD	136 col	⊕	—
Epson LX-1050	£329	£209	14.1, 62, 33.9	8.8	1 yr RTD	132 col†	⊕	—
Star ZA-200	£399	£238	15.7, 46.6, 40	9.7	1 yr on site	80 col**	⊕	⊕
Oki ML 320	£449	£275	11.6, 39.8, 34.5	8.4	1 yr RTD	80 col**	⊕	—
Panasonic KX-P1695	£495	£276	14.2, 58.4, 39.9	14.5	1 yr RTD	136 col	⊕	—
IBM 2381	£499	£333	20, 63.7, 28.6	8.5	1 yr on site	136 col†	⊕	—
Oki ML 3410	£1,295	£790	18, 57, 41.7	18	1 yr RTD	136 col	⊕	—

## THE VERDICTS

*There wasn't a really bad printer in the whole bunch, and all of them can be used with any ST model: all you will need is a standard "IBM type" parallel cable.*

### SOFTWARE USED

First Word Plus from GST Software – 0480 496666  
 Protect from Arnor Ltd – 0733 68909  
 That's Write from Compo Software – 0480 891819  
 IMPrint from zzSoft – 0254 672965

### KEY

- † narrow carriage version available
- \*\* wide carriage version available
- \* optional extra
- 1 RTD = return to dealer
- 2 EPX=Epson FX, I=IBM Proprinter
- 3 SS=single sheets, SF=sheet feeder,
- PT=push tractor, TP=pull tractor, R=paper roll
- 4 P(arallel), S(erial)
- 5 manufacturers' rating at 10cpi (draft, NLQ)

In summing up, we have looked at the printers featured in the reviews over the last pages in terms of their price range. The machines fall into five broad groups: the cheapest models; more sophisticated printers; mid-price models; the elite of the bunch; and printers with colour facilities.

### BEST BUDGET PRINTERS

These printers sell at around £100 excluding VAT in the shops.

There are four machines worth looking at here, all of which are pretty good: the Seikosha SP-1900+, Epson LX-400, Panasonic KX-P1170 and Star LC-20. The

Seikosha is very cheap but rather basic; the Epson is excellent but somewhat lacking in features; that leaves the Panasonic and Star which are both very good value. The Panasonic just beats the Star LC-20 as it has a slightly higher specification and gives you a wider choice of paper feed options.

If speed is particularly important, you should consider the Seikosha SP-2400 which costs a little more but gets to the tape just ahead of the others.

### MORE SOPHISTICATED

These printers sell at between £150 and £200 in the shops.





# PRINTERS COMPARE

Memory buffer	Extra memory	Emulation (2)	NLQ typefaces	Paper feed (3)	Copies	Interface (4)	Speed (cps) (5)	A4 text page	Graphic text
1K	—	EPX, I	2	SS, SF*, PT	1 + 2	P	160, 40	56", 2'18"	4'57"
3K	—	EPX	2	SS, SF*, TP, R*	1 + 2	P, S*	150, 25	35", 2'15"	6'42"
6K	32K	EPX, I	4	SS, SF*, PT, TP	1 + 3	P, S*	160, 32	34", 2'08"	8'18"
21K	—	EPX, I	5	SS, SF*, PT	1 + 2	P, S	200, 50	31", 1'50"	3'36"
4K	—	EPX, I	1	SS, TP	1 + 2	P, S*	160, 32	35", 2'10"	5'30"
4K	—	EPX, I	4	SS, SF*, PT	1 + 2	P, S*	180, 45	35", 2'21"	5'21"
8K	—	EPX, I	3	SS, SF*, PT, TP	1 + 3	P, S*	160, 40	33", 2'02"	5'57"
8K	32K	EPX, I	4	SS, SF*, PT, TP	1 + 2	P, S*	180, 45	44", 1'55"	4'04"
16K	—	EPX, I	4	SS, SF*, PT, TP, R*	1 + 3	P, S*	200, 150, 45	34", 35", 1'50"	5'01"
2K	—	EPX or I	1	SS, SF*, PT, TP*, R*	1 + 3	P, S*	240, 200, 50	25", 1'13"	see text
4K	32K	EPX, I	6	SS, SF*, PT, TP	1 + 3	P, S*	160, 32	40", 2'14"	4'30"
16K	128K	EPX, I	4	SS, SF*, PT, TP*	1 + 2	P, S	180, 45	36", 2'19"	5'30"
4K	—	EPX	2	SS, SF*, PT	1 + 2	P, S*	200, 180, 30	33", 41", 2'17"	4'24"
32K	128K	EPX, I	4	SS, SF*, PT, TP*	1 + 4	P, S*	372, 280, 70	22", 24", 1'17"	3'30"
16K	—	EPX, I	2	SS, SF*, PT, TP	1 + 3	P, S*	300, 250, 62.5	17", 19", 57"	1'56"
16K	32K	EPX, I	6	SS, SF*, PT, TP	1 + 3	P, S*	275, 55	23", 1'18"	2'38"
43K	—	EPX, I	3	SS, SF*, PT, TP	1 + 5	P, S*	320, 270, 68	34", 34", 1'12"	1'47"
28K	—	EPX, I	2	SS, SF*, PT, TP*	1 + 7	P, S	550, 417, 104	11", 13", 38"	1'37"

These are the Star LC-200, Panasonic KX-P2180, Epson LX-850 (LX-1050 tested), Citizen Swift 9. Of these the Epson is the cheapest at about £143 in the shops, but is the only one without a colour option. They are all fairly fast, though the Swift's graphics printing was slower than the rest. They are all worth a look, but after much debate our choice would be the Star LC-200 which prints well, has the largest buffer memory, and has colour at no extra cost.

## MID-PRICE WIDE CARRIAGE PRINTERS

This is a group of three, all good, all listed at around £300 and selling for about £100 less:

the Epson LX-1050, Star LC-15, and Citizen Swift 9X (Swift 9 tested). The Epson was slightly faster than the other two, the Star has the best variety of fonts, the Citizen has a colour option and you get a pull tractor without buying additional kit. The Citizen Swift 9X wins (just) for its additional features.

## RACE HORSES

The Star ZA-200, Oki ML 320/321, Panasonic KX-P1695 and IBM 2380/2381 are all superb machines. The Oki's wins the speed race by a short head but have rather fewer features than the others. The Panasonic is discounted heavily in the shops and ends up as amazingly

cheap for a fast wide carriage machine. The IBM's have the most versatile paper handling but are the noisiest. The Star is slightly slower overall, but it does provide the facility for colour printing at no extra expense and is the quietest. A dead heat!

## COLOUR MODELS

These are the Citizen Swift 9, Star LC-200, Panasonic KX-P2180, Star ZA-200. Again there's no clear winner here. There's no significant difference in the quality of the colour printing from any of the four, so if you want colour you should make your decision on the price and other features.





## ST Repairs

Our Service department can repair ST's in minimum time at competitive rates. We can arrange for courier pickup and return delivery of your machine to ensure it's safety. We even have a same day service which will ensure your machine is given priority and subject to fault, completed the same day. We can fit memory upgrades, PC Emulators, Security devices, ROM upgrades, hard drives to Mega STE's etc. We offer a Quotation service for £15 for which we will examine your machine and report back with an exact price for repair. If you do not wish to go ahead with the repairs then just pay the £15. However if you do go ahead then the charge is included in the minimum charge. Please note: The minimum charge covers labour parts are extra.

Quotation	£ 15
Min repair charge	£ 35.25
Courier Pickup	£ 10
Courier return	£ 6
Same day service	£ 15
STFM(E) PSU	£ 45
1Mb Internal drive	£ 45
A/B Boot switch	£ 14.99
TOS Switch	£ 10
52Mb Quantum Hard drive upgrade for Mega 1 STE	£ 299.99
105Mb Quantum Hard drive upgrade for Mega 1 STE	£ 399.99

## ST Secure

ST Secure is a hardware protection system for the Atari ST which stops unauthorised use of your computer and any hardware connected to it. ST Secure measures just 1 inch square and can be installed without soldering in about 30 minutes. Once installed ST Secure will allow approximately 45 seconds of computer use before resetting the computer. If during this time the password is entered correctly then ST Secure is disabled until the next power up.

**Now Only £19.99**

1040STE PRO 24 pack	£319
520STE Discovery Xtra pack	£239
1Mb Discovery Xtra pack	£249
Phone for printers, monitors etc.	

## GI Hand Scanner £119.99

The Golden Image Hand Scanner for the Atari ST features a 105mm scanning head, variable contrast control, user selectable scanning resolutions of 100, 200, 300 and 400 Dpi one letter mode for high contrast B/W images and 3 photo modes for various shades of grey. The high quality hardware is backed up by two of the most respected graphics packages around. Migraph's Touch Up for scanning and editing hires and grey scale images and Deluxe Paint art package for lower resolution colour.

- 100, 200, 300, 400 Dpi scanning resolution
- 105mm scanning head
- 1 letter mode, 3 photo modes
- Includes Touch Up
- Includes Deluxe Paint

Coming soon: Silhouette, Auto tracing/line art package which converts bit images to Vector images at the incredible price of £80.

## GI External drive £59.99

The Golden Image External 3.5" Floppy drive for the Atari ST features 720K formatted capacity, double sided double density, LED track counter, Through port compatibility for older ST/STM machines, external PSU.

- 720K Formatted capacity
- LED Track Counter
- External Power Supply
- Daisy Chain Through Port

# DataPulse Plus

## ST Hard drives

The Data-Pulse range has recently been re-designed. The Data-Pulse Plus range now offers a more compact case that cuts down on noise even more, all ports are marked, an extensive range of software utilities are now included and our range of special offer utilities has been expanded confirming our commitment to future support.

- All drives are formatted/partitioned and tested ready to "plug in and go".
- Extremely low noise.
- Fully Autobooting and Autoparking.
- DMA device selector & On/Off switch on front of case.
- DMA Out port for daisy chaining extra drives/Laser printer.
- Full metal case measuring 300mm x 285mm x 51mm (wdth), providing good shielding, and monitor stand.
- High quality ICD boards and controller software, choice of ICD board with or without battery backed clock (prices differ).
- All drives include Vault archiver, Backup software, Virus killer, MCP shell program, Midistudio & Midistudio Master demo's.

Due to Bulk purchasing power we can offer the following special offer deals to all existing and future Data-Pulse/Data-Pulse Plus hard drive owners.

Neodesk 3	£ 24.99
HD Turbokit	£ 14.99
Diamond Back II	£ 29.99

Excellent backup utility  
DC Data Diet £ 49.99  
A real time data compression/de-compression system to increase the capacity of your hard drive.

## Data-Pulse Plus

Data-Pulse Plus 52Mb GE	£ 339.99
Data-Pulse Plus 52Mb ICD	£ 359.99
Data-Pulse Plus 105Mb GE	£ 439.99
Data-Pulse Plus 105Mb ICD	£ 459.99
Data-Pulse Plus 120Mb ICD	£ 529.99
Data-Pulse Plus 240Mb ICD	£ 799.99

The Data-Pulse Plus 120 and 240 incorporate the new Quantum mechanisms which feature 256K Read & Write disk cache, faster access time and improved reliability. All Data-Pulse Plus drives include Quantum mechanisms which include 2 year warranty from date of manufacture.

## Aries Upgrades

The Aries Upgrade board is an in house designed, Multi layer board utilising high density ZIPP RAM chips. The board has been designed to allow progressive upgrading from the base 512K up to 4Mb. The board does require some soldering but once installed is very reliable. The board is hand assembled in our workshops by skilled technicians and is fully tested before despatch. It also comes complete with fitting instructions and test software.

Our technicians can fit the board to any ST for a small fitting charge. We can arrange courier pickup and return to ensure fast turn around. A same day fitting service is also available. Please phone for further details of courier and same day service.

### Aries Upgrades (any ST(FX)M)

512K Aries board	£ 39.99
2Mb Aries board	£ 84.99*
4Mb Aries board	£ 149.99*
Courier pickup	£ 10
Courier return	£ 6
Fitting charge	£ 15
Same day charge	£ 15
16/4 chip upgrade	
STFM	£ 24.99

Please check the configuration of your machine before ordering. These chips are not surface mount.  
\*special offer

## Data-Net

Data-Net is a high speed network solution for the ST/TT. Ladbroke's Data-Net hardware can transfer data at up to 10 Megabits per second. Connection is via the cartridge port of the ST and nodes are connected via Coaxial cable. The Multi tasking network software allows the sharing of Hard drives and Centronics printers anywhere on the Network. Nodes can also Auto boot accessories from a host's hard drive.

Data-Net starter	£ 399.99
The starter pack includes 2 nodes and Universal Network software.	
Data-Net node	£ 199.99
Universal Network Starter Software	£ 219.99
Universal Network Node software	£ 99.99

## Silhouette

Silhouette is a bit image and vector graphics drawing program with Auto tracing. The package offers Auto-Tracing, Beziers, B-Splines, High resolution gray scales. Supports FSM-GDOS, requires 1Mb ST or TT High resolution. Imports: IMG, DEGAS, TINY, MacPaint, GEM, SGF Exports: IMG, GEM(L3), SGF DXF EPS(Postscript).

**Only £60**

## Aries SIMM's

### Special Offers

512K SIMM Upgrade for STE	£13.99
2Mb SIMM Upgrade for STE	£59.99
4Mb SIMM Upgrade STE	£114.99

Please check configuration before ordering

## The NEW *Brusher* Mouse

- 150 Dpi resolution
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- Switchable between ST/Amiga
- Opto/Mechanical Mechanism
- Includes Deluxe Paint ST
- Direct mouse replacement

**£24.99** with D-Paint **£19.99** without D-Paint

## GI Optical Mouse £29.99

The Official Golden Image Optical Mouse is a high quality, 3 button, replacement mouse. The fully optical mechanism means no moving parts and offers far higher reliability than opto/mechanical mice.

- 250Dpi, 500mm/sec tracking speed
- Fully Optical
- Mouse mat included
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## GI Mouse

The Golden Image Opto/Mechanical Mouse offers 290 Dpi resolution, 2 Microswitched buttons for greater reliability and crisper, more positive response, Anti-static silicone rubber coated ball. Also includes mouse mat.

**Only £14.99**

## Jin Mouse

Don't be deceived by the low price of this mouse. Mass production of the Jin mouse has resulted in a high quality Opto/Mechanical mouse featuring 290 Dpi resolution, 500mm/sec tracking speed, Anti-static silicone rubber coated ball.

**Only £12.98**

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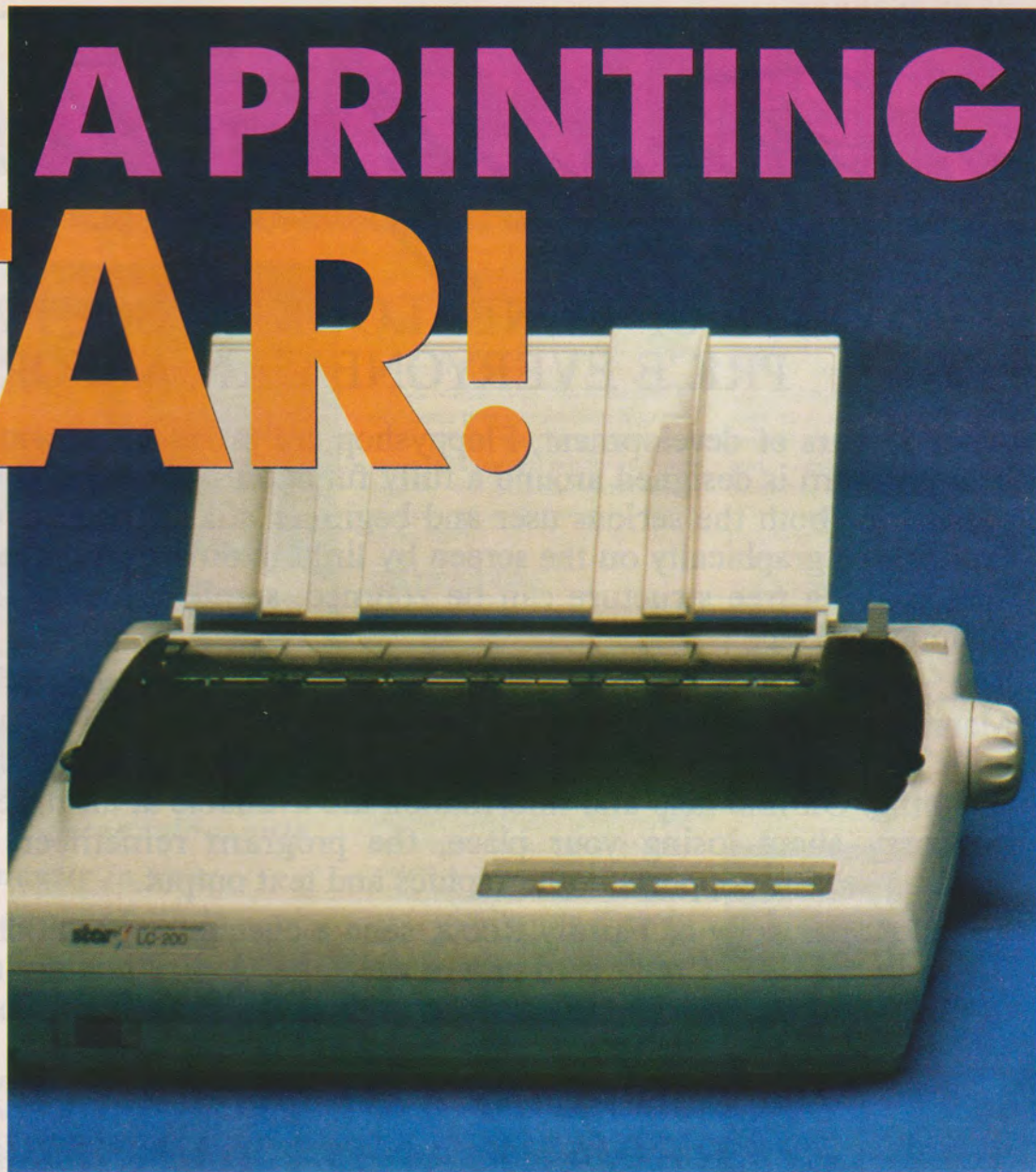
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# WIN A PRINTING STAR!

*It's your chance to become your own Maxwell this month and add a little colour to your publishing. A Star LC-200 is up for grabs in this month's super easy-to-enter competition.*



**T**his month's comparative round-up should enable anyone to choose the right 9-pin printer for their use. But don't run out and open your wallets just yet: you might be the lucky reader to win one.

We've got a fabulous Star LC-200 colour printer that we're just giving away. All you have to do is answer a few simple questions and tell us why you think we should let you loose with it, and it could be yours.

The LC-200 is a 9-pin dot matrix colour printer that would cost you £259 in the shops.

The model has several built-in features, including multiple NLQ fonts, and one mechanism for both push and pull paper feeds.

All you have to do to enter this competition and join the high tech world of colour printing is to correctly answer our questions about the LC-200, written in the panel opposite.

The answers can all be found in the review pages, so if you haven't read it yet, do so now. Then tell us why you think it should be you, and what ORIGINAL use you could find for the LC-200.

**THE QUESTIONS:**

**1** How many NLQ fonts does the the LC-200 have?

Answers \_\_\_\_\_

**2** How many stars did we give the LC-200 for PRINT QUALITY?

Answers \_\_\_\_\_

**3** What is different about the "Orator" font?

Answers \_\_\_\_\_

**4** How much is a colour ribbon for the LC-200?

Answers \_\_\_\_\_

**Right, now the creative bit. Tell us what you'd use the LC-200 for (points awarded for originality and humour!).**

I'd use the LC200 to \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Postcode: \_\_\_\_\_

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# SMALL WONDERS

WITH A POCKET MODEM YOU CAN COMMUNICATE WITH ANYONE FROM ANYWHERE



Andrew Wright looks at three minuscule modems that will fit neatly in your pocket without burning a hole in it

Pocket modems are all the rage, and not just amongst owners of laptop and notebook computers. Plenty of ST users are opting for portable modems without having to sacrifice features and transmission speed. In this review we'll look at three pocket modems with varying features across a broad price range.

A modem that you can carry around in your pocket makes communications much easier, so portable computer owners tend to make up the main market. Even though, with the exception of the ST Book, there aren't too many ST-compatible laptops around, there's a growing interest in these devices.

Pocket modems can be transported very easily, so even if you're only moving your ST to a friend's house and back, having a modem the size of a cigarette packet can cut down on the effort involved. Those of you who use computers at work and at home will find it far more convenient to slip a small box in your pocket than to trail a carrier bag full of leads and adaptors backwards and forwards from the office.

The ST's built-in modem port is an industry standard RS232 (serial) design and virtually all external modems on the market today will connect directly to it. All that's needed is some suitable comms software, a short telephone lead and you're in business.

## FLASHTALK 2400

The Flashtalk 2400 is a surprisingly small pocket modem about the size of a pack of cards and offers a range of features at a reasonable price

The case for this modem is made of two pieces of light grey plastic clipped together, but it appears to be well-made and robust. The RS232 connector lies at one end and the other has two sockets, one for the modem line and the other for a telephone handset. Each of these sockets is clearly marked and there are two LED



indicators on the front of the modem, indicating that the modem is off the hook (OH) and that a carrier signal has been detected (ON).

This model was the only one in our tests that would plug into the ST's modem port and still leave room for a parallel printer connection in the adjacent port, thus dispensing with the need for a serial cable.

### INSTRUCTIONS

The Flashtalk comes with what just about passes for an instruction manual - it's actually a tiny 12-page folding leaflet and it contains only the most basic of information on how to get started. Having said that though, it does, provide a list of the Hayes command set supported by the modem, which goes some way to make up for its lack of other information.

The Flashtalk modem is powered directly from the ST's serial port, which does away with the need for expensive alkaline batteries or a clumsy 9V adaptor. It really is the ultimate add-on for portability, as far as external modems are concerned.

In action, the ON light flashes intermittently to show that power is available. When a connection is made, the ON light comes on as long as a connection exists. This is pretty poor in terms of supplying the user with the information that he or she needs, but as this particular modem will probably spend its life lurking around the back of your ST and well out of sight, it's really not all that critical.

### IN STORE

The Flashtalk can store 10 telephone numbers in its own tiny non-volatile memory, using Hayes compatible commands (simply type AT&Z followed by a number between 0 and 9).

Using non-volatile memory means that even if you unplug the modem and turn off the ST, the numbers can still be recalled using the simple command AT&DS=, followed by the identifying number. As well as understanding the standard Hayes commands, the Flashtalk also understands some of the extended command set.

### SPEEDS

The Flashtalk supports data transmission speeds of up to 2400 bits

per second (bps), which is quite adequate for normal users who intend to log on to the odd bulletin board or conferencing system or transfer small data files. It does not support error correction or data compression so 2400 bps (or around 240 characters per second, cps) is the maximum theoretical throughput.

On average the modem achieved between 225 and 235 cps for both text and LZH archived files - this is a reasonable figure and will certainly be good enough to suit most people.

The Flashtalk modem should be a winner as far as the ST is concerned. Although 2400 bps is really the bare minimum that should be considered these days, its size and zero running costs still make it an excellent buy.

*"A surprisingly compact modem with low running costs"*

NAME: FLASHTALK 2400  
COMPANY: BLUE MOUNTAIN  
CONTACT: 0908 376252

PRICE: £139.83  
RELEASE DATE: OUT NOW

EASE OF USE	★★★★★
DOCUMENTATION	★★★☆☆
EFFECTIVENESS	★★★★☆
VALUE FOR MONEY	★★★★★

OVERALL **84%**

Ultra compact  
Inexpensive  
Cheap to run  
No need for serial cable

### PROS AND CONS

Bare minimum acceptable throughput speed



# ROAD RUNNER 2400

**This is about twice the size of the Flashtalk and three times heavier though still portable enough not to strain your pocket, even with the battery installed**

The modem has a light grey plastic case, the two halves of which are held securely by four screws. It feels well-made and very solid and it features an RS232 connector on one end and a battery compartment at the other for which a 9V alkaline battery is required.

On one side is the line connector socket and on the other a socket for the mains adaptor. The BABT approval sticker is clearly displayed on the back/bottom.

## INDICATORS

There are four LED indicators on the front/top. The first is for power and the second for data transmission speed, which it indicates by either coming on continuously (2400 bps), flashing quickly (1200 bps) or flashing slowly (300 bps). Other lights are for data compression

on/off and there's a low battery warning.

Other equipment supplied is a two-metre telephone lead, a two-way telephone connector to allow simultaneous use of a telephone, a 9V battery, serial cable and mains adaptor. It is also supplied with Trans-send comms software for MS-DOS compatible PCs.

The manual, which is over 60 pages in length, is adequate although it's by no means exciting or particularly easy to use. Some parts relate to other products and the print quality is rather poor.

## A DIFFICULT CUSTOMER

This was the hardest of all three modems to get working correctly. It refused to work straight out of the box and it took me several hours of altering every parameter and "S" register (memory locations) I could think of before it eventually burst into life. It refused point blank to work with the telephone connected and had problems detecting a good carrier signal. In fact, I couldn't even get it to hang up correctly and often had to unplug it completely to free the line.

The Road Runner is a 2400 bps modem, but it has the latest data compression protocol, V42bis, which can theoretically compress data in a ratio of four to one.

This should give it a throughput approaching 9600 bps. The only trouble with V42bis is that to make the most of it, you need to communicate with another V42bis

**"A difficult and expensive modem to set up and use. Not the best value"**

**NAME: ROAD RUNNER**

**COMPANY: ANDEST**

**COMMUNICATIONS**

**CONTACT: 0908 263300**

**PRICE: £323.13**

**RELEASE DATE: OUT NOW**

**EASE OF USE** ☆☆☆☆☆

**DOCUMENTATION** ☆☆☆☆☆

**EFFECTIVENESS** ☆☆☆☆☆

**VALUE FOR MONEY** ☆☆☆☆☆

**OVERALL** **58%**

## V WHAT?

The main consideration when buying a modem is the speed at which it is capable of transferring data. The faster the modem's throughput, the less time the telephone call will take and the more money you'll save. A number of different standards have been devised to denote modem speeds and they are usually quoted in bits per seconds or bps. The chart below explains how these standards work.

Standard	Receive (bps)	Transmit (bps)
V23	1200	75
V21	300	300
V22	1200	1200
V22bis	2400	2400
V32	9600	9600
V32bis	14400	14400

How do these speeds relate to real rates of data transfer?

Each character is represented in binary form by one byte or eight bits of data. However, to tell the receiver where one character ends and another begins, an extra bit is added before each character and another after, making 10 bits of data for each character. In this case, a 1200 bps modem should theoretically be able to send 120 characters per second, although in reality line noise and the need for error correction will reduce this figure to between 110 and 115 bps on average.



All-inclusive package  
Well-made

## PROS AND CONS

Not easy to install  
Disappointing throughput  
Battery life short

modem and they are a little thin on the ground at present.

In practice, it is hard to achieve anything like 9600 bps even when connected to another V42bis modem.

On normal 2400 bps lines, throughput worked out roughly the same as the Flashtalk, showing between 212 and 228 cps on average. Even when connected to an MNP5 or V42bis modem, its throughput averaged only 450 to 470 cps.

## LOW LIFE

The battery life of the Road Runner was also very disappointing - I downloaded half a dozen files and left it plugged into the ST, thinking it would revert to standby mode.

This clearly didn't happen and the battery low light came on after only two hours. The price of 9V batteries could make running costs pretty high if this model is used often without the mains adaptor.

## INSIDE INFO

A terminal emulation program, often called a "comms" or "terms" package, lets you get on with the business of communications without having to delve into the difficulties of the Hayes command set or worry about how error correction and compression works. It temporarily turns the ST into a dumb terminal which can only receive or transmit data from the host computer (the one you dialled up).

The most widely used ST comms programs are PD or shareware packages such as *Freeze Dried Terminal*, *Vanterm*, *Dterm* and *Uniterm*, although there is a wide range of very good alternatives.

For more information on these, have a look at page 142 where four of these terminal programs are briefly looked at.

## ERROR CORRECTION AND COMPRESSION

**Sending data as fast as possible down the telephone line is a great idea, but there has to be some way of checking whether the data received is the same as that sent**

To deal with this, many modems have built in error correction protocols - agreed methods for checking that the last batch of data was received correctly. The first error correction protocol was developed by Microcom - the most common being Microcom Network Protocol Level 4 or MNP4. A similar system has also been developed by another standards organisation, CCITT, which is known as V42 correction.

Data compression allows much higher through-

put of data by ensuring that it is compressed before being transmitted. If the file has already been compressed using archivers such as ARC or LZH for example, the benefits will be less and some combinations may slow down the transfer.

MNP5, the most widely used compression standard, can virtually double the effective speed of data transfer. The very latest protocol, V42bis, is even more impressive with claimed compression ratios approaching 4 to 1.



# WORLDPORT 9600

**This modem is very similar to the Road Runner but offers much better features**

As with the Road Runner, the build quality of this modem is again very high. It does have one additional socket for an acoustic coupler, a much less reliable method of connecting a modem directly to a telephone handset. Like the Road Runner, you'll probably need the serial lead as it won't plug into the ST's modem port with a printer connected.

The LED indicators are also slightly different, to reflect the wider range of data transmission speeds likely to be encountered. The first two of these display the connection speed in various combinations as well as showing power on. The third LED comes on when a carrier is detected and the fourth is used as a low battery warning.

The Worldport modem is supplied with two 9V batteries, a two-metre telephone cable, serial lead, acoustic cup adaptor cable, external 9V mains adapter and the same Trans-send (DOS) comms software as the Road Runner.

The Wordport is capable of a straight 9600 bps data transfer, but it also has built-in MNP5 data compression giving it a theoretical maximum throughput of 19,200 bps. It also supports MNP4 error correction, automatic baud rate detection and has plenty of other facilities such as auto dial and auto answer (which means you can use it to answer incoming telephone calls or run a BBS).

## PERFORMANCE

When put to the test, the Worldport performed very well indeed although it still didn't achieve quite as much throughput as may have been expected. Transferring

large text files saw it peak at about 1500 cps but average only around 1200 cps. With archived LZH and ARC files, it managed between 650 bps and 900 bps. The wide variation seems to have been due to occasional errors creeping in and the need to re-transmit blocks of data ruined the average data transfer rate. It is a fact that at higher transmission speeds the chance of errors increases rapidly.

## NUMBERS

There are a number of commands built into the modem to help you get the best from it - in particular, those on setting up an MNP5 link. By entering various parameters, the modem can be instructed to link with another modem at the highest possible speed and data compression level. The excellent manual explains it all very clearly and provides sample commands for different situations.

Most users will have two or three frequently dialled numbers, each often requiring different modem settings.

The modem has two user-definable configurations which can be saved in the non-volatile RAM and accessed again and again. Up to four telephone numbers can also be stored.

Battery life is just as short as the Road Runner - which is something to bear in mind if you're on the move. The Worldport has one particularly interesting feature though, an integral help screen which can be called up from within the terminal software using the Hayes command AT14. This produces a very helpful screen reminding you of the available commands.

On the whole, the Worldport performed well enough, but it wins the bulk of its praise for being easy to use with a readable, informative manual.

High throughput  
Excellent features  
Well-made  
All-inclusive package

## PROS AND CONS

High price  
Battery life short

*"Easy to use, high-quality modem with a good manual"*

NAME: WORLDPORT 9600  
COMPANY: EUROMAX  
CONTACT: 0753 811180

PRICE: £793.87  
RELEASE DATE: OUT NOW

EASE OF USE ★★★★★  
DOCUMENTATION ★★★★★  
EFFECTIVENESS ★★★★★  
VALUE FOR MONEY ★★★★★

OVERALL **82%**



# BUYERS GUIDE

How the pocket modems compare...

	Road Runner	Worldport	Flashtalk
1 Speeds:	V21, V22, V22bis, V23	V21, V22, V22bis, V23, V32	V21, V22, V22bis, V23
2 Hayes set	Yes	Yes	Yes
3 Error correction	V42/MNP4	MNP4	No
4 Data compression	V42bis/MNP5	MNP4	No
5 Auto dial	Yes	Yes	Yes
6 Auto answer	Yes	Yes	Yes
7 LED status	Power, speed, V42bis/MNP5, low battery	Data, speed, carrier detect, low battery	Power on, carrier detect
8 Stored configs	2	2	1
9 Diagnostic testing	Yes	Yes	Yes
10 Tone/pulse dial	Yes	Yes	Yes
11 Call progress	LED	LED	None
12 Built-in Speaker	Yes	Yes	Yes, single tone
13 Power source	Battery/mains	Battery/mains	ST serial port
14 Speaker	Yes, single tone	Yes	Yes
15 Weight:	196g inc battery	210g inc battery	72g
16 Warranty	2 years	2 years	12 months
17 BAPT approval:	Yes	Yes	No

## HAYES COMPATIBILITY

*The first modems were all controlled manually, either via front panel switches or internal jumpers.*

As the technology developed, modems were fitted with microchips which could actually be programmed from the computer. A series of commands would tell the modem what to do and how to do it, but in order to differentiate between transmitted characters and commands, a set of standard command signals was developed by Hayes, a leading modem manufacturer.

Most modems are now Hayes compatible, meaning that they understand some or all of the Hayes commands. This allows you to program modems to use certain error correction protocols, switch between pulse and tone dialling, re-dial stored numbers and alter all sorts of other communications parameters. For example, typing ATD dials the telephone number that you enter after it, and ATH hangs up the modem.

This level of involvement is usually unnecessary, however, with a good terminal program which lets you select the commands from onscreen menus and automatically sends them to the modem.



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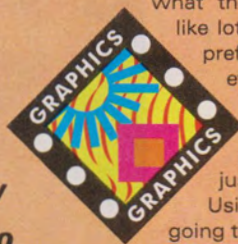


**1** There are two things you need to do right away. The first is to draw your forest objects, such as trees and bushes. Here's a quick way of doing it. Using the continuous freehand draw tool, draw a rough shape in a mid green to suggest the overall shape of the greenery you want the tree to have (for a fir, draw a triangle, for an oak, draw an upside-down apple), and then fill your shape with the same mid green.



**2** Next, you have to define the more natural chaotic outline. The easiest way to do this is to select the airbrush tool and the same mid green colour, and then go around the edge of your shape once or twice using fast, continuous movements to give your tree a "true" feel.

**One of Deluxe Paint's strongest features are its brushes, which are versatile and extremely useful tools. Tony Dillon shows us how to use them to produce landscapes**



Landscaping is something that most people are certain to attempt at some point in their encounters with computer art.

It's difficult to define exactly what is the right way of doing things: apart from anything else, people have different views as to what they want. Some people like lots of detail, while others prefer to concentrate their efforts on the main foreground items and leave everything else out of focus - it's really just a matter of taste.

Using a few brushes, we're going to show you one possible way of approaching landscapes.

The effect that we are trying to create is that of a narrow road leading through a forest - this is the sort of effect that is reached in many sprite-based racing games. Brushes are similar to sprites in many ways.

Like sprites, they are single-frame objects that can be placed anywhere as many times as you like without being redrawn, and

this is a factor that we're going to exploit in steps one to four of the step-by-step guide on these pages.

#### IN THE ATTIC

Repeat the process demonstrated in the first four steps, shown above, a few times until you have a collection of different trees - about half a dozen should do the trick. Once that is done, we can then move onto the road itself. Don't forget to save your screen full of trees!

We're going to keep our trees in memory while we work on the road, as we'll need to constantly go back and forth.

With the cursor over the canvas, press "J". The screen will now turn black. You don't need to concern yourself about this too much - all that has actually happened is that the program has swapped between the main and the spare screen.

This allows artists to work on two screens at once. To check your trees are still there, press "J"

again to swap back. Now go back to the black screen.

#### LOOK AT IT THIS WAY

Perspective can be difficult to get to grips with. Vanishing point is easy enough, but only when working with lines. The difficult part is getting brushes to work properly, but we'll look at that problem later. First we have to create our basic landscape, as shown in steps five to eight.

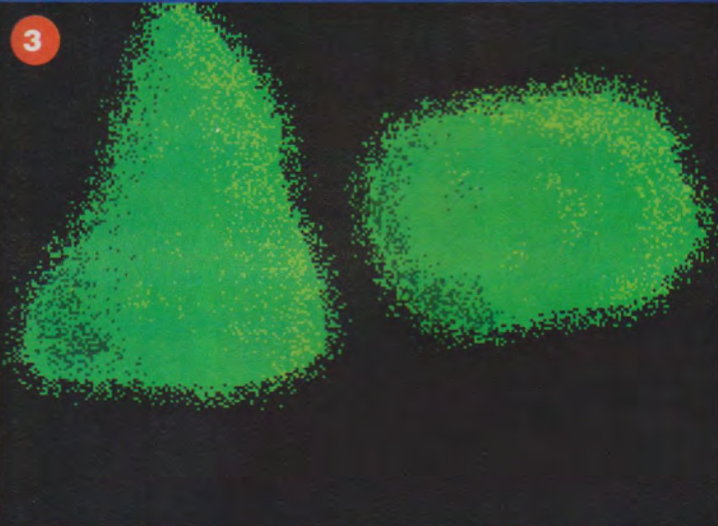
#### ON A CLEAR DAY...

Judging size in relation to distance is quite easy to do, provided that you have a stereo view of the world. If you only have monovision, you need a little help. To do this, you need to draw a couple of lines in an unused colour.

Using the zoom mode, have a look at the top end of the sides of the road, where they meet the horizon. Do the lines join? Probably not. Extend the lines to the point where they meet. This is called the vanishing point. Steps nine to 15 should help you.

# DELUXE PAINT BY NUMBERS





**3** Now add highlights and lowlights. Stick with the airbrush tool and select a light green. Spray a few bursts onto the right-hand edge of the green shape, and perhaps a small amount towards the centre. Now select a dark green and add it to the opposite (left-hand) edge. There you have it, some greenery with depth.



**4** To create the trunk of the tree, draw two freehand lines in a mid brown, stemming from the bottom of your green shape and spreading out from each other at the bottom. Join them with a jagged line along the bottom and fill with the same mid brown. Now select a darker brown and a small airbrush (to resize the airbrush nozzle, select "Size" from the Airbrush submenu, and use the left mouse button to rescale the circle as you would when drawing an ellipse).

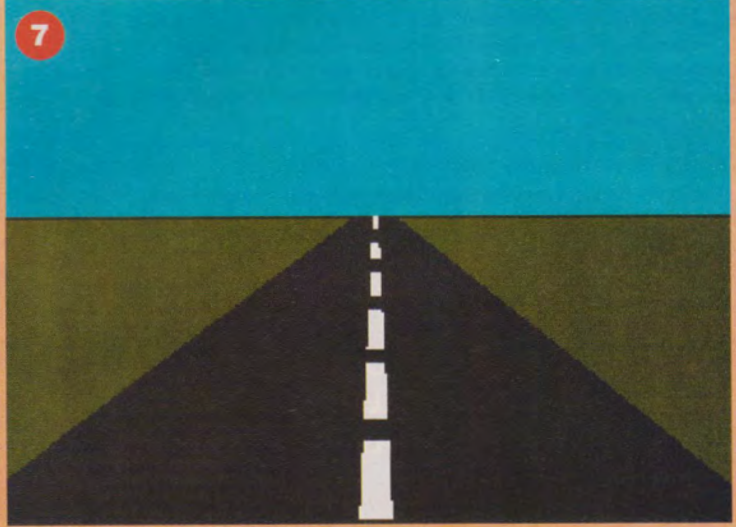
**5** Let's sketch out on screen how things will look. Using the line tool and a dark grey colour, draw a line across the middle of the screen. Using the co-ordinates, draw two more lines extending from roughly the middle of the first line to the bottom corners of the screen. You should end up with two right-angled triangles with a large isosceles triangle in the middle.



**6** Now fill the areas. Using a light blue and the fill tool, fill the top area of the screen. Now using a dark green, fill the left and right hand triangles, finally filling the middle triangle with the same grey that you used to draw the original lines.



**7** Now we need to add a little detail. Draw two lines in white using the line tool from the centre of the horizontal line to the bottom of the screen, ensuring that at the bottom they are no more than 10 pixels apart. Fill this new area in white. This will become the lane marker. Select a medium-sized square brush from the freehand draw sub-menu and drop a couple of blocks along the line in the grey you have already used.



# TING

# PART 3





**8** Now to create a more exciting sky. Go to the palette menu and select about four redundant colours and change the first to a deep blue and the last to a very light blue. Now click on the first blue, select "Spread" and click on the light blue colour. Now click on range and select all four colours by clicking on them. Go to the Fill sub-menu, select "Gradient", enter 90 in the "Angle" edit field



**9** From the vanishing point, draw four lines, two extending diagonally through the green sections at a more-or-less 45° angle and two through the sky at a more horizontal slant. These are going to help you judge the size of your trees, assuming they are all the same height.



**10** Go to the brush submenu and select "Distort". Select "Halve" and then place the brush near the horizon, between your two lines extending from the vanishing point. You'll probably find the brush is way too large. Go to the submenu and select "Halve" again. Try the brush for size once more. It probably still isn't quite right, so it's time for some more precise adjustment.

**11** There are two ways of doing this. The first, and least useful in this case, is the use of the "Size" tool from the brush submenu. Just to see how it works, click on it and move the pointer over the canvas. You'll see that the mouse pointer has changed to the word "SIZE". Hold down the left button and move the mouse around slowly. See how it can be used to change the size of the brush quickly, but not very precisely. Use this tool to shrink the brush to roughly the right size.

**12** Now press the plus key a couple of times. See how the brush gets bigger by a pixel each way? Now press the minus key to see the reverse. When the brush can be placed at the "back" of the screen, over the horizon, with the top of the brush touching the top perspective line and the bottom of the brush touching the bottom line, it's the right size. Stamp a couple of trees at this Y co-ordinate across the green areas. Do the same with a couple of the other trees until you have a line of trees all the same height.

**13** If you are beginning to worry about your trees all looking the same, have no fear, there are a number of things you can do with your brush to make it look individual and unique. Go to the submenu and click on "Distort" to bring up the menu of brush changing options. "Size" and "Halve" we have already come across. "Flip" simply flips your graphic over. If you are going to use this, make sure the "Vert" button is lit, or you'll have upside down trees. The "Skew" button is something we have used before. You can use this to italicise your brush, giving you leaning trees - great for emphasising gales.

**14** Now repeat the process, only this time move the sample tree "forward" so it touches the top perspective line higher up and the bottom line lower down. Continue this process until you reach the ends of the perspective lines. Now sit back and congratulate yourself on a job well done.



THAT SHOULD GIVE YOU A FEW IDEAS ON HOW TO USE DELUXE PAINT ST TO ITS FULL POTENTIAL. FEEL FREE TO SEND IN ANY EXAMPLES OF YOUR WORK, OR EVEN DROP US A LINE AND TELL US WHAT ELSE YOU'D LIKE TO SEE COVERED IN THESE PAGES.



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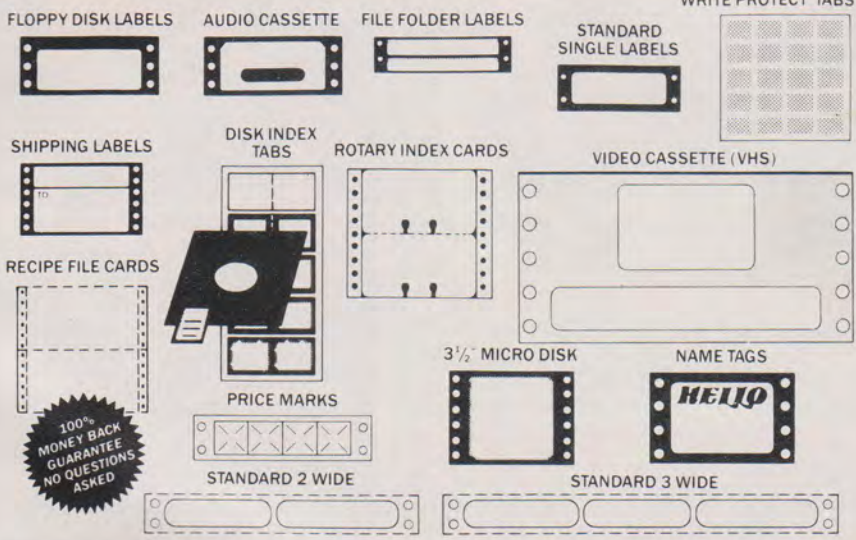
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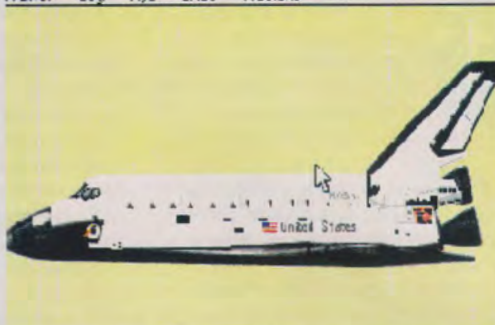


# SCREEN SCENE

*ST Review peeks behind the curtains to uncover this month's releases...*

- |  |           |
|--|-----------|
| <b>ADDAMS FAMILY</b>   | <b>68</b> |
| Another spooky Ocean license. Is it fantastic or frightening?  |           |
| <b>COOL CROC TWINS</b>   | <b>87</b> |
| Two of the wackiest crocodiles in christendom bounce around the screen.  |           |
| <b>EUROPEAN FOOTBALL CHAMP</b>   | <b>82</b> |
| Domark kicks the Taito coin-op onto the terraces in this footballing extravaganza.   |           |
| <b>FIRE AND ICE</b>  | <b>88</b> |
| Put away your Barbarian outfit, this is actually a cutesie, platform romp.   |           |
| <b>GOBLIINS</b>  | <b>71</b> |
| Guide three Goblins with a mission - a technician, a warrior and a magician to their goal.   |           |
| <b>INTERNATIONAL SPORTS CHALLENGE</b>  | <b>84</b> |
| Six gruelling Olympic events that combine in an enjoyable, sports collection.  |           |
| <b>SPORTS BEST</b>   | <b>72</b> |
| Car racing, Tennis and Panza Kick Boxing are brought together in this strange combination.   |           |
| <b>SHUTTLE</b>   | <b>74</b> |
| An ST Review Essential Buy and the most comprehensive flight sim ever. Think you can pilot a Space Shuttle? This is the closest you'll get to the real thing without leaving the planet. |           |
| <b>TIPS</b>  | <b>97</b> |
| Pacific Islands, Shadowlands and many more.  |           |

Orbiter Log Info Sites Missions



Virgin's Shuttle blasts off from page 74.



Addams adds a touch of Mario for Ocean.



Escape from the Planet of Robot Monsters.



International Sports takes your breath away.



Fire and Ice is a cutesie platform romp.

Settle down in your seats and wait for the curtains to roll back. This is Screen Scene, where each month we take a look at what's best in the world of ST leisure software. This month we've given the ST Review Essential Buy treatment to Virgin's out-of-this world Shuttle. Four pages of review show you why you should get to grips with the most sophisticated flight sim ever! And throughout the review pages, you'll see why our rating system is the best that there is. Coupled with **Pros and Cons** boxes and our famous **Step-By-Step** guides, there just isn't a better system to help you decide where to spend your hard-earned cash. Make the right games buying choice first time, every time with Screen Scene.

## VFM

*The Best of Budget games - every month*

- |   |           |
|---|-----------|
| <b>ARCHIPELAGOS</b>                             | <b>96</b> |
| The first non-violent God game.                 |           |
| <b>CARTOON COLLECTION</b>                       | <b>95</b> |
| Five of the Codies best wheezes in one pack.    |           |
| <b>CASTLE MASTER</b>                            | <b>93</b> |
| Domark's epic Freescape adventure.              |           |
| <b>CHUCK YEAGER'S ADVANCED FLIGHT</b>           | <b>94</b> |
| The sequel to his original flight sim.          |           |
| <b>ESCAPE FROM THE PLANET OF ROBOT MONSTERS</b> | <b>93</b> |
| This month's ST Review Budget Buy.              |           |
| <b>FERRARI FORMULA ONE</b>                      | <b>94</b> |
| Still in pole position after all this time.     |           |
| <b>LOTUS ESPRIT TURBO CHALLENGE</b>             | <b>96</b> |
| Split-screen car racing from GBH                |           |
| <b>MANCHESTER UNITED</b>                        | <b>96</b> |
| Joystick juggling and management combine.       |           |



Ocean's latest film licence is a tale of real ooky-cookiness.

Tony Dillon marries into the wackiest family of the '60s...



Revolutions seem to be all the rage at the moment, what with flares, Abba and, of course, *The Addams Family*. Cult viewing in the '60s and cult viewing now, the show came at a time when monsters were in everyone's hearts and minds, with B-movies a-plenty and shows like *Addams* and *The Munsters* monopolising the fun TV ratings.

Everyone knows the film of the show was released earlier this year - or at least almost everyone, judging by the box office ratings. This is Ocean's attempt to cash in on some of that revival spirit.

You play the part of Gomez, the father and recognised breadwinner of the family, in bad times. All of the family members have been kidnapped, and you have to rescue them using your cunning mind, your slightly less than athletic physique and a Fez with a built-in helicopter.

**A GHOSTLY PLUMBER**

The game is a platform romp, designed and played in the same way as so many others. Leap from one level to another,

killing bad guys by jumping on them and collecting bonuses as you go. There's nothing original in that, except that it's nice to see Ocean moving away from all that multi-game style stuff (*Batman*, *Robocop* and so on).

The game is played out over a number of sections, placed all over the Addams' house and grounds. Most of the levels don't have anything to do with their positioning in the general map (with the exception of the graveyard), it's just a groovy way of connecting it all. The centre of the game is the house itself, and inside are five doorways, leading to the core sections of the game, each of which is split over a number of eight-way scrolling areas.

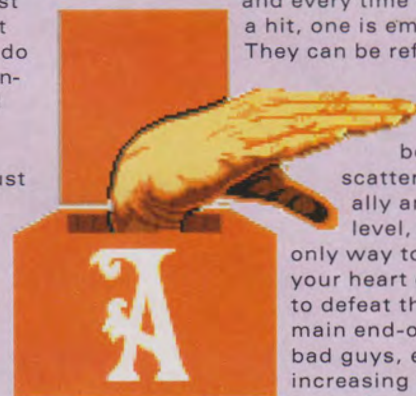
**JUMP, JUMP!**

Unlike most platform games, you don't carry a weapon. Instead, Gomez can only destroy the enemies he comes across (trees, spiders, insane

chefs and the like) by jumping and landing on top of them. Some, such as walking military helmets, can't be jumped on, as the spikes adorning them penetrate Gomez's shoes, sapping some of his life force.

This life force is represented by hearts at the side of the screen. You begin with two, and every time you take a hit, one is emptied. They can be refilled by collecting the heart bonuses scattered liberally around the level, but the only way to increase your heart quota is to defeat the three main end-of-level bad guys, each increasing your quota by one to a maximum of five.

As well as those bonuses, there are the obligatory 1-ups (extra lives), along with running shoes, that make Gomez move (imperceptibly) faster, and dollars in the place of the well-worn credits in the Mario series. 25 of these replenish a heart point and



Good characterisation  
Variety of levels and strategies

**PROS AND CONS**

Too many situations where you can be trapped  
The skidding causes major problems on small platforms

# The Addams



The FezCopter is a handy way of getting to those hard-to-reach places. Repeated pressing of the fire button ensures you stay airborne, but the hat only lasts for a short period of time.



Dollars are scattered about liberally all over the game, and serve three purposes: bonus points, extra energy (one heart refill for every 25 dollars and an extra life at every 100 dollars.

Lurch guards the entrance to the final level (above), and he won't let you past until you've completed the rest of the game.



100 give you an extra life. The big bonus to go for is the FezCopter, a Turkish hat with not-very-magical flying abilities. This only lasts for a short time, but it does let you reach otherwise inaccessible areas of the screens.

Finally, there's your lives counter. You start with five lives, and should you lose them all, you are given the option to quit or continue, a standard option in itself. This game, however, gives you the option to continue every time, should you want to, effectively giving you infinite lives. When you do continue though, you carry on from the beginning of the level you were on, rather than where you last died. Should you quit, you can restart the game at major points, such as just after the death of an end-of-level nasty, by entering a password which is given to you when such a task has been carried out.

It all sounds fun so far, but there are some serious faults in the game that make it unplayable at times. The real problem is the scrolling. In most games of this genre, you would expect to see smooth scrolling that centred

around the main character, giving you a wide view around the sprite and plenty of time to anticipate enemy movements. This isn't the case in this game.

### FLIP FLOPS ARE BACK!

**Addams** uses a method called flip-scrolling, and anyone who has ever used an Amstrad 8-bit machine will instantly know what that is. Rather than show each level as a wide, smoothly scrolling expanse, they are broken down into lots of non-scrolling areas. Moving your sprite around the middle of the screen has no effect on the scrolling whatsoever, but move him to either the left or the right, and the screen lurches in that direction, swings past your main sprite, and stops to display the next non-moving screen. Needless to say, this is a little tiring on the eyes, especially when you're in the middle of trying to avoid a spiked ball on a swinging chain.

And that's the major problem. Before you scroll into area X from area Y, the enemies in X don't exist. Fair enough, but what happens if the enemy in area X is also

partly in area Y, for example the swinging spiked balls? You guessed it, they don't appear until you scroll into X, by which point you are caught in their path and mown down before you can even say "Uncle Fester's lost his mind!".

Controlling Gomez is also far from easy. When you run for a short distance, say two steps to the right and then try to run in the other direction, Gomez skids to a halt and then turns. This takes up too much time and makes the game unresponsive. The "skidding-to-a-halt" system has been used many times before (in *Robocod*, for example) but not as badly as this. The problem is, he skids after even the shortest distances, making moving on platforms practically impossible. Move too much, and you're sure to skid off uncontrollably.

This suggests a poorly designed game, and that really is the best way to sum it up. With proper scrolling, and better controls, the game really would have a *Mario* feel to it. As it is, however, it's just another platform game that happens to have a big licence attached to it.

**"Badly laid out levels with an unplayable game. A big let-down"**

**NAME: THE ADDAMS FAMILY**

**COMPANY: OCEAN**

**SOFTWARE**

**CONTACT: 061 832 6633**

**PRICE: £25.99**

**RELEASE DATE: NOW**

**MIN MEMORY: N/A**

**GRAPHICS** ○○○☆☆☆

**SOUND** ○☆☆☆☆

**VALUE FOR MONEY** ○☆☆☆☆

**PLAYABILITY** ○☆☆☆☆

**OVERALL** **65%**

# Family



The stairs are the centre of the game. Through each of these doors is an important level ending, with either an end-of-level monster or a member of your family.

After killing the bird, you are presented with a new heart to add to your heart quota. And there are loads to choose from...



No, it isn't Orville. This bird is one of the end-of-level creatures, and to beat it, you have to work out its flight path.



## INSIDE INFO

Like all classic ideas, the life of *The Addams Family* began simply. They were first seen spreading their blend of vegetable oils and macabre humour in New York daily tabloids in the early '60s. Their appeal was so wide that they soon found themselves in their own half-hour TV show. The cult element of the show is so great that many people found the idea of a two-hour film hard to swallow, especially after the

appalling attempt to revitalise *The Munsters*. The excellent choice of cast, connected with a more than passable plot made for an enjoyable movie though, pulling in big bucks left, right and centre.



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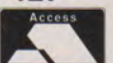
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(Left) Punching the statue makes the tongue poke out. A handy but revolting hiding place. (Below) Taking a swing at a nearby wall.



# GOBLIIINS

*Magic and mystery abound in DI's latest puzzler. Tony Dillon wears the Noddy hat...*

**G**obliiins (sic) is a puzzle game in the **Lemmings** mould. You control three loyal servant Goblins out to find a cure for the King's madness, an unkind affliction brought on by someone with a voodoo doll.

**CALL TO ARMS**

The trio sets off to find four magic objects, which together will cure the cursed monarch. The first, Oups, is a clever chap who can carry and manipulate objects found in the game. Need a gun fired? Oups is your man. Similarly, if you want someone beaten to a pulp, Asgard is the chap for you. He may not be the best with his hands, or the most intelligent, but he is good at belting things. Finally, to add a twinkly touch of magic comes Ignatius, a wizard with a limitless magical



capacity but an extremely limited magical knowledge. Each level is played across a single screen, and you aren't allowed to move onto the next until certain conditions have been met. Not that you are told what the conditions are, of course. You have to figure that out for yourself, and nine times out of 10 it's incredibly difficult. Some things are logical - for example, when you come to a bridge that's out, you know you need to block it. When it's next to an apple tree with apples that expand when a spell is cast, you know what to block it with. The rest of the time, though, there is little to tell you, and there are more than enough red herrings to sap your energy which, incidentally, is a single yellow bar that repre-

sents the entire party. If it diminishes to nothing, then the game is over.

**FIDGETY**

Unlike **Lemmings**, where the little darlings wandered around aimlessly, performing their tasks only when asked, the Goblins stand stock still until you specifically tell them to do something. Well, not quite still. They'll fidget, play with yo-yos, juggle, smile and perform backflips while they await instruction.

**Gobliiins** should have a lot going for it. It's a tough puzzle game, sure, but nothing that a little persevered trial and error, mixed with a snatch of logical thinking shouldn't be able to cure. So why did it get a less than average score?

Firstly, it slows down too much at times, seriously affecting the gameplay. Secondly, it's too fiddly to be playable. The controls are point and click. Selecting a Goblin, and then clicking on where you want him to go or to perform his respective action is usually all you do - the computer fills in the rest. However, there are quite a few moments when the goblin lurches off in some unexpected direction or doesn't even move.

It's a shame that what could have been such a great game was spoiled by poor playability. Even the amusing animation can wear a little thin after a while.

Wickedly funny animation  
Mind bending puzzles

**PROS AND CONS**

Very unplayable at times  
Not enough control over individual actions

*"Fun to watch but not fun to play. Too hard, too slow"*

**NAME:** GOBLIIINS  
**COMPANY:** DIGITAL INTEGRATION  
**CONTACT:** 0276 684959

**PRICE:** £25.99  
**RELEASE DATE:** NOW  
**MIN MEMORY:** N/A

**GRAPHICS** ○○○○○○  
**SOUND** ○○○☆☆☆  
**VALUE FOR MONEY** ○☆☆☆☆  
**PLAYABILITY** ☆☆☆☆☆

**OVERALL** 68%

Attracting the Wizard's attention (right). (Below) Plugging a hole.





French games, in general, tend to be very idiosyncratic. They're either about completely obscure subjects or they have completely obscure gameplay. Because of this they often suffer at the hands of the British games playing public. Having said that though, our friends across the water are obviously capable of producing a good sports sim – and just to prove the point they've released this compilation.

There are three games compiled on *Sport's Best*: **Panza Kick Boxing**, **Tennis Cup** and **Turbo Cup**. Of these, **Panza Kick Boxing** has to be the strongest contender. A hit when first released, it hasn't lost any of its appeal.

### WHAT'S IN A NAME?

Outside the world of kick boxing the name Panza may not mean much, but to those who do know a little bit about it, adding his name to the game is rather like having Hulk Hogan endorse a wrestling sim or Joe Montana an American football game. Luckily, the quality endorsement is



backed up by a quality game.

**Panza Kick Boxing** has to be one of the best fighting sims available on any format. It sticks very closely to the rules of the WKA (World Kick Boxing Association), though it also allows the use of some techniques which are the exclusive domain of French Boxing and Thai Boxing. Contenders can utilise 13 different fighting moves which can be combined to create a formidable attack or defence. There are eight different computer boxers to compete against and you can develop and save an individual character by training and progressing through the ranks of the WKA championships or by competing against friends.

The game comes supplied on two disks, so it can take some time to load and re-load as you change your options or opponents. Also, unless you have one Megabyte of memory, you may not be able to access all the available options. Nevertheless, once loaded and with or without these options, **Panza Kick Box-**



*Panza Kick Boxing: as the beautiful girl introduces round three, all hell is about to break loose behind her, in the ring. Each boxer has 13 different fighting moves.*



*Dom Weak attempts a middle kick on Boxer B...*

# SPORT'S BEST

*Loriciel has released three of its better known sports games in one package. Alan "waistline" Dykes sizes up the whole exercise...*

Excellent graphics

Two very playable games  
Increasing competitiveness  
in tennis and kick boxing  
gives plenty of stability

### PROS AND CONS

Turbo cup is uninspiring  
Gameplay and controls  
seem a little slow at first  
Some options need 1 MB  
memory

ing is well worth the wait

The graphics are lifelike and stunning right from the opening sequence. The boxers are perfectly animated and all their movements are meticulously recreated.

Unfortunately, all this graphic excellence could be why the game seems a little slow at first. However, this is really a blessing in disguise – if the simulation was as fast as the real sport very few people would be able to play it!

### STRIVING FOR PERFECTION

The second game worthy of mention on *Sport's Best* is **Tennis Cup**. Loriciel describes this as the "best tennis game to be released to date", and it certainly looks the part. The



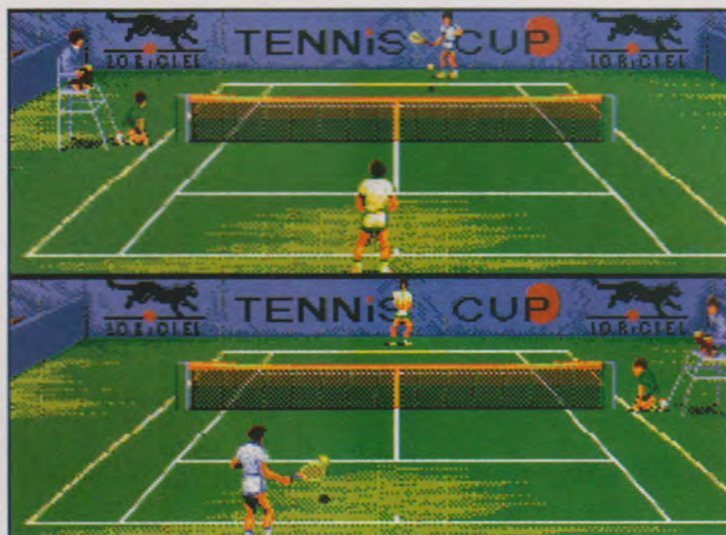
*...and receives a real one in return*

*Boxer B does a reverse flying kick*





Player two returns the volley with a forehand smash. There are many shot options in *Tennis Cup* and you can pinpoint particular shots on an option screen to give you a better chance of completing them.



option screens are logically laid out and there are 32 different opponents to choose from with plenty of opportunity to see your player progress through the ranks to the dizzy height of a tennis world champion seed.

Needless to say, you won't start out with the perfect player, so the game options allow you to adjust players' skills to suit the particular sort of game you want to play. As you get better your player is awarded more aptitude points so you can improve your game – and you'll need to if you're going to compete with some of the ace shots in the latter part of the tournament.

A good hint when starting out is to practise getting your serve as close to the outside

corner as possible. This will confound the first few relatively weak opponents and give you an opportunity to practise your returns and volleys while holding onto a good chance of actually winning the games. Unfortunately this trick doesn't work against better players, so make sure you

take full advantage of it.

Like *Panza, Tennis Cup* seems a little slow to play, but this time the problem is more frustrating. Maybe it's just my tired eyes but I always seemed to have to aim and release my shot ages before the ball actually reaches the racket. This leads to a lot of missed balls until you're used to it. I also found that, just when I thought my player was positioned correctly, the perspective had actually fooled me and the ball was, once more, just out of reach. Again when you get used to compensating for this quirk the *Tennis Cup* becomes enjoyable again.

During play the screen is split horizontally into two halves. This is useful in two-player mode when both players have the opportunity to see their computer contestants from behind on the same screen ensuring that both have equal advantage. However, in single player mode it is less attractive.

#### JOKER IN THE PACK

Most compilations have their duff games and in *Sport's*

*The Porsche has crashed. And that is how it should stay.*



*Hitting 239Kmh and knocking out the opposition. Not too difficult, not too absorbing.*

**"A super sports compilation for fighting and tennis fans"**

**NAME: SPORT'S BEST**  
**COMPANY: LORICIEL**  
**CONTACT: 021 625 3366**

**PRICE: £25.99**  
**RELEASE DATE: NOW**  
**MIN MEMORY: 0.5 MB**

**GRAPHICS** ○○○○○☆  
**SOUND** ○○○☆☆  
**VALUE FOR MONEY** ○○○○○☆  
**PLAYABILITY** ○○○○○☆

**OVERALL** **84%**

*Best's* case it's *Turbo Cup*.

This involves racing a turbo-charged Porsche 944 around four French racing circuits. OK, there are some plus points: it looks reasonably good; there are enough gears, there's some turbo-charged action and the opposition occasionally puts up a good fight, but this game should be strictly reserved for occasional moments of boredom.

With no real options, no extra curricular excitement and very limited drivability *Turbo Cup* is more of a Lada than a Porsche.

Although it only contains three games, *Sport's Best* is a formidable contender. Anyone with even a remote interest in fight sims should have *Panza Kick Boxing* in their collection and "the best so far" tennis sim, *Tennis Cup* is worth much more than a passing look.

## BUYERS GUIDE

What are the alternatives? There are plenty, but not all on one pack. Check *Sport's Best* titles out against their stand alone opposition. All marks are out of 10.

	Gra	Sou	Rea	Pla	Las
Panza Kick Boxing:	9	7	9	8	8
International Karate Plus:	8	8	7	9	8
Tennis Cup:	8	6	7	7	8
Advantage Tennis:	8	7	9	8	9
Turbo Cup:	7	5	4	5	4

Key: Gra = Graphics, Sou = Sound, Rea = Realism, Pla = Playability, Las = Lasting appeal





**S**huttle is a simulation of NASA's premier craft, the space shuttle, which has been in service for 11 years and has been used to carry out several valuable experiments, as well as to launch and repair satellites. This game takes you from the launch pad to space and back again in a simulation based on actual NASA documentation.

There are two manuals, one of which covers the extensive controls and gives a description of all the shuttle's missions, while the mission guide contains the scenario briefings and instructions on how to fly the craft.

It's important to get acquainted with the controls first - a "dry-run" with the controls is a good idea, mainly because there are so just many and you can't waste time flicking between manuals and displays.



lems in the bud.

The instrument landing system is one of the shuttle's most complicated. Fortunately, the only time that it needs to be employed is when you're bringing the machine in through cloud cover. In this situation you have to fly blind, relying only on a digital display. There are lots of read-outs on this screen, many of which are unimportant: what you need to watch out for is the circle at the centre of the display, which has to be kept lined up with a cross-hair that represents the best glide-slope for landing.

#### HANDS-ON

Landing can be one of the most testing times for a pilot. The fastest conventional jet-aircraft can just clear Mach 3, whereas the shuttle re-enters at Mach 9 and glides to Earth. Airbrakes

have to be applied to slow it down, and a tricky manoeuvre called "pre-flare" has to be performed to slow the shuttle down to an acceptable landing speed. If the craft isn't lined up right on the landing strip, or is travelling too fast, it stands a very good chance of skidding off and bursting a tyre, which could result in a crash. On the real shuttle the control stick rotates as well as moving in the usual set of joystick directions. This is because the craft not only banks, pulls back and dives, but also has to rotate laterally. Obviously, this is impossible to recreate on a conventional joystick, so the keyboard has to be employed for manual control. It takes a while to get used to steering the shuttle in this way, and unfortunately there's very little opportunity for practice, so it often takes a few accidents before you get it right.

The lack of friction in space

# SHUTTLE

*While many software companies are content with training us in conventional aircraft, Virgin has gone one better. Mark Patterson heads for the final frontier...*

#### ONE STEP AT A TIME

Timing is one of the most important factors in getting to grips with this game. Procedures have to be followed to the letter, otherwise engines might try to fire without enough fuel or auxiliary power might fail, and this kind of mishap could spell disaster. This can prove a little frustrating, as you will find yourself pausing the game frequently to study the manual, which is unclear at times.

A good memory is another essential requirement - you need to keep one step ahead and remember what to do next. If you fail to fire the engines at the right time the shuttle could drift out of its orbit, while failure to load up a computer program could have disastrous consequences. It's also important to keep an eye on the various gauges - there are so many things that can go wrong as the result of one malfunction that you have to nip any prob-

**ATARI** REVIEW  
**ESSENTIAL BUY**

## LIFT OFF

*Before you can start a mission, you need to be able to take off. Here's how...*

The shuttle doesn't have enough power, or fuel capacity, to take off unaided, so it's connected to two booster rockets which are connected to the side of a large fuel tank. These, together with the shuttle's three engines, generate the necessary thrust to break away from Earth's gravity. The headings below refer to the countdown times - minutes and seconds before and after take-off.





also has to be contended with. When the engines fire to push the shuttle in a certain direction they also have to be fired in the opposite direction to produce enough force to slow the craft down.

### MISSION-ON

As shuttle captain, you concentrate on getting things into orbit. The most complex of your missions is attaching a crew module to a previously deployed solar panel. This calls upon your flight skills to manoeuvre in close, then your abilities with the shuttle's robot arm to guide the module into place. As you grow in

experience the missions get tougher, demanding pin-point accuracy, and they culminate in a top-secret project to launch a spy satellite. The manual gives a brief overview of each mission, but you still need to use your initiative when it comes to timed engine burns and deploying the robot arm, as you're only given the basics. This is where a practice mode would have been very welcome.

### POINT AND CLICK

A point-and-click system makes up the bulk of controls, so to operate something all you have to do is click on

the appropriate switch or dial. Even then there is a massive array of controls spread over several screens, and despite the inclusion of a poster displaying every control panel in the game, it's still very easy to get lost. Some additional commands and displays are activated by a system of pull-down menus, although most of these can be selected via key combinations.

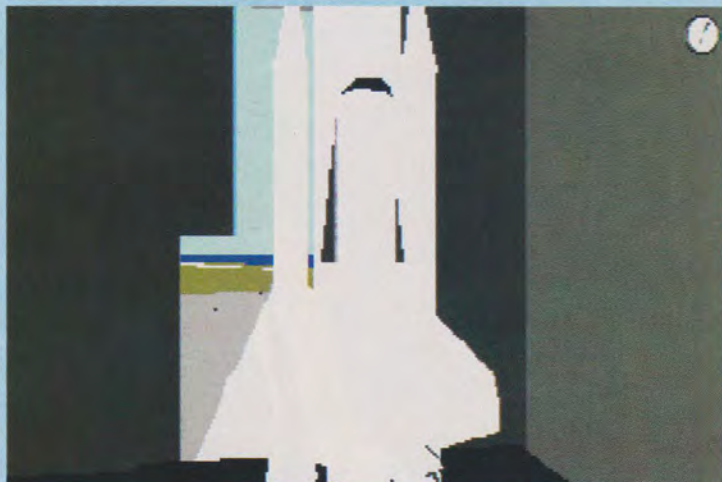
Many complicated manoeuvres are automatically performed by the computer, and all you're called upon to do is to enter the commands to load up a certain piece of

Superbly detailed  
Loads of game to play  
Very realistic and  
comprehensive

### PROS AND CONS

Can be slow at times  
Takes ages to get into  
May be too complicated  
for some people

*The 747 Piggy Back mission gives you a chance to land without having to take off. The shuttle is carried to 60,000 feet on the back of a 747 jumbo jet then released, you then have to deploy the landing gear, activate the instrument landing system, and guide it back to earth.*



*It usually takes seven hours to wheel the shuttle from its hangar to the launch pad. The accelerated time feature speeds things up, or you can 'teleport' the shuttle to the launch pad. You can also go straight into orbit or try your hand at landing it.*

### T-5:00:00-T-0:20:00

Once the shuttle has been rolled out to the launch pad and the tanks have been filled, it's time for the pre-flight checks. First, the communications units have to be activated and tested. The five relevant switches must be flicked from off to transmit and receive mode. Next the CRT displays have to be switched on (these take about 45 seconds to power-up). Next you need to flick the three water-boiler switches on, then the radio has to be tested by switching it on and clicking on the "xmit" dial. The cabin vents have to be closed now, again by clicking on the relevant knob, then the flight plan has to be loaded up by typing in the relevant name.

### T-0:19:00-T-00:05:00

Once the flight plan has been entered the circularise orbit code has to be loaded up in the same way. The next step is to pressurise the main propulsion system with helium: to do this you need to open the valves to the tanks, then activate the pressure valve. If everything has been done correctly the shuttle will be primed for take-off. The access tower will retract, and you'll then have to flick the switches that close the fuel valves.

### T-0:04:00-T+0:10:00

The computer now takes over the running of the internal systems. Your last task is to activate the failsafes on the auxiliary power units: once this is done, sit back and wait for launch. The entire launch and release of the external fuel tank and boosters are automatically controlled. Your last act before space is to activate the Attitude Direction Indication which relates the shuttle's position in relation to the current environment.

### T+0:11:00-T+0:55:00

Once you're past the atmosphere the next step is to manoeuvre the shuttle into position. This requires you to load up a program that triggers controlled rocket bursts which push the shuttle into orbit. After that the pumps have to be shut down and the external fuel tank jettisoned (it burns up in the atmosphere).

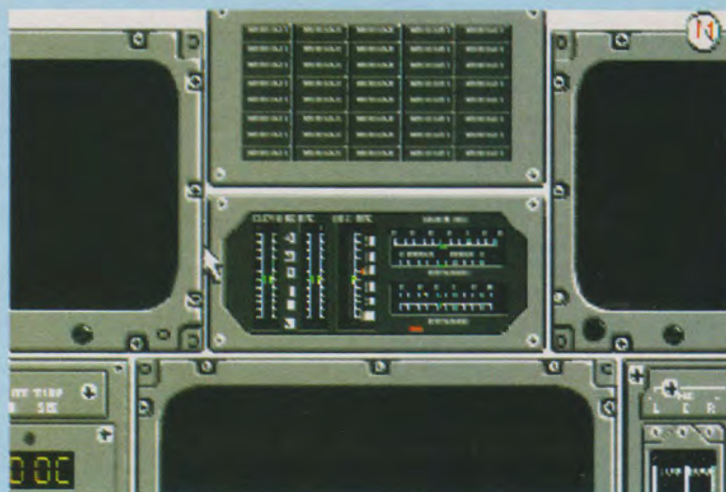
Next the cargo-bay doors have to be opened, which allows the deployment of the radiators which release the extra heat generated during take-off. Finally the KU band communications antenna has to be deployed. If everything's gone well mission control will send a message authorising you to carry out the first stage of your mission.







The robot arm is the key to many of the missions. It's used to deploy and recover satellites. Many of its functions are computer controlled, but you're still called upon to manually control it from time to time.



This is a section of one of the control panels. They're so big that they can't fit on one screen alone, so you have to scroll around them by pushing the pointer to the edge of the screen.



The external solid fuel boosters eject at this height and parachute back down to earth. The fuel tank drops off a few minutes later and burns up in the atmosphere.

software or flick a few switches. When this happens you're treated to a graphic display showing the net result of your actions. All the external graphics are made up of polygons, and while the individual objects aren't very detailed, there are some complicated sequences which enhance the game. Of course, this isn't a perfect world, and however nice the graphics are to look at, they are very slow at times.

For the most part, though, the cockpit, its narrow windows and monitors are what you have to keep an eye on. You need to be able to react to situations as they happen, so you can't afford to devote much time to watching these pretty pictures.

### TEDIOUS TAKE-OFFS

The level of detail is incredible: every mission aspect is covered, the cockpit is very close to the real thing, and the sheer weight of things to do makes this very absorbing.

The only real problem with *Shuttle* is that it's very, very difficult. Take-off alone takes ages to master and once in space things get tougher still. You have to be prepared to take a lot of time out reading the manual, watching the demo and memorising all of the key locations on the control panels.

This makes the game extremely tedious at first, not to mention frustrating. It's not much fun being stuck on the launch pad with no obvious way of taking off.

If you like instantly playable games this definitely isn't for you, but if you're prepared to persevere you'll find yourself playing possibly the most unique simulator ever.

### INSIDE INFO

The shuttle program has come in for some severe criticism in the United States recently, with many congressmen accusing it of being both unreliable and far too expensive to maintain and run.

One of NASA's original aims when the craft were first launched, was to make the shuttles pay for themselves after about 10 to 15 years in service. This was to be achieved through launching commercial

satellites, repairing and maintaining those in orbit, and taking on private experiments.

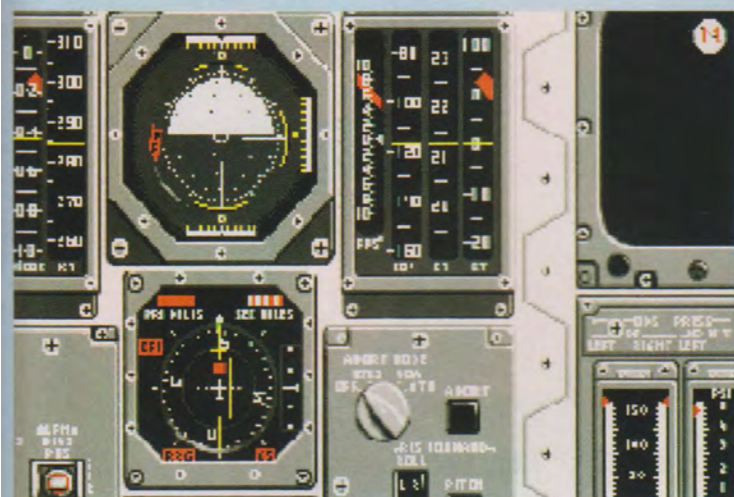
However, bad luck with weather, a series of technical faults and, perhaps the biggest blow of all, the Challenger disaster in 1986, in which seven astronauts lost their lives when the shuttle exploded shortly after take-off, have pushed costs up and have shaken public confidence in the project.

Challenger's replacement, the Endeavour (which contains a piece of wood taken from Captain Cook's ocean-going ship of the same name), had its maiden voyage in May, when the crew was sent to rescue a satellite.

Unless NASA can generate a significant amount of private investment in the face of the European Arian system, which is far cheaper, the space shuttle's 11-year history may soon be drawing to a close.

There are plans for a European shuttle, but a multi-national team of backers needs to be found. It seems unlikely that construction will start this century: the latest pan-European project, which was a multi-national fighter, looks set to be scrapped following Germany's request to withdraw their funding.





You only need the flight control panel screen when you're lining up to land. The artificial horizon in the centre helps you to line up your initial approach before switching to the ILS so set your final glide-slope.

There's not much need for windows on the shuttle, as you need to concentrate on the various instrument banks. Occasionally you may get a nice view of the Earth, but mostly all you will see is sky or space.

## HUBBLE TROUBLE

Once you've mastered the basics and have managed to get the shuttle free of gravity, you are ready to progress to an actual mission. The easiest of these is the launch of the Hubble space observatory

This mission starts 25 minutes after take-off. First the robot arm (or RMS) has to be released from its housing by pressing Enter. It takes a few seconds to deploy, and after it's free from its coupling the computer automatically moves it into

position over the telescope.

For the next stage you have to switch the auto selection dial to position three which moves the arm to the grapple, then press Enter to grab it.

The next step is initiated by switching the RMS dial to mode two, the flicking the auto-sequence switch. Now you can sit back and watch the telescope being dragged into position and the solar panels deploying, then tap the Backspace button to release the grapple.

Finally, you need to manually steer the shuttle away. This is very tricky, as one false move could result in a collision between the robot arm and the satellite.

Once you have managed this, you can initiate the landing program and make your way back to Earth.



**"Very difficult, but a real challenge"**

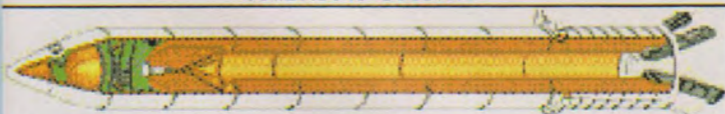
**NAME: SHUTTLE**  
**COMPANY: VIRGIN**  
**CONTACT: 081 960 2255**

**PRICE: £35.99**  
**RELEASE DATE: JULY**  
**MIN MEMORY: 0.5 MB**

**GRAPHICS** ♂♂♂♂♂♂  
**SOUND** ♂♂♂♂♂♂  
**VALUE FOR MONEY** ♂♂♂♂♂♂  
**PLAYABILITY** ♂♂♂♂♂♂

**OVERALL** **90%**

Solid Rocket Boosters



The two Solid Rocket Boosters (SRBs) are attached on each side of the External Tank (ET). They are each 149.16 feet long and 121.7 feet in diameter and weigh about 1,300,000 pounds at launch, including their load of about 1,100,000 pounds of propellant.

Each SRB develops approximately 3,300,000 pounds of thrust at launch, providing nearly three quarters of the shuttle's initial thrust. The precise direction of thrust can be adjusted by gimbaling the rocket nozzle using actuators powered by two Hydraulic Power Units (HPUs).



The game has a built-in reference guide to the shuttle, which covers all its main elements and gives a full description and a picture of the selected item.

Unlike the one in this picture, the shuttle's nose has to be kept up during re-entry. The friction generated by the atmosphere helps slow it down even further.

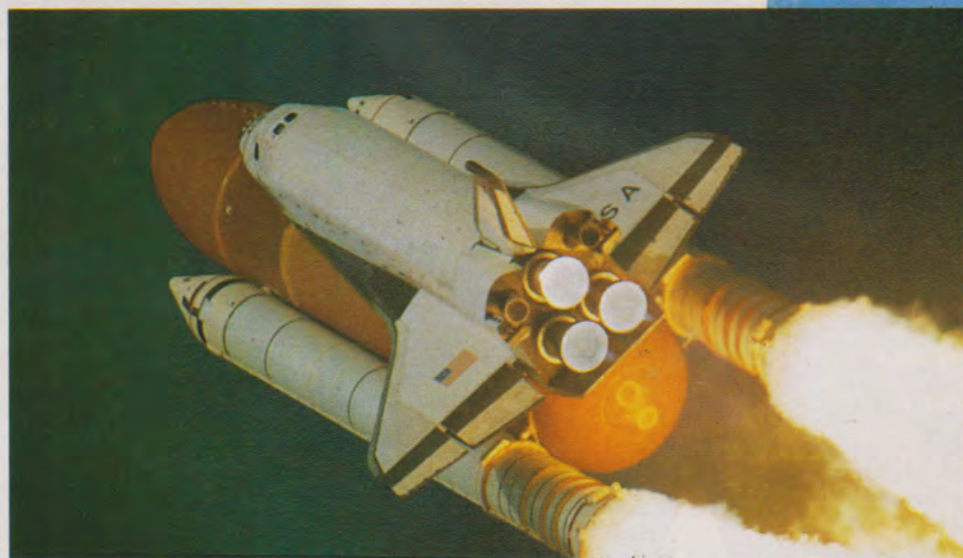


# BLAST

*An all-expenses paid five day holiday in Belgium could be yours courtesy of Virgin Games, whose latest release, Shuttle, reviewed on page 74, received the coveted ST Review Essential Buy award.*

**V**irgin's *Shuttle* is a flight simulator with a difference. It is an accurate simulator of the most complicated flying machine in existence - N.A.S.A's Space Shuttle - we know, we reviewed it and immediately gave it a whole four pages in order to do it the justice it richly deserves.

*Shuttle* has some amazing graphics which are a sight to see - as is the Space Camp in Belgium which the lucky winner and a friend will visit to be put through a complete astronaut training program - this will involve physical training which includes weightlessness, G-force tests and finally goes on to let you loose in a fully blown Space Shuttle simulator - once you've been through this training you'll be able to pilot the real thing.



## IT'S EASY TO WIN

All you have to do to enter the competition is to answer the following questions, enter your replies on the coupon and send it to; ST REVIEW, BLAST OFF COMPETITION, 30-32 Farringdon Lane, London EC1R 3AU to arrive here before 14th August.

- 1** What was the name of NASA's first shuttle in space?
- 2** Originally, it was meant to be launched using..
  - a) Curved railway tracks
  - b) A Boeing 747
  - c) Methanol

## PRIZES!

Apart from the lucky winner and a friend who get the first prize, there are also £900 worth of prizes for runners up.

● 20 second place prizes of a high-quality Virgin T-shirt and a copy of the game (worth over £40!)

● 10 runner-up prizes of a Virgin T shirt.

## COMPETITION RULES

The closing date for this competition is 14th August. Any entries arriving after that date will be ineligible for entry. This competition is not open to any employees of EMAP Images or Virgin Games and the editor's decision is final. No correspondence will be entered into.



# OFF!

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SPACE CAMP!!**



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Address.....

.....

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Postcode.....

1 .....

2 .....



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**HAND-HELD**

# **GO!**

**VIDEO GAMES**

**CAN YOU AFFORD TO MISS IT!**



# BE COOL THIS SUMMMER!

## WIN A SUMMER SUN KIT AND STAY COOL...

*Cool Crocs from Arcade Masters should make your temperatures rise but 20 lucky winners could still end up looking like the coolest dudes on the beach this summer...*

ArCADE Masters are offering each of the top 20 winners a pair of John Lennon-style, wire-framed round sunglasses, a trendy T-shirt and matching baseball cap and a copy of the the **Cool Croc** game. All of these smashing prizes are waiting to be snapped up by the first 20 winners of this month's competition and on top of that there are 10 runners-up prizes of a copy of the game to be won.

The Cool Croc Twins are the latest in a long line of software super heroes - two cool crocs who share one girlfriend, they spend their time beating off enemies and fighting their way through all sorts of barriers. Who said that prehistoric reptiles couldn't be progressive?

Faint heart never won fair lady - let alone a gorgeous crocette, but the Croc Twins would never faint anyway; it just isn't cool. And keeping their cool is Punk and Funk's number one priority, next to winning the heart of Daisy Crocette, that is.

Daisy can't choose, however, between the rough diamond charm of Punk Croc and the easy-going, laid-back attraction of Funk Croc, so she's taken off, vowing to love them from afar.

Afar is no way for the Croc twins and they're off to get their number one fan back - after all, what's the point of being a Cool Croc without a Crocette to swoon over your coolness? Daisy is 10 worlds and 60 levels away, through dangerous, thick dark jungles, icy barren wastes and evil civilisations, but Funk and Punk are both determined to get to Daisy first, and of course who does is up to your coolly efficient game playing.

The **Cool Croc Twins** features some top graphics and fast paced challenging action. See page 87 for the full review.

To win one of these great new games, and a pair of super cool sunglasses, T-shirt and baseball cap, just answer the following two questions.

- 1 Which famous children's story, recently made into a movie, featured a crocodile?
- 2 What was his main problem hindering the successful pursuit of his arch rival?

Send all entries on a postcard to:  
Atari ST ST Review, Cool Croc Competition, Priory Court, 30-32 Farringdon Lane, London EC1 3AU

Closing date for entries is 14th August. No employees of EMAP Images or Entertainment International may enter. The judges' decision is final and no correspondence will be entered into.







# EUROPEAN FOOTBALL CHAMP

As yet another arcade football game hits our game screens, Tony Dillon puts the boot in

**Y**ou've probably seen this game many a time. Propping up schoolkids in your local arcade, or propping up drunks in your local boozier, there's no getting away from this excellent Taito coin-op. Now, Domark has decided to release it onto the home format.

## NOTHING FANCY

Unlike most arcade kickabouts, *European Football Champ* doesn't have an intricate control system. But it is very easy to play, which goes some way to explaining why it is so popular.

On loading, you are greeted with two circles of flags. Moving the joystick left or right cycles them to the country you want to play, and pressing fire enters the game. From this simple screen, it's

possible to select the three different game types. Firstly, there's single-player mode, where you play computer-controlled teams of increasing skill. If two players select different flags, you go into the human versus human game, where two player controlled teams of equal skill go up against one another. Finally, should two players select the same flag, then both play for the same side against a series of persistent computer opponents.

The game is viewed in semi close-up from a side view. The window scrolls around the pitch following the ball and the currently selected player. A feature of the coin-op, and a trick that Teque developed while working on *Pitfighter*, is the extreme close-up, which happens at

key points of a game, such as when a goal has been scored, or when a player is sent off. At these points, the graphics are expanded to four times their original size, just to let you know who to look at.

## EASY AS PIE

The control method is as close to perfect as you are likely to get in an arcade game. The only thing you need to worry about is the fire button - joystick direction simply selects the direction the move is to go in. If the player is off the ball, tapping the fire button once makes the player attempt a legal tackle. Tapping it twice causes the player to try something a little more illegal, such as kneeling a player in the groin.

The same method of single and double presses applies when the player is near or has the ball. A single tap causes a long, low ball and two taps causes a volley. Depending on the proximity of the player to the ball, it could also cause a bicycle kick or a diving header, all automatically chosen by the computer. It's a very user friendly system.

But nature creates balance, and for all these good points there has to be something wrong, and in this case it's the speed of the game. The scrolling is disastrously slow and jerky, and trying to move a player into a receptive position can prove to be one of the most frustrating challenges this side of *Tetris* as you wrestle to get the man to respond.

It's a shame that such an amazing arcade game has

come across so badly. If this game had been a lot faster, it could have been incredible. As it is, though, it's completely unplayable.



Three different game styles  
Good controls  
Two player mode is almost fun

## PROS AND CONS

Far too slow  
Machine has to load in close-up view

"Way too slow to be any fun. A wasted opportunity"

NAME: EUROPEAN FOOTBALL CHAMP  
COMPANY: DOMARK  
CONTACT: 081 780 2222

PRICE: £25.99  
RELEASE DATE: NOW  
MIN MEMORY: N/A

EASE OF USE: ★★★★★  
DOCUMENTATION: ★★★★★  
EFFECTIVENESS: ★★★★★  
VALUE FOR MONEY: ★★★★★

OVERALL: 54%



(Above) The circle of flags. Here you select whether to play one or two player, against or with a friend, and the nationality.

(Right) For the first time the goalkeepers aren't infallible. This dejected looking soul has just turned and thrown the ball into the





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**SILICA PRICE**

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# INTERNATIONAL SPORTS CHALLENGE

Only narrowly missing being on the Olympic team, Tony Dillon curls up with a copy of Empire's sporting simulation...

As the Olympic season heats up, football is slipping from the imagination of software houses and is being replaced by Olympic-style sports compilations. We have come full circle from the days when **Daley Thompson**, **Hypersports**, **Track And Field** and the almost endless Epyx sims were all the rage.

Over the years, the format has remained as steady as a rock; multi players each taking turns at the events selected, trying to beat each other's records, scores or times, fighting for lead place in a league table.

## AN OLD DOG

**International Sports Challenge** is, however, different. While it does have the usual

DIVING		EN HIGHBOARD
FORWARD STRAIGHT/2 SOMERSAULTS	2.9	
BACKWARD STRAIGHT/2 SOMERSAULT	2.2	
INWARD STRAIGHT/2 SOMERSAULTS	2.1	
REVERSE STRAIGHT/2 SOMERSAULTS	2.2	
FORWARD PIKE/3 SOMERSAULTS	2.5	DEMO
BACKWARD PIKE/3 SOMERSAULTS	2.4	
INWARD PIKE/3 SOMERSAULTS	2.6	
REVERSE PIKE/3 SOMERSAULTS	2.7	

Just some of the 88 dives. The number on the right-hand side is the difficulty of each dive.

multi events and a league table, and while the overall idea is to be ahead of all your human opponents when the chips are down, each of the events are portrayed in such an interesting and challenging way that you can forgive the blasts from the past.

What you have is five events



The diver in mid-air. Notice the small circles in the top right corner. The outer circle is you, the inner circle is the move you are attempting. Try and keep them together!



The map of the marathon. 26 miles of sun and cramps. It's down to you whether you make your runner sprint the distance or not.



Clay shooting involves you shooting at pairs of discs from various points of a circle.

linked with a sixth, the Marathon. Rather than play each six in sequence, the Marathon is spread out between all the events, which makes good sense considering it's a 26-mile race. In this event, you take a more managerial role over the runner, rather than controlling him directly. By setting sliders representing speed and rhythm, you can essentially tell the runner how to pace the next 10 kilometres. You can also give orders as to what to do next time he reaches a refreshment stand, be it grab some water, glucose or a sponge to mop himself off with. If he doesn't seem to be faring too badly, then you can tell him to do nothing, but don't be too surprised if you come back to him and find that he's eventually been removed from the race due to exhaustion.

Once you have set your runner for the next stretch, you can move onto your next event, after which you will return to reset the runner for the following stretch. It's such a simple idea, yet it adds a sense of continuity to

the game, stopping it from looking like a compilation of sporting games rather than the overall event it's supposed to represent.

## MAKING A SPLASH

The first event is diving, and by playing this you realise why this game appeared on the Empire label, which is more commonly associated with strategic titles such as **Pacific Islands**. You have to perform four dives chosen from a list of 88 different combinations, all of varying difficulty such as an inward with a triple somersault or a handstand with a backflip and a twist. Before performing each dive, you can watch a computer demonstration of how it should be done, then it's your turn. You will spend your time watching a small

## WHERE THERE'S A WAY...

Each event can be played in a number of ways

The most common option before each game is the difficulty level, from National to World ranking. On top of that, there are four types of shooting, four types of cycle race, 88 different dives from four heights and four different swimming strokes to use. With all those options, there are over 2000 different ways to play the game!





Changing the pace of the runner is vital. Setting it just right will see them at the front of the pack.



Boar shooting tests your skills at shooting pigs...

circle with two balls, one inside and one outside, rather than the large, animated sprite of the diver or the intricate backdrop of the pool itself. As the inner ball moves, you have to try and follow it with the outer one.

Next comes showjumping. Displayed using very fast 3D polygons, this is essentially a horse simulator. The idea is to weave around a small box, leaping over suspended horizontal poles as fast as you can. Hitting the poles incurs a penalty. The controls are a little more straightforward on this event: left and right steer the horse, forward makes it run faster and pulling back slows it down.

### WAGGLING AWAY

Swimming and Velodrome Cycling are the two rhythmic events. The former requires precise swings of the joystick with carefully timed firebutton presses, while the latter is an all-out, rattle-it-until-it-breaks racer. Swimming is viewed side-on, with the two swimmers splashing about in independently scrolling lanes. A meter shows the speed of the rhythm you are currently using, and a heart appears telling you when to breathe. Failing to press the button at this point will cause your player to slow down and eventually drown, so it's probably worth sticking to it as rigidly as you can.

Velodrome cycling is a race around a banked loop. Viewed with polygons, the idea is to keep as low down on the bank as possible, while waggling away like mad. This is the most uninspired event in the package, and though it looks very nice,

there's nothing here to keep you playing.

The final event is actually four different types of shooting in one, although you can only choose one of them. You aim your cursor over either clay pigeons, trap targets, targets mounted on cut-out boards or standard targets. Both forms of target shooting are simple enough, but clay pigeon and trap shooting are a lot more demanding on even the fastest reflexes.

**International Sports Challenge** isn't the greatest sports simulation ever released, and six events aren't nearly enough to keep people coming back for more. On the whole, it's a well thought out game, excellently presented with a lot of effort placed on making it playable. If sports are your thing, you'll love it.

**"A good mixture of game styles - an enjoyable collection"**

**NAME: INTERNATIONAL SPORTS CHALLENGE**

**COMPANY: EMPIRE**

**CONTACT: 0268 541126**

**PRICE: £29.99**

**RELEASE DATE: OUT NOW**

**MIN MEMORY: N/A**

**GRAPHICS** ♂♂♂♂♂

**SOUND** ♂♂♂♂♂

**VALUE FOR MONEY** ♂♂♂♂♂

**PLAYABILITY** ♂♂♂♂♂

**OVERALL 82%**

Wide mix of styles  
Original approaches to popular themes  
Intuitive, easy to grasp controls

### PROS AND CONS

Disk swapping can be a pain

Not enough events

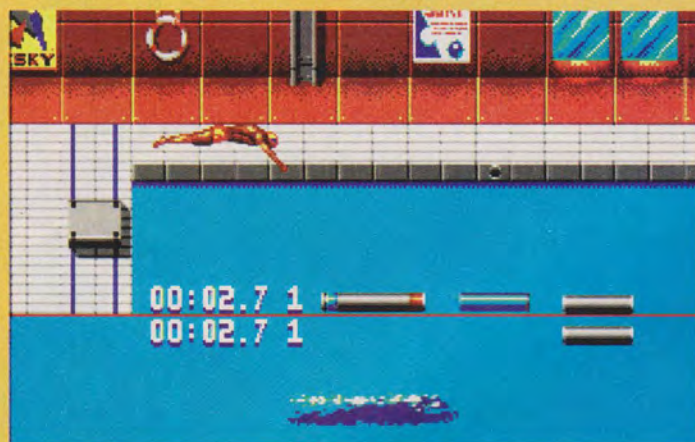
Shooting is a little too slow



A nervous look round from a horse that doesn't fancy breaking its legs against the bars ahead.



Velodrome cycling, and here you can clearly see the attention to detail. Just look at the lycra shorts on the guy in front!



A flying leap into the 50m breaststroke. The other swimmer is already in the pool, showing how quick you have to be.



Trap shooting, one of the four different types of shooting available in International Sports Challenge, lets you shoot from five different angles to the trap.



# STARWARR



94% C.U. AMIGA.  
June 1992



Rage Software unit 21 Edward Pavilion  
Albert Dock Liverpool L3 4AA.

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# THE COOL CROC TWINS

When ideas for arcade games start to get a bit thin on the ground, out come the cutesie characters. Paul Presley does battle with the coolest set of green reptiles to arrive on the scene since the turtles

Take a dollop of summer spirit, two bog-standard cutesie characters, a healthy slice of average arcade gameplay, add a pinch of originality and what have you got? Another in the long line of summer standard arcade



releases designed to fill the gaps between the more weighty, thought-provoking simulation or strategy games that take up your valuable ST gaming time.

**The Cool Croc Twins**, from Empire's new arcade label, Arcade Masters, follows the recipe to the letter



and subsequently neither excites nor disappoints in any major way. A simple little intro sequence sets the scene: Punk and Funk Croc (twins, no less) have to battle through 60 screens of mayhem to win the love of Daisy Crocette.

## A CROC'S GOTTA DO...

The key to completing each level is the lighting of several blocks dotted in strategic places around each screen. You do this by the very simple task of headbutting them. What makes this a little more tricky is that most blocks can only be accessed from certain platforms, not all of which are horizontal. To get to the more out-of-reach platforms, you rotate the crocs through 360° and jump from place to place. Once all the lights are on, a level is complete.

Turning the lights off again are various bargain bucket monsters, roaming the platforms, lethal to the touch but disposable by jumping on them. Add to that the randomly appearing bonuses and you're left with nothing more than the usual fare.

It scores points in the 360° control method, which adds some challenge and originality, but once you're used to this (and let's face it, no arcade control system is tricky to get used to these days), it's all quite ordinary.

**The Cool Croc Twins** is pleasant enough and in an arcade would be just the thing to waste a couple of 50 pence pieces on, but it's certainly not the something that you'd want to waste any serious money on.

*"Average arcade fodder, with just a hint of difference"*

**NAME: THE COOL CROC TWINS**

**COMPANY: ARCADE MASTERS**

**CONTACT: 0268 541126**

**PRICE: £25.99**

**RELEASE DATE: NOW**

**MIN MEMORY: 0.5 MB**

**GRAPHICS** ○○○☆☆☆  
**SOUND** ○○○☆☆☆  
**VALUE FOR MONEY** ○○○☆☆☆  
**PLAYABILITY** ○○○☆☆☆

**OVERALL** **62%**

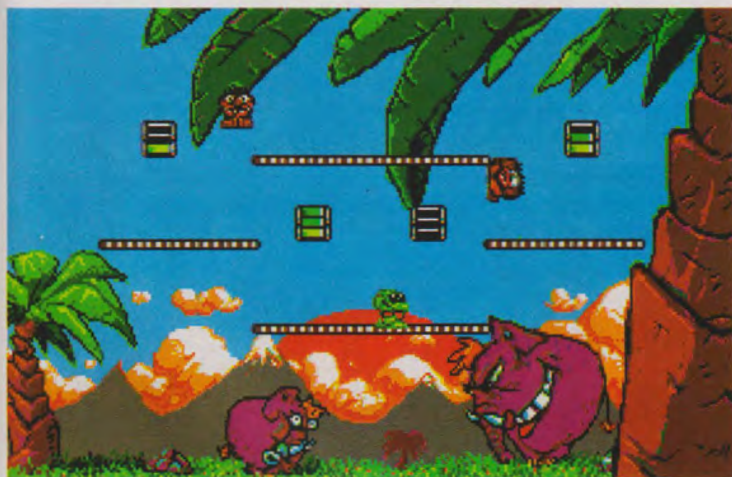
More original than most arcade games

Mindless, inoffensive fun

## PROS AND CONS

No long-term appeal

Controls can be a little confusing



The blocks of light have to be hit three times before they are fully lit. In two-player games it becomes six times, three for each croc.

## BUYERS GUIDE

Are the crocs the coolest around? Our chart shows how it compares with other arcade games on the market.

	Gra	Sou	Com	Cha	Ori	Overall
1 Volfied	3	3	2	4	3	68%
2 The Cool Croc Twins	2	3	3	2	4	62%
3 Video Kid	3	3	2	4	2	60%
4 Turtles	2	2	2	4	1	55%

Key: Gra - Graphics, Sou - Sound, Com - Complexity, Cha - Challenge, Ori - Originality.



# FIRE AND ICE

*The title of this game is somewhat misleading, as Paul Presley discovers*

There's been a good range of platform games over the past few months, with almost every taste catered for. Wacky humorists have had *Robocod*, mean and moody types have had *Harlequin*, fantasy role-players have had *Leander*, and even modern-day Ninjas have been looked after with *First Samurai*. Now, thanks to Graftgold and Renegade, we've got something for the cutesie fans with *Fire and Ice*. The name may conjure up images of an epic battle between good and evil across majestic landscapes with all manner of nasty weapons, but one look at the single-toothed grin, the shiny bulbous nose and the huge green eyes on the cover soon puts you right.

*Fire and Ice* tells of one man's quest to find and capture an intergalactic criminal



by the name of Suten. Having escaped from a maximum security prison, he has made his way to Earth, closely followed by the best prison guard

around. Knowing that a direct confrontation with Suten would spell disaster for the Earth and its inhabitants, the guard needs to find a hero amongst the creatures of this fair planet. Instead of choosing a human, he treks down to the Arctic on the assumption that Suten would set up residence in a deserted area and that to avoid detection he'll have to go as far as possible. There resides one Cool Coyote, the perfect candidate for herodotom (and if that hasn't convinced you that *Fire and Ice* is giving *Robocod* a run for its money in the silly plot stakes, then nothing possibly could).

It must be said at this point that if Cool Coyote doesn't make further computer game appearances, there is no justice in this world. As a character he is one of the, well, coolest to come along for ages. He looks good, is well animated, doesn't fall into the age-old trap of doing something if left alone for ages (such as tapping the screen or looking at you with his hands spread wide), and has bags of potential for superstar status.

## A COLD START

Presentation-wise, *Fire and Ice* is a bit of a surprise. On the surface it doesn't look like

anything special, with a style akin to most other cutesy platformers. There is a bit more to it than meets the eye though, and possibly the reason that you barely give the look of the game much thought as you slip and slide around the screen is because it's just detailed enough to fade into the background, leaving you with the task of playing the game. Simply put, there is nothing to offend you, from a graphical point of view. The sprites are clearly defined and you're never left wondering what something is. The backgrounds suit the various levels and are even put to some use, with bad guys popping out from behind bushes or doors or dropping down from trees.

The same could be said for the sound quality, but then one man's Bach is another man's Iron Maiden. The music that continues to play

throughout the game (especially the title sequence when it's combined with Mr Coyote playing the piano) will certainly appeal to some, while others will be reaching for the volume knob within seconds. It's all a matter of taste.

Each level starts with a handy mini-map of the current world, showing all the locations (apart from secret ones) and allowing you to plan out your route, which is more important than it sounds. Because of the time limit, you really do need to know what you're doing and where you're going. To make things that bit harder (not that it needs it), you can turn them off.

To reach the end, you're going to have to battle through 30 levels set across five different worlds. Egyptian levels, underwater, dark forests, ice worlds and Amazonian jungles make up Cool

## STEP BY STEP



- 1 Your igloo firmly locked and your trusty puppy by your side, you're all set to brave the world. First test, a penguin.



- 2 A few ice pellets and the penguin is no longer a threat. Once frozen, a simple charge through him will result in ...



Lots of original ideas  
Cute characters and a fun graphical style  
Plenty of game for your money

## PROS AND CONS

Difficulty a tad over the top  
Lacking in addictive appeal  
Confusing later levels





Treasure chests are particularly rewarding items, giving bonuses galore when found and opened.

Coyote's land and although they are all varied when it comes to graphics, a lot of the time you just get the impression that it's more of the same. To be fair, the programmers have tried to spice things up with a few extra types of bad guys, but is there really that much differ-

ence between an archer who pops his head through a door and a jungle native who throws spears from behind a bush?

### HOT KEYS

The aim of each level is to collect six pieces of the necessary key, held by various enemies. As you might expect, killing the bad guys allows you to collect the pieces

they hold and the key piece, once free of its captive's control, will do its best to seek you out, eliminating the need to chase after it while fleeing off approaching villains.

Killing bad guys is also different to other games. Instead of merely shooting them, you have to fire enough ice pellets

at the offending creature to make it freeze. Once frozen, a quick collision will cause it to shatter with the minimum of blood and guts (this is a cute game after all). A really clever touch is that you can use other items to freeze the opponents. For example, pushing giant snowballs – that originally would have killed you – into bad guys gives them the cold shoulder and leaves them vulnerable. Even better is the skier who, when frozen, continues to slide in the direction he was travelling until he hits something.

*Fire and Ice* isn't all nice touches and cute animation, though. In fact, several areas serve more to irritate than to entertain. One of these is the time limit that's imposed upon each level. Even without the snowflake slowly dripping away at the top of the screen (one stem per "day" to indi-

**"Good, but not brilliant platform romp"**

**NAME: FIRE AND ICE**

**COMPANY: RENEGADE/ GRAFTGOLD**

**CONTACT: 0444 246333**

**PRICE: £25.99**

**RELEASE DATE: NOW**

**MIN MEMORY: 0.5 MB**

**GRAPHICS** ○○○○\*

**SOUND** ○○○○\*

**VALUE FOR MONEY** ○○○○\*

**PLAYABILITY** ○○○○\*

**OVERALL** **70%**

**3** ... demolition! This particular penguin was carrying part of the key needed to open the exit. Best collect it quick.



**4** A bit further on, you come across some ice caves. Inside live a few nasty walruses, but a quick freeze and they're history, allowing you to explore the icy underground in more detail.



**5** Beyond the walruses is a rather handy bonus block. Shooting it reveals everything from ice shields to multiple



**6** With the bonus block exhausted, you find a switch on the floor. Pressing it causes an ice ladder to form. Wonder where it leads?





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  - Colour Option available
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  - Epson and IBM Emulation
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- Citizen 224 - 24 pin - 80 column
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  - Parallel Interface
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  - Epson and IBM Emulation
  - Colour Option Available
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SAVING: £190  
SILICA PRICE: £199
- £199**
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- 192 CPS**      **136 COLUMN**
- Citizen Swift 24x - 24 pin - 136 column
  - 192cps Draft, 64cps NLO
  - 8K Printer Buffer + 4 Fonts
  - Parallel Interface
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  - Epson, IBM and NEC P6 Emulation
  - Colour Option Available
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SILICA STARTER KIT £25  
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SAVING: £165  
SILICA PRICE: £349
- £349**
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- RRP ..... £499  
TOTAL VALUE: £499  
SAVING: £137  
SILICA PRICE: £359
- £359**
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The puppies are more than just irritatingly cute. They also fire ice pellets at bad guys and can reward you with extra lives.

cate how close Suten is to finding and killing you) you will find it extremely tough to get to the end. Having to worry about time merely means that you die more often than you should, simply because you worry about rushing things.

Another foible that you will notice is the difficulty rating. While the actual platform sections of the game are nicely balanced between challengingly hard and irritatingly difficult, you aren't given nearly enough amounts of gameplaying time to experience them. One-touch deaths and a minimum three lives is hardly enough to allow you to get a decent start on the intricacies of each level. Either an energy bar, allowing for several hits or some kind of credit or password system letting you continue from the level you just died on, rather than starting over for the Nth time

Clouds can be hit with pellets, causing them to start snowing. These flakes can then be used as snow bombs.

would have been better. There is the option to have a practice run on the first four worlds with nine lives, but a little more leeway in the actual game would have been



infinitely more preferable.

Occasions can also arise when there are just too many bad guys on the screen at once. The most notable cir-



Spend too long on a level and Suten will find you, sending a stream of fireballs to stop you in your tracks.

cumstance is on the forest levels with the minute tree spirits. Whenever you pass a tree, these guys start to pour out and follow you around the map. When you've got one of these zooming up from behind and a shield-bearing guard

On a brighter note though, the puppies are a great source of entertainment. They bound around, helping you destroy the enemy, providing bonuses and extra lives. From a gaming aspect, they act as a shield, bounding off in front of you, firing ice pellets whenever you do at whatever's approaching. The great thing is that they can't be killed and they will quite happily follow you around whenever you are within sight. Even better, should you manage to get one through the exit door before you leave, you're rewarded with an extra life.

**Fire and Ice** is a mixture of original touches and irritating moments. All the usual elements are there (bonus weapons, smart bombs, a variety of scenarios), but they don't all work as well as they should. Where it tries to be original, it often succeeds, but these areas aren't enough to combat the problems with the actual playing of the game. You could do far worse for your money than **Fire and Ice**, but you could also do a lot better.



from the front, it's a safe bet that another one of your lives is about to wave goodbye.

Things can get confusing on some of the later levels - take the Amazonian jungle screens for example. Colour clashes between sprites and backgrounds mean that you don't always see bad guys until you're dead.

## BUYERS GUIDE

Fire and Ice may not be a total scorcher, but how hot is it compared with the rest of today's top-grade platform games?

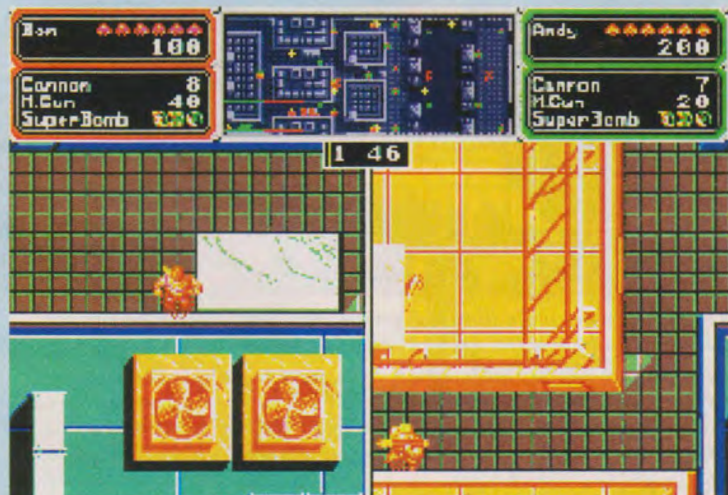
	Gra	Sou	Lev	Dif	Ori	Overall
Robocod	7	7	32	8	7	90%
Harlequin	7	6	20	7	8	82%
First Samurai	8	7	4	7	8	81%
Fire and Ice	7	7	30	8	7	70%

Key: Gra = Graphics, Sou = Sound, Lev = Levels, Dif = Difficulty, Ori = Originality. All marks (except Overall and Levels) are out of ten.



# VFM

Looking for a real bargain? Paul Rand checks out the best in budget software – games that won't break the bank



# CRACKDOWN

## KIXX £7.99

US Gold's back catalogue is awash with coin-op conversions: some of these are very good, while others are, frankly, disappointing.

**Crackdown**, a one-player blaster with a simultaneous two-player option, is its latest re-release on budget, and was originally a Sega arcade machine that met with reasonable success a couple of years ago.

The players control gun-toting heroes Ben and Andy, who have been drafted in to save the world from the dastardly Doctor K, the evil mastermind behind the Repliants. This race of killer Cyborgs has no feelings and only one goal – the destruction of the entire human race.

The Repliants are holed up over 16 different landscapes, and it's down to Ben and Andy to enter each level and plant time bombs at strategic positions throughout each stage.

Our two heroes begin the game with a machine gun and a limited supply of missiles, more of which can be collected along the way by raiding weapons caches.

The players have less than three minutes to plant the explosive devices, find the



way out and escape to fight on another, more difficult level.

With 16 levels and a whole host of different enemies, there's certainly plenty to see in **Crackdown**, but unfortunately there isn't an awful lot to do, besides wandering about each level, dropping bombs, shooting baddies and picking up weapons.

You don't even have to make much of an effort to search for the timebombs – their positions are clearly marked on the scrolling map at the top of the screen!

The graphics are nothing special either – they may have been something to shout about when the game was first released, but these days they look quite basic.

**Crackdown** isn't likely to have you sweating buckets late into the night, simply because of the lack of action.



A coin-op quality conversion – unfortunately, the coin-op isn't desperately exciting either.



# ESCAPE FROM THE PLANET OF THE ROBOT MONSTERS

## HIT SQUAD £7.99

This is another coin-op convert and another one- or two-player blaster, this time from Ocean's budget arm, The Hit Squad. **Escape From The Planet Of The Robot Monsters** made its ST debut through Domark, who originally picked up the rights to reproduce the smash-hit Tengen arcade game on computer formats. Again, the plot revolves around saving the human race. A colony of folk stationed on Planet X has been kidnapped, enslaved and forced to work on a robot-building programme which, when completed, will be used against the Earth.

Enter ace monster-mashers Jake and Duke. Their orders are to fly to Planet X, rescue the hostages in each area and escape to the next level via the handy Port 'o' Matic transportation device at the end of the stage. A simple

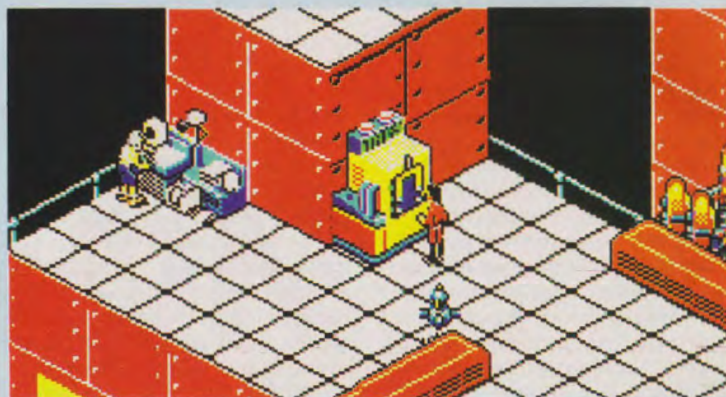
task, were it not for the hordes of robot monsters milling about. As soon as they set eyes upon Jake and Duke, they storm toward them, guns blazing. The only way to stop them is by the use of a powerful laser gun which can be recharged by picking up special green power pods. Once all of the humans have been freed and beamed aboard Jake and Duke's ship, it's off to the Port 'o' Matic and onto the next, more hazardous area. A massive guardian lies in wait after every three stages and, once he's been defeated, the boys must leap onto their Cyber Sleds and traverse a maze to collect bonus points.

**Escape From The Planet Of The Robot Monsters** is the B-movie of computer games. The sprites are hilariously drawn and move around just as ham actors do in low-budget films - stilted and unconvincing - although in

the case of **Robot Monsters** this is entirely deliberate! Visual humour plays an important part in the game - watch out for human slaves covered in soot and looking wide-eyed and perplexed when shot at, and the outrageous Port 'o' Matic which literally sucks the characters to the next stage. The game

itself is brilliant, although difficult at times. Robots constantly surge onto the screen, and that trigger finger is going to be tired at the end of a session. High-quality gameplay and even higher quality laughs are in store for anyone who plays this game.

★★★★★



Rescue those hostages and beat the baddies in Hit Squad's superlative **Escape From The Planet Of The Robot Monsters**.

# CASTLE MASTER

## HIT SQUAD £7.99

One of the most innovative graphics engines ever created, Incentive's Freescape system, popped up a few years ago in the ground-breaking game, **Driller**. Fast, solid 3D polygons were used to create a massive, believable world that put the player

right in the thick of the action, and the fact that the game itself was quite dull didn't deter the programmers from producing a number of other titles using the Freescape system.

**Castle Master** is the third game in the series and, whereas the previous two adventures were set firmly in

the future, **Castle Master** takes us back to days of old, when castles were everywhere and most of them held sinister surprises for those who dared to venture into them.

Your twin is imprisoned in one of the towers of Castle Eternity and you must rescue him if your souls are to be kept safely away from Magister, the Castle Master. Castle Eternity is a maze of tunnels and catacombs, a place where treasure rests in abundance and danger lurks around every corner.

Puzzle solving is the name of the game: keys can be found to unlock otherwise impassable doors and potions picked up to help you in your quest. The game is almost entirely mouse controlled, with scores of icons placed around the edges of the screen - just click on the appropriate icon to move around the playing area, pick up objects and so on.

**Castle Master** is undoubtedly the best of the Freescape games. This time around, the brilliant graphic style is complemented by some worthwhile gameplay which hooks the player from the very beginning.

Some of the puzzles are incredibly devious, and the amount of problems to overcome will, at times, seem daunting. But this game has that all-important "Just One More Go" factor that keeps you banging away into the early hours.

The control system can become tricky to handle at times, but generally it's very straightforward to use, with all icons neatly positioned and easy to access.

If graphic adventures appeal to you, you'd be hard pressed to find anything much better than **Castle Master** - especially at this price.

★★★★★



There's nothing like a good old puzzler - and **Castle Master** is just that. Great graphics and demanding gameplay make for one fine title.



# FERRARI FORMULA ONE

## ELECTRONIC ARTS STAR PLAYER £7.99

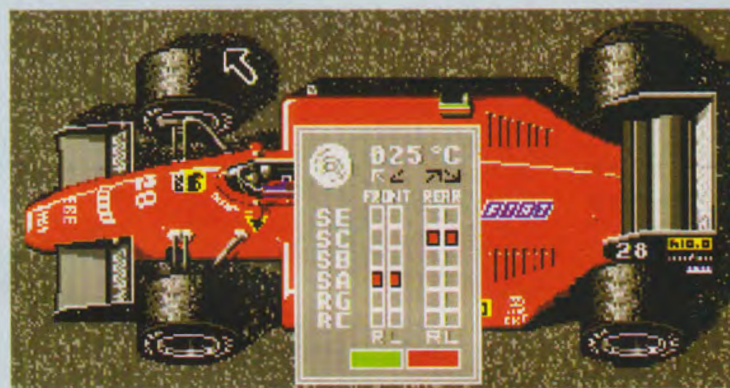
What better time to release a game based upon the exploits of the F1 set, with the one and only Nigel Mansell riding so high in the Grand Prix clouds? Electronic Arts' *Ferrari Formula One* takes the player through the entire racing season and the trials and tribulations that go with it. When the simulation was released back in 1988, it was an enormous success; featuring all the Grand Prix circuits of the time, aspiring Ayrtons are given the opportunity not only to race around a variety of tracks at astonishingly high speeds, but also to step into the shoes of some of the unsung heroes of the F1 game, such as the pit crews.

The racing section of *Ferrari Formula One* is viewed in the now-familiar first person 3D perspective, with the objective being to complete each race in the best position possible. But before any thoughts of victory can enter the player's head, the car must be set up in the correct

manner. Racer becomes mechanic as the car is taken into the garage, where all modifications are made, before entering the wind tunnel for aerodynamics testing. After a few laps of the test track to check the running of the vehicle under real-life conditions, it's time to transport the car, spares and everything – and everyone – else necessary to the race, where the fruits of your labour can be savoured or scorned.

*Ferrari Formula One* went down a storm when it was first released four years ago, and it's still surprisingly playable today. The game has aged in comparison with some of the more recent offerings which make up the driving genre, but there's a lot of features in *Ferrari Formula One* that can't be found anywhere else – the wind tunnel, for instance. A browse of the detailed yet easy-to-read manual and you're set up for *Formula One* fun to rival that of Mr Mansell himself.

★★★★



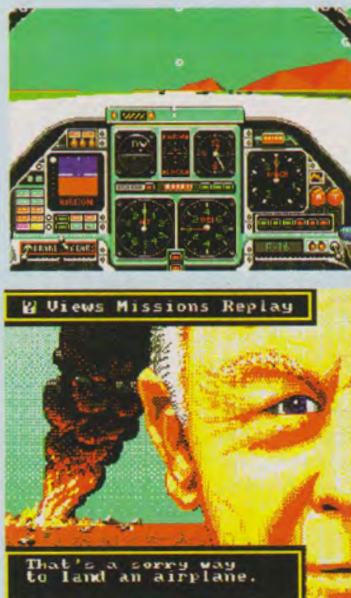
Think you could out-race Mansell on the Monaco track? See how you would fare in *Ferrari Formula One*.

# CHUCK YEAGER'S ADVANCED FLIGHT TRAINER

## ELECTRONIC ARTS STAR PERFORMERS £7.99

Wipe all thoughts of shouting "Tally Ho" and blasting the enemy clear out of your mind. This may be a flight simulator, but there's no-one to kill, no installations to destroy – not even a whiff of a bogey. General Chuck Yeager was one of the most famous test pilots ever, who risked life and limb to prove that some of the contraptions coming out of aircraft hangars across the world really were capable of staying up in the air for more than a couple of minutes. *Chuck Yeager's Advanced Flight Trainer* offers up a variety of different planes, simply aching to have you push them to their very limits.

If you've played a flight simulator before, you'll be well



Fun and flying in EA's latest Star Performer, *Chuck Yeager's Advanced Flight Trainer*.

versed in the various controls and options available. If not, there's little need to worry – the game comes complete with an audio cassette in which General Yeager himself talks you through the myriad of details you'll need to know, as well as giving a tutorial on your first flight. Choose from a whole host of planes, from Spitfires to Space Shuttles, F-16 Falcons to F117 Stealth Fighters, each of which handles differently.

A multitude of test scenarios are included and, when you think you're good enough, try a formation flight with a number of computer-controlled flyboys!

Apart from having to go through the rigmarole of formatting a brand new disk in order to play the game (why it's not possible to simply play from the original I just do not know), *Chuck Yeager's*

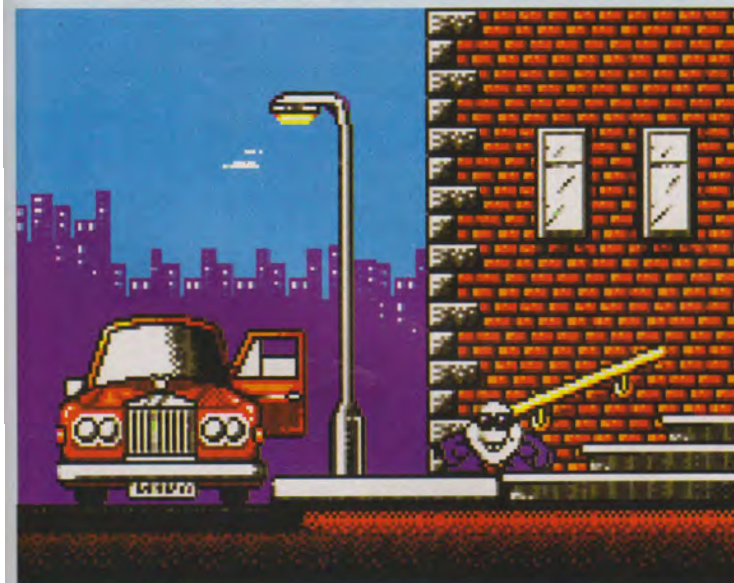
*Advanced Flight Trainer* is okay, although you may prefer some sort of point to your flight sims. Old Chuck may have enjoyed pushing aircraft past their limits, but it makes for a rather repetitive game. The control system leaves a lot to be desired too – the player has to centre the controls himself, instead of the computer automatically doing so for him as in most other flight simulations, which can be most frustrating when you're attempting a nosedive and can't pull out because the plane is twisting and turning under its own steam. Aspiring kamikaze pilots may find *Chuck Yeager's Advanced Flight Trainer* their kind of game, but everyone else should definitely give it a test flight before parting with the cash.

★★





# CARTOON COLLECTION



## CODEMASTERS £24.99

Does the thought of five games in one budget package grab you? Well, why not take a look at the latest compilation from the masters of the cheapie, Codemasters? **Cartoon Collection** is a two-disk affair featuring a quintet of titles - **Treasure Island Dizzy**, **CJ's Elephant Antics**, **Slightly Magic**, **Spike In Transylvania** and **Seymour Goes To Hollywood**.

In **Seymour Goes To Hollywood**, the title character is aiming to hit the big time in Tinsel Town, but on arriving for his first day finds that the director, Dirk Findelmeyer II, has left for a holiday in Miami and locked away all the scripts. It's search and use action all the way as Seymour hunts down the scripts that will launch him on the road to superstardom!

**Spike In Transylvania** centres around the exploits of Spike The Viking who, surprisingly enough, finds himself washed onto the shores of the dreaded village of Transylvania! Curiously, it turns out that the same fate befell all of his friends and they have been locked away in a castle inhabited by all sorts of evil creatures. Spike must find the keys which will unlock the cells, whilst avoiding the attentions of vampire bats, castle guards and spit-

ting moose heads (!). **Slightly Magic** casts you as the dimwitted sorcerer's apprentice, Slightly. Bigwiz the Wizard has left his castle to perform various feats of illusion, leaving spells scattered throughout the building. What's worse is that Sunburnt the Dragon has captured the fair princess Croak! Slightly's task is to collect the spells and use them to slay the dragon.

Globe-trotting elephants may not be an everyday occurrence, but **CJ's Elephant Antics** gives us a taste of just that phenomenon. CJ is aboard a plane bound for England when, without warning, the craft hits turbulence, smashing open CJ's cage. Grabbing a nearby umbrella, CJ floats down to earth - France, to be precise - and begins the search for his long-lost family.

**Treasure Island Dizzy** is the only game in the collection featuring Codemasters' very own ovoid hero. In his latest adventure, Dizzy finds himself marooned on an island after being forced to walk the plank during a luxury cruise after using the Captain's wooden leg as a cricket stump! Take control of the egg one and get him back to the Yolkfolk in time to lodge a compensation claim with the insurance company.

**Cartoon Collection** is a great compilation; the games are fun but not too taxing, making them ideal for younger players. **CJ's Elephant Antics** is probably the best of the bunch, although all of them are enjoyable in their own way. Graphically they may not be stunning, but what they lack in looks is certainly made up for in terms of playability.



Codemasters do it again with a hearty five-game package that's sure to keep the kiddies amused for some considerable time.



# MANCHESTER UNITED

GBH  
£7.99

There are few football games that combine both arcade and management but of them all, **Manchester United** is at the top of the first division. Originally published by Krisalis, the game cast you as the manager of Manchester United Football Club, its players, finances,

training and in fact everything that Alex Ferguson has to cope with on a day-to-day basis.

Managing your players so that you progress up the league during the course of the season, use your squad to their best advantage, ensuring that each individual receives the right training

in order to strengthen their game. You allocate four areas out of seven for the team to concentrate on and either normal or heavy training but beware! Beware of the latter though: training injuries can be sustained and will put your star player onto the injury list.

Having bought, sold and trained players and

*Put yourself in Alex's boots with Manchester United.*



picked the team for the next match you then go to the arcade section of the game. The two teams play from left to right on the screen, and are represented in glorious 3D. Amongst several options, you can determine the length of the game, the level of skill employed by each team and your own team's formation. Then, if you move the joystick, you can play the match with you controlling a player - or conversely, if you don't touch the joystick, the game will take place with the computer playing both teams.

☆☆☆☆



# ARCHIPELAGOS

PRISM LEISURE  
£2.90

"Imagine a game without violence, yet as chilling as abandoned places where people have died and never returned." That's the promise of this new budget title distributed by Wizard PD. It's another of the God-type games, but this one is a little different. You are an Ancient, trying to protect the Archipelagos from the Visitors, who are slowly infesting the land.



*Ecologically sound? These trees kill!*

There are "Arboreal trees" that infest the land and chase you slowly, while you try to destroy their obelisk and save the island.

This is not a game to play when you have five minutes to spare and want to kill a few aliens. It needs thought and patience, especially when you're trying to build up enough power to go for the obelisk, as this can involve endless running around the island looking for the spores that give you the power to disinfect and build more land. The music has a "where have I heard that before?" quality about it and reminded me of Mike Oldfield's *Tubular Bells*. There are 9,999 levels to explore, some are nicely tongue in cheek. Indeed, a sense of humour is evident, but is somewhat buried by the game-play. However, I don't think anyone could be disappointed at paying £2.90 for a game of this quality.

☆☆☆☆

# LOTUS TURBO CHALLENGE

GBH  
£7.99

A Gremlin classic when first released, **Lotus Esprit Turbo Challenge** is a split-screen racing game with good graphics and sound, and is great to play with two people. You're faced with options such as manual or computerised gears and two different control settings for the joystick.

**ATARI ST** REVIEW  
**BUDGET BUY**

Player two can choose to use either a joystick or the keypad. You then get a choice of music from the in-car Hi-Fi. Take to the road for practice and compete with the likes of Nijel Mainsail (sic) and co. You have a choice of practice, easy (seven races), medium (10) or hard (15), and in one player mode, the other screen shows mechanics quietly working away on another car.

The title screens are outstanding, giving every detail you'll ever need to know about the Lotus Esprit Turbo SE, except how to earn the money to buy one! The graphics are smooth and nicely detailed without being too complex, and the pits screen is detailed and pleasant. You'll need to visit these in the later stages.

Collision damage is minimal, but causes you to slow down when contact is made with another car. At £7.99 it's well worth adding to any collection.

☆☆☆☆

*Lotus driving without the insurance problems.*





# GAMES TIPS

## THE LURE OF THE TEMPTRESS

*Trapped in a dark, dingy cell, somewhere in the region of Turnvale? Help is at hand, with an assortment of tips for you to get to grips with the first Virtual Theatre game...*

### SECTION 1 - PRISON

TURNVALE PRISON is not the place where anybody would like to be held captive, so escaping from the prison cell is probably in the forefront of your mind. To begin your jail-break, you have to collect the Torch which falls onto your bed.



Move to the far left of your cell by pressing the left button, and wait for the "Scorl" to enter. Position the cursor above the door and when the Scorl walks to your bed, the cursor will transform into an EXIT arrow. Press the left button on the doorway to escape into the outer cell. Point at the door you have just come through and press the right button on your mouse (the left button will take you back through the door, which is NOT GOOD). Select close and lock.

The next thing to do is to have a chat with the prisoner hanging on the wall, then exit through the right-hand door to the guard room. Look at the barrel (to see tap) and collect the knife which is on top. Collect the bottle which is beside the sack, then use the knife to open it. To do this, point the knife at the sack, press the right mouse button, select "use" from the action list and then select "knife" from the objects. Look at the sack and you will receive a coin. Exit through the right-hand door to the torture chamber and use the knife on the leather cords. Leave through the door to enter the guard room, then use the bottle on the tap.

Now all you have to do is, exit the stage by going left, give the bottle to the hanging prisoner, tell Ratpouch to push the bricks and exit stage right. You are now free to continue your adventure in the village.

### PRISON LIFE?

In your cell, look through the crack in the right of the wall to see your guard walking into the torture chamber. Look through the grill on the guardroom wall to see the Scorl in your cell.

Examine the prisoner's belt and the pouch on it. (This is a red herring which you cannot get, but will think you need, when someone mentions its contents later!)

### SECTION 2

You must find the person that Wulf told you about and start to work out what is going on.

### IDLE CHIT-CHAT

As you explore and map the village, you should talk to everyone you meet in order to introduce yourself. They will all be strangers until you've spoken to them at least once. When this walk through tells you to talk to someone, it will assume that you have already introduced yourself. On some occasions you may have to talk to someone several times for them to tell you all the information they have.

### ROBOCOP 3

Hold down the SHIFT key and type THE DIDDY MEN. You should now be able to skip through the levels.

### BACK TO THE FUTURE 2

Start the game and then pause it. Type THE ONLY NEAT THING TO DO. You can now skip levels with Z, and you should have infinite lives.

### GODS

Select the password option and type SORCERY for infinite energy.

### DRAKKHEN

Generate a character using the following code: Enter 31415927 instead of a name, press RETURN. Then type SUPERVISOR. Return again,

*This month we bring you some tips to get you further in Gremlin's Space Crusade, a guide to the early play in Lure Of The Temptress and a selection of hints and cheats*

and then the character's name. This will result in raised statistics and F10 will restore hit points.

### DEFENDER 2

If you type Raven while playing you get two little extras. It will make you invincible, and N will take you straight to the next level.

## WIN, WIN, WIN!

We know how greedy you are for more tips, hints and cheats. However, we need you to send us your best. Get rewarded for playing games by helping others to do the same. The best NEW tips will receive a software bundle worth £50 from the latest releases in the charts. So what are you waiting for? Get writing! Our address is: GAMES TIPS, Atari ST Review, Priory Court, 30-32 Farringdon Lane, London, EC1R 3AU.

## SPACE CRUSADE

- If you DON'T use your scanner, less aliens will move in on you. Instead of hordes of unidentified blips closing in, the only nasties you'll encounter will be five or more squares away, but you may still get the odd one appearing from nowhere.

- For more fire power in the solo game, take on all three teams. You should survive a bit longer this way.

- Use the Power Axe and the Bolt Pistol as the commander so he can both fight and take shots at the enemy.

- The Plasma Gun has the best chance of killing a row of aliens in one shot!

- The Targeter is best used with the Missile Launcher or the Plasma Gun

- Most effective equipment: Bolt

Pistols, Targeter, Suspensors, Combi-Weapon, Digital Weapons and Blind Grenades.

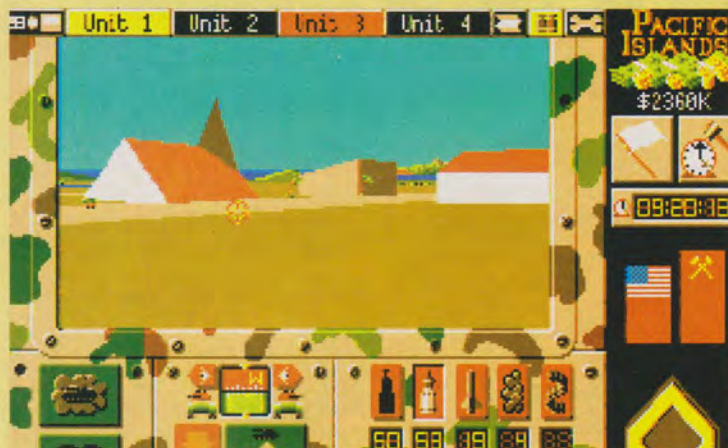
- The best way to kill a Dreadnought is to lure him into a doorway and close it on him. This will kill all enemies, no matter how strong they are.

(Thanks to Rob Buchanan of Bromley, Kent, for these useful bits. A full-price game and some budget software will be winging its way to you soon.)





# GAMES TIPS



The building on the left is a church. If it takes a hit, so does your bank balance.



A quartet of M1s ready for battle...

*Empire's follow-up to Team Yankee is a test of your battle skills. If you're still struggling, take some advice from Steve Murgan*



...or at least they would have been if you hadn't accidentally wiped them out!

If you haven't played *Team Yankee* before, it's a good idea to do so before starting on *Pacific Islands* - at the very least use the practice option thoroughly before going into battle, otherwise your war will be both short and brutally expensive.

This game features many improvements over its predecessor. Instead of repeating the same missions, you are effectively fighting a war which gets more difficult as you go along.

Perhaps the major difference is the added management element. In addition to fighting battles, you are responsible for procurement, armament, and budgets, and it is the latter that poses the greatest problems.

Although it is not particularly difficult to win a battle, your forces may suffer so much damage that it is easier to quit and start again.

## SETTING UP

It is inadvisable to use the default arming options, as the M113s you end up with are utterly useless - they can't fire shells or TOW missiles, and machine guns are of little use.



with the M2s.

Arm each M1 with five to 10 HEAT rounds, 30 SABOT rounds and a few smoke shells. Load up the ITVs/M2s up with as many TOW missiles as they can carry. Use the x10 icons to speed up this part.

## BATTLE TACTICS

Stay out of the open plains wherever possible. You are safest in forests. If you have to cross a plain, use a bounding overwatch.

Use zoom lenses, battle-sights and nightsights wherever possible. Not only do they make it easier to spot tanks, but they will prepare you for night fighting.

Use engine smoke to confuse enemies and identify friendlies (the bad guys don't use engine smoke - at least not on the first island).

When fighting in daylight, if you are aiming at a non-firing target, it is a good idea to briefly switch the nightsights off to ensure that the target is neither friendly (don't shoot!) nor dead (don't waste your ammo!). If the target is firing back, however, follow standard procedure, - shoot first and ask questions later.

# Pacific

It is best for each platoon to have some TOW (Tube-launched, Optically-tracked, Wire-guided) missile capability, as the effective range is nearly twice that of an HE or Sabot shell. However, there is a dilemma here; whether to go with the M2 Bradley which carries seven TOW missiles each, or to trade quality for quantity and go with the ITV, which will carry 12 each. In battle, the M2 is far more enduring than the ITV, although it does have a tendency to run out of missiles if you get trigger-happy. In a close-in fight, ITVs get clobbered very easily, due to their slow speed and thin armour. If you are given the choice, go

Keep your vehicles in single file when travelling (especially when on roads), except when crossing rivers (when they should be lined abreast to minimise crossing time).

One howling shortcoming in this game is that it doesn't allow you to reverse, so while your vehicles are turning and assuming formation they are vulnerable to retaliatory attack. There are several ways to minimise this risk, but the best way is to attack from different directions.

Get a feel for the location and heading of the unit you are controlling. For instance, if you know that it is the furthest unit east and you spot a group of tanks to the east,



## TOW THE LINE

If in doubt, use TOW missiles – they are better weapons against tanks and buildings, but your supply is limited. Use SABOT for close range work, and HEAT for light targets.

Use your TOW missiles to peg distant tanks. There is nothing more satisfying than knocking them out one at a time and watching their shells fall short. Watch out for their buddies though!

Although TOW is more accurate at long range and SABOT is more useful against armour, always pack a few spare HEAT rounds in case you run out of TOW missiles or SABOT shells – they

are not as good, but they are better than nothing.

Try to be patient. Make sure that everyone is in the correct position, facing the right direction and loaded up with the right weapons before launching a major offensive.

Battlesights don't lock on buildings, helicopters (those blue contraptions) or missile batteries (looks like a truck with a crab on top).

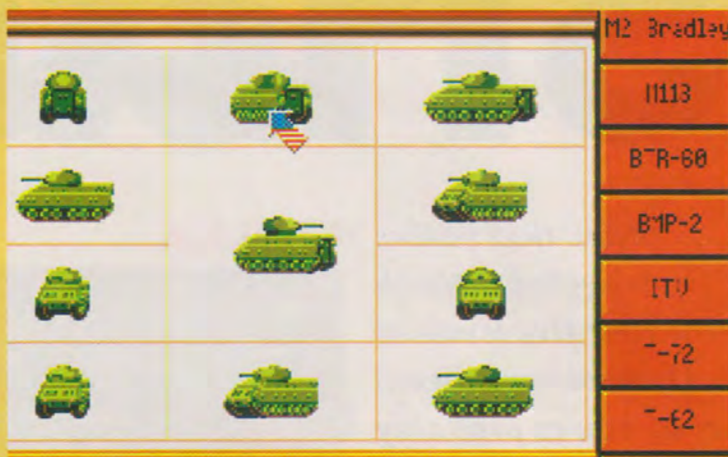
It certainly pays to be vigilant. If you are waiting for someone to get into position, check the views from all units. You may see enemy tanks before their flag appears on the map.

One major improvement to the gameplay is the "all stop" button in the 3D window. It works like a toggle, ie, hit "all stop" (wait for TOW missile

they are obviously not yours. If you're unsure, briefly check if any buddies are in your line-of-sight on the map. Get it wrong and it will cost you hundreds of thousands – if not millions – of dollars.

### FULL SCREEN MODE

Use the full-screen mode for fire control, reconnaissance and fine navigation. Use the quadrant mode for general navigation and checking on the big picture. While spending most of your time in full-screen mode, get into a habit of briefly checking the quadrant mode to see who is moving and what is going on. Make sure you have the appropriate weapon loaded and ready for unexpected bad-dies. In a mixed platoon, selecting Sabot then selecting



To qualify as a Tank commander, you have to know friends from foes. Get it wrong and your buddies get fried!



The mission briefing. Setting up artillery support. Keep your eyes open here, otherwise you won't know your objectives.

# Islands

TOW will mean that both are ready when you need them.

Be extremely careful when shooting at enemy tanks positioned near civilian buildings – sometimes the building will go up instead.

Similarly, when shooting at one of a cluster of buildings, an adjacent one sometimes explodes, and Murphy's law means that the resulting pile of rubble is all that is left of a hospital, a house or a church – and you have to pay for the damage.

Enemies have a nasty habit of hiding behind their burning comrades. If you have difficulty hitting one of these varmints, move the unit to give a better angle.

ready), fire missile (wait for boom!) and hit "all stop" once more to be on your merry way.

Fuel and ammo dumps are clusters of tiny boxes on a patch of brown ground. You have to get in close to take them out. TOW missiles, HEAT rounds and gunfire all work well against them.

Terminate scouts (fast-moving tanks), and communications installations with extreme prejudice, or they will pass on information about your location and strength. You should avoid shooting churches, hospitals and civilian homes – you are likely to find that they will be extremely bad for your bank balance!

## MILITARY STRATEGY

Strategy is the single most important skill required in this game. Here are some tips. . .

Split your forces into two groups of "buddies", each group attacking along a different route. Buddies don't travel side-by-side, though – that would make them both targets. Instead, they watch over each other.

Bounding overwatch: a "buddy" group wants to get across open country in one piece. After a good look around, unit one goes trundling off, while unit two

keeps his eyes peeled for hostiles. When unit one reaches the objective – or a convenient mid-point if its a long haul – he stops and keeps watch while unit two catches up.

Use forest cover where possible. Roads and bridges are fastest, but use them only if you are sure you have wiped out all enemies within range, or if you're in a desperate hurry.

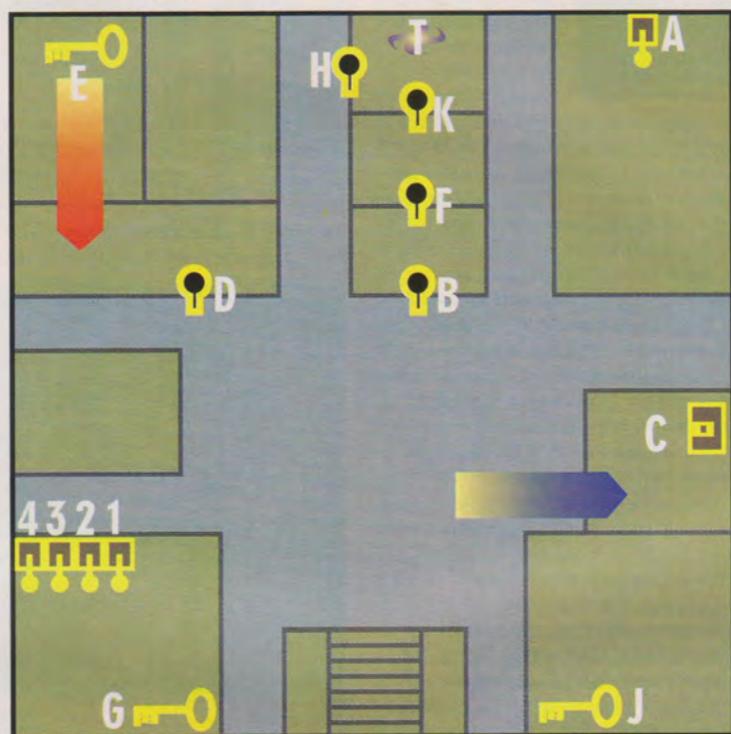


# SHADOW

Now that you've struggled through the first five levels of Domark's medieval epic, you're probably wondering what to do next. Wait no longer, as we let you into the secrets of the remaining levels...

**DIFFICULTY**  
**7**  
**RATING**

## LEVEL SIX



### LEVEL 6

There are a number of keys and switches which can be used to open doors anywhere in this level. The following simplified diagram and key should clarify what does what.

With regards to food, water, potions, equipment and any creatures the same rules apply as before.

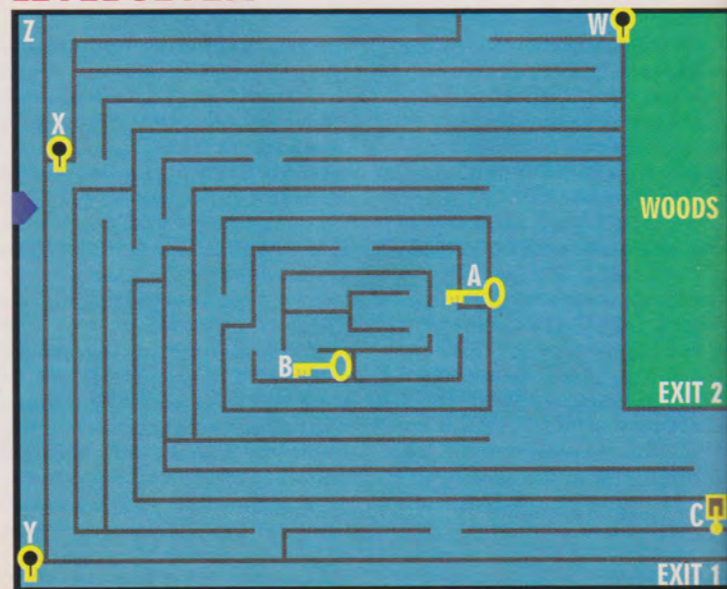
- Switch A opens door B.
- Key C, which can be found in the chest, opens door D.
- Once through door D, throw fireballs down the corridor until key E appears.
- Key E opens lock F.
- In order to collect key G use the switch combination 2-4-3-1 (in quick succession) to gain access to the room.
- Key G opens lock H.
- Collect key J, which opens lock K. You will need an empty chest to solve "I am 1, act like 6".

- Exit level via teleporter T.

### LEVEL 7: "THE MAZE"

- Switch C opens wall Z.
- Key A opens door Y.
- Key B opens door X.
- Lock W is opened by the key

## LEVEL SEVEN



at the end of the "Egyptian".

- Collect both keys, open the wall with switch C and go through EXIT 1 to level 8.

### LEVEL 8: "THE EGYPTIAN LEVEL"

Throw three coins at the fountain (or urn) at the end of the long corridor (past the Sarcophagi). Come back to the double doors near the entrance and press the secret switch near them. Now press the next secret switch to enter the "Zodiac Room". To get the key you need to place two men on each pressure pad in the following order (which, incidentally, is their order in the Zodiac):

1. CAPRICORN
2. AQUARIUS
3. PISCES
4. ARIES
5. TAURUS
6. GEMINI

It's worth noting that your key collector can walk one step further each time that a switch is activated without getting teleported.

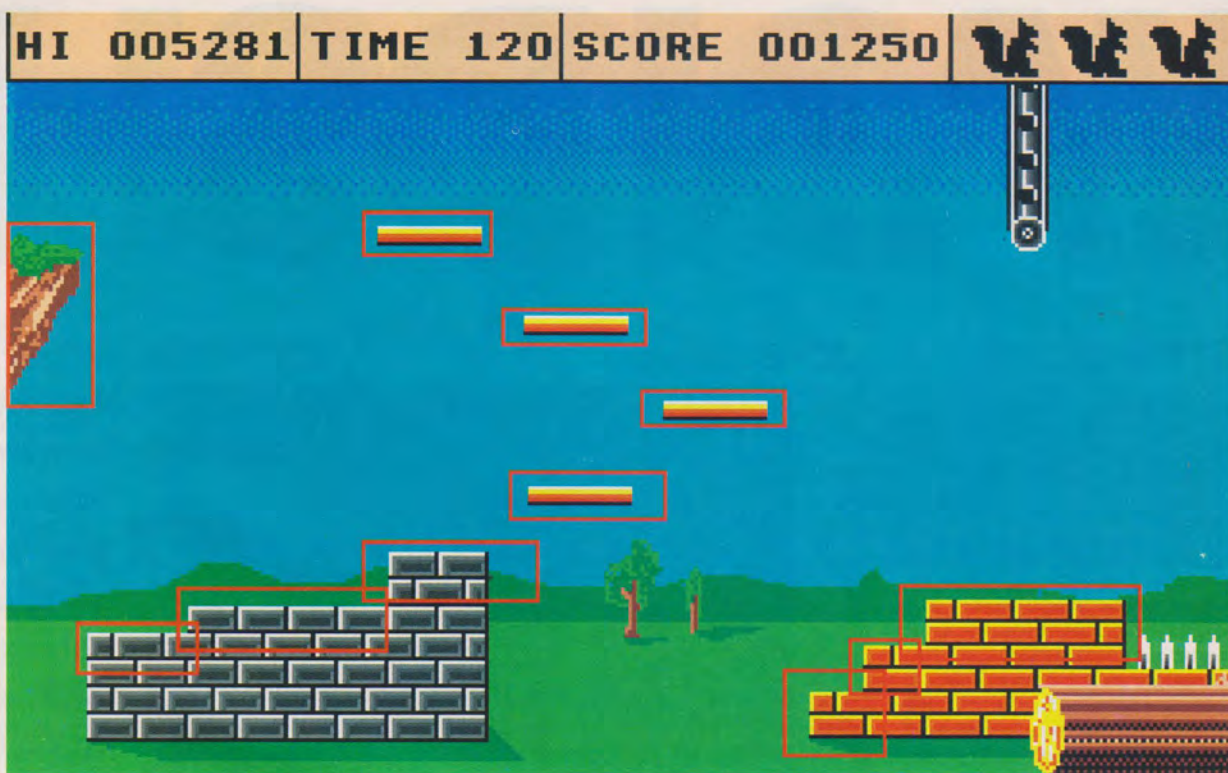
Collect the key and go through the double doors. In order to solve the "sacrifice puzzle", stand one figure with no items at the end of the passage. Now have a second character throw a fireball







The backdrop with all potential screen zones marked in red. By doing this on an art package, you can note down the co-ordinates of the opposite corners as you go.



# CREATE YOUR OWN STOS GAME

## PART FOUR

Last month we looked at making our sprites move around the screen. This month, in the penultimate part of our STOS tutorial, we'll take this one step further and see how we can connect all these sprites and make them respond to each other

The first thing that you will need to do is to map out the screen. Before you start, find out which areas are "safe" and which ones aren't.

"Safe" in this instance refers to pieces of backdrop that serve to support the main sprite, such as the wall at the bottom of our backdrop, and also the non-moving levels.

There is, however, a simple way to ensure that the squirrel doesn't fall through these when he walks over them. This time-saving option is called Zoning.

### HERE TODAY ZONE TOMORROW

Screen Zones are specially marked out areas on the screen that are read by the machine when prompted. It checks to see if a sprite has entered this zone, and then responds accordingly. For example, in a requester box, the "OK" button is a screen zone. The machine checks to see if the mouse pointer (sprite 0) has entered the zone and if the mouse button has been clicked. This tells the computer that you have accepted the choices you

made. Try this example.

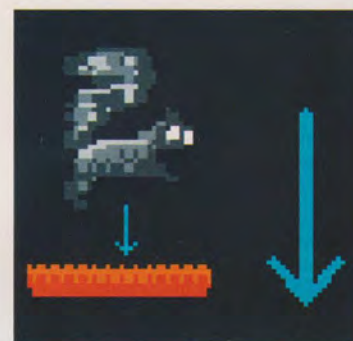
```
5 REM LISTING 1
10 Mode 0:flash off
20 bar 50,100 to 100,200
30 set zone 1,50,100 to 100,200
40 locate 28,4:
50 if zone(0) then print "-In-"
else print "-Out-"
60 goto 40
```

See how the program tells you whenever the mouse pointer is inside the box. Just to prove that the filled box has nothing to do with it, delete line 20 by typing 20 and pressing return. Run the program again and you will see that the zone has now become invisible.

### COMMANDS

There are only three dedicated zone commands, all of which are very powerful if used correctly. A zone is created using the Set Zone command.

You can have up to 128 of these zones, and they are defined by giving the co-ordi-



The path of the squirrel on the platform. The platform "pushes" the squirrel upwards, but as soon as the platform drops, the squirrel falls after it.





nates of the top-left and bottom-right corners of the rectangle. Zones are, therefore, always rectangular.

To clear a zone, the command Reset Zone (x) is used. The X is the number of the zone you want to erase, and can be omitted if you want to get rid of all the zones you've created.

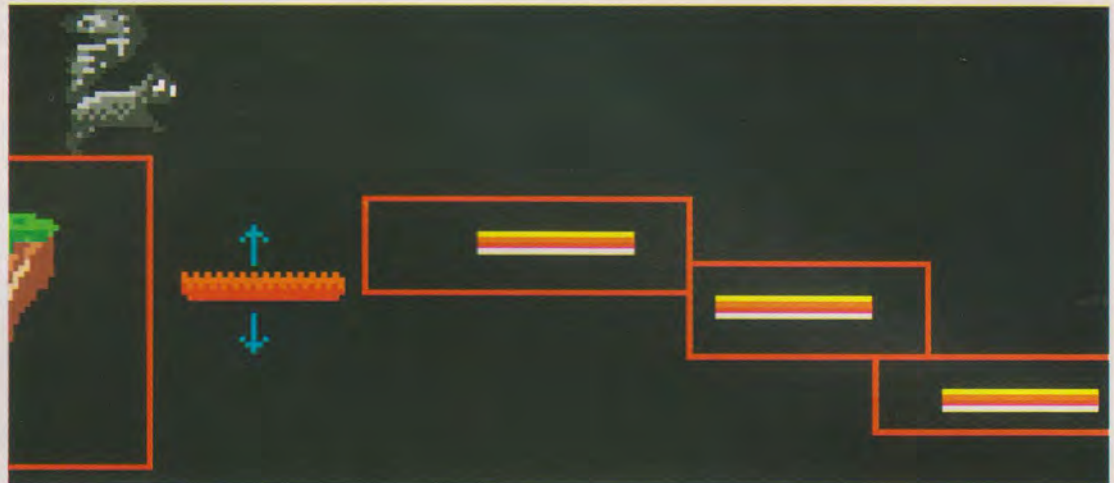
Finally, to test a zone, use the instruction t=Zone (x). T is any variable name, and X is the number of the sprite you want to test. T will either register as the zone the sprite was found in, or 0 if it's outside any of the defined zones.

### IN ISOLATION

What you need to do first is to isolate the areas of the screen that are going to be solid platforms, and then build zones around them.

You could load the picture into an art package and work it out from there, but as we are working with **STOS**, we might as well do it with **STOS**. Try this program, which will tell you the current mouse pointer co-ordinates:

```
5 REM LISTING 2
10 Mode 0: Flash Off
20 Load "(Insert your file
```



```
10 Mode 0: Flash Off
20 Load "(Insert your name here)"
30 Gosub 1000
40 Locate 0,24
50 print zone(0)
60 goto 40
1000 Rem Set up your zones here
1010 Set Zone 1,X,Y to X1,Y1
1020 Set Zone 2,....
1030 ....
1999 Return
```

We'll discuss later how the main sprite will connect with these screen zones, but just quickly add these lines to

walk around on top of the solid areas, but will fall as soon as he walks off the edge.

### MEETING MOVEMENT

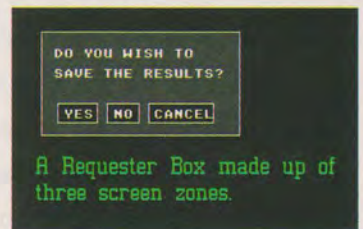
You could conceivably continue to set up screen zones around moving sprites, updating the location of the screen zone every time. This is impractical, though, and could cause the game to slow down heavily. The only real way of testing whether the squirrel is on another sprite is to use the STOS sprite collision detection routines.

There is only one command that deals with sprite collision: the Collide instruction. It works in the form Variable=Collide (Sprite number, width from the hot spot, height from the hot spot). The variable is a decimal number read in binary format that tells you exactly which sprite has collided with the designated one. For example, if the variable is 16, which in binary reads 00010000, this means that the fifth bit from the right is "lit", therefore sprite five has collided with the one being checked. The system may seem a little tricky to get to grips with at first, but with practice it does lead to a very fast system that saves memory. Load in your sprite bank, and then try this example:

```
5 REM LISTING 4
10 Mode 0: Flash Off
20 For a=1 to 4: Sprite a,a*40,50,a: Next a
30 For a=1 to 4: Sprite (a+4),a*40,100,(a+4):Next a
40 locate 5,20
50 print collide (0,10,10)
60 goto 40
```

See how the collide variable responds when it passes over the eight sprites. You can set a program to respond to different sprites individually this way. Add the following lines:

*If you make screen zones too large, or too close together, the player won't have any room to die. You can't fall down a non-existent hole!*



*Zones are more commonly used to create requester boxes like this one. In this case, the three response boxes are screen zones.*



*The placing of the hot spot is vital. Place it too high and Super Squirrel may find himself hanging by his tail.*

```
name here)"
30 Locate 0,24
40 print X Mouse: " - ";Y Mouse
50 goto 30
```

This routine should help you find the opposing co-ordinates for your screen zones. Note them down, and just to make sure you have got the right ones, try to write a program that lets you check where each zone is using the mouse pointer. Here's one way of doing it:

```
5 REM LISTING 3
```

your program. Before you do though, make sure the hot-spot on your squirrel sprites are in the bottom centre of the graphic:

```
35 X=10:Y=10
40 Sprite 1,X,Y,1
42 Safe=0
45 If jleft and x>1 then X=X-1
50 If jright and x<320 then X=X+1
55 if zone(1)<>0 then SAFE=1
56 if safe=0 then y=y+2
```

If all goes well, you will find that your squirrel can happily

### ON THE LEVEL

By using a mixture of all we have learnt so far, you can already begin to paste together a working level of the game. If you want to piece it together now, and fancy having a little fun, use this quick guide.

- 1 Grab the control routine and platform movement commands from last issue.
- 2 Add the zones and sprite collision routines from this issue, along with the small routine to make the squirrel fall.
- 3 Add a routine to the main loop to check if  $y > 300$  (if the squirrel has hit the ground) and then reset X and Y to the start location. If you want to add lives to the game, put a variable at the start along the lines of "LIVES=5", and add an instruction to your "If  $Y > 320$  Then" routine to subtract 1 from Lives. If Lives < 1 then end the game.





Next month we'll be adding some finer touches to the game, such as sound and an intro sequence - including this rather attractive title screen!

51 If collide (0,10,10)=1 then shoot  
 52 if collide (0,10,10)=2 then boom  
 53 if collide (0,10,10)=4 then bell

That should give you some understanding as to how the collide instruction works. Remember, if you aren't completely sure, have a look in the manual. You'll find all the details on sprite collision on pages 94-95.

**THE NEXT STAGE**

Now comes one of the trickiest parts so far. How do we make the squirrel sprite match the movement of the moving platform? It's time to use a little clever variable manipulation.

In all the listings so far, where moving a sprite is concerned, I've used the variables X and Y to position the sprite. By placing the sprite position in these boxes, it instantly becomes a lot easier to manipulate, as is the case when, for example, the squirrel drops in listing three. Before attempting to program this bit, it's necessary to determine how the routine would work.

First of all, the variable Safe would be used to check if the sprite should fall. This is an easy way of checking whether the sprite is standing on a zone or has collided with another sprite.

We've already worked out what happens when the sprite moves into a pre-determined zone, but what goes on when, say, it reaches a platform that's moving up and down?

Give up? Don't give yourself too many headaches thinking about it. It's a lot easier than you think.

All you have to do is move the squirrel up by two pixels.

This matches the upward motion of the platform, so as the platform rises, so does the squirrel.

When the platform reaches the top of its swing and starts to move downward, the squirrel will stop making contact with it and start to fall at the same speed as the platform drops. This gives the impression that the squirrel is standing on the platform all the time. To illustrate this, try this listing.

```
5 REM LISTING 5
10 Mode 0:Flash Off
20 X=100:Y=10
30 Sprite 1,X,Y,n (n is the number of your squirrel sprite)
40 Sprite 2,x,200,n1 (n1 is the number of your platform sprite)
50 Move Y 2, "(2,-2,40)(2,2,40)L"
60 Move On 2
70 REM Loop
80 if collide (1,2,2)=2 then y=y-2
90 if collide (1,2,2)=0 then y=y+2
100 Sprite 1,x,y,n
110 goto 70
```

**NEXT MONTH**

Next month we're going to pull everything into shape and create a level you can run around on. Then we'll add one or two hazards to the game before we start to put in the finishing touches, such as end game screens, high score tables, music and such like in the final part in the tutorial. If you have any suggestions for the Super Squirrel game, or are having any difficulties with what we've covered so far, then drop us a line at the usual address.

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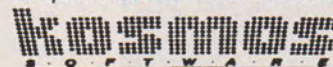
- French, Spanish
- German, Italian
- Science, History
- Geography
- English Words
- Spelling
- Arithmetic
- Football, Sport
- First Aid
- General Knowledge
- England, Scotland
- Natural History

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# MIDI MONTHLY

Enter ST Review's great music competition to win a MIDI system worth over £700.



**MIDI Monthly sets a pace for musicians which no other ST magazine can follow. In glorious colour, here are 10 pages of products, reviews, buyer's guides and all manner of useful information, along with a competition to win over £800 worth of Roland MIDI equipment and Microdeal sequencing programs.**

**None of the skimpy half-page critiques here; a full-blown review of Microdeal's Concerto, the best budget sequencer for a long time, starts on page 106 and includes a comprehensive buyer's guide... For those of you who have the desire to use your ST for live performance, the review of Hands On's OnStage, commencing on page 110, gives you a clear indication of how this performs... Interested in those little hardware add-ons? Three MIDI utilities are looked at on page 109.**

**What do you need to get involved in MIDI? A good question, and one that we start to answer on page 114 where the first part of Building a MIDI System takes off. Every month, MIDI Points will examine one of those often-used but little understood areas; this month, it's MIDI Files. Finally, Modest MIDI is the jargon-buster where all of those terms you keep hearing get explained.**

**This month's competition is an absolute corker! Have a look at pages 118 and 119, solve the questions and send in your answers to have a chance of winning a complete MIDI system, including keyboard, sound module, powered loudspeaker unit and a sequencer - everything you need except for an ST! Need an answer to your MIDI problems? Just drop a line to me, Vic Lennard, at MIDI Monthly. In the meantime, enjoy the read and get to work on the competition.**

Desk File Edit Display MIDI Tape Block Melody, Bass BD Sad Angel 0035057

Main / Score Drum Grid Step Event Arrange Synth Mixer

PATTERN LIST				TRACK LIST			
PAT	TITLE	START	END	TRK	TITLE	CHANNEL	STAT
001	Melody Intro	001\001\001	005\001\001	001	Wood Bass (Tun)	- 01 +	On
002	Bass Intro	001\001\001	005\001\001	002	Funk Bass (Bas)	- 02 +	On
003	Bass Intro, D	001\001\001	005\001\001	003	Percussion	- 16 +	On
004	Melody, Bass, D	001\001\001	005\001\001	004	Sad Angel	- 03 +	On
005	False Ending	001\001\001	004\001\001	005	Marimba	- 04 +	On
006	2nd Theme	001\001\001	005\001\001	006	Wood Bass, Wah	- 01 +	On
007	2nd Melody intr	001\001\001	005\001\001	007		- 06 +	Off
008	Melody, Bass BD	001\001\001	005\001\001	008		- 07 +	Off
009	C Intro	001\001\001	005\001\001	009		- 08 +	Off
010	C Main	001\001\001	005\001\001	010		- 01 +	Off
011	C Endtro	001\001\001	003\001\001	011		- 01 +	Off
012	2nd Theme 2/2	001\001\001	003\001\001	012		- 01 +	Off
013	Endtro	001\001\001	005\001\001	013		- 01 +	Off
014	Melody Int. Wah	001\001\001	005\001\001	014		- 01 +	Off

TEMPO 120 QUANT 008 TAPE TIMER 00h00m00s COUNTER 001\001\001

LEFT LOCATOR 001\001\001

RIGHT LOCATOR 009\001\001

SLOT PATTERN 001 Melody Intro

Concerto V1.1

Concerto - the best budget sequencer of all time? Decide for yourself on page 106.



Live with OnStage; full review starts on page 110.



# CONCERTO

Can Microdeal continue the success of previous budget products as they move into the sequencer market? Vic Lennard makes music with Concerto

Microdeal, along with AVR, is chiefly responsible for cheap sampling devices for the ST, and is probably best-known for *Replay* and *Stereo Master*.

Although *Concerto* is its first step into MIDI sequencing, the company has had past experience of a sort with *Quartet*, a sequencer which played back sound samples.

## VALUE FOR MONEY

From the moment that *Concerto* appears on screen, it is clear that the budget price is going to be misleading. The layout is busy without being too cluttered, and a quick look around the menus and edit screens gives the feeling that the manual is likely to remain in near-perfect condition.

The main screen is loosely divided into three sections: the main area to the left contains the 100 patterns which can be used to make up a song, the right-hand area gives the titles and MIDI channels for the 24 tracks per pattern and the bottom of the screen has the transport controls. Also situated here are certain commonly used functions, including the tempo, for changing the speed of playback, tape timer, which shows the elapsed time of a song and the counter, which gives the number of bars played into a pattern.

There are two main ways of building up a song, both of which use patterns. These let you build

up each part of a song; intro, verse, chorus and so on. A number of bars is set from the Create Pattern option in the Edit menu and the pattern named. Using the right-hand Track List, the details of instrument and MIDI channel are set for the first track which is then recorded using a MIDI keyboard.

This will probably be either piano, for basic chords, or drums, for the underlying rhythm. All tracks for a particular pattern, or part of a song can be recorded in this way.

This process is fine if you write your songs from start to finish – but what if you feel like writing the chorus first? *Concerto* has an Arrange mode where all of the patterns are displayed; from here you can place the patterns in any order that you wish. This includes using patterns more than once within a song.

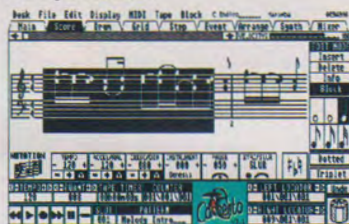
## EDITING YOUR WORK

Sequencers stand or fall by the way in which they allow you to correct mistakes. Most budget sequencers are limited in this respect; a low price-tag usually infers a lack of facilities, but this isn't the case with *Concerto*.

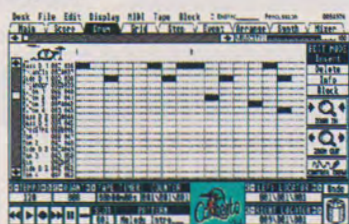
Microdeal has used a novel way to access the various editors. Just below the usual menu bar is what appears to be a series of card titles; the left-hand card selects the Main screen by a single click, and all other screens are selected in a similar way. Even better, you



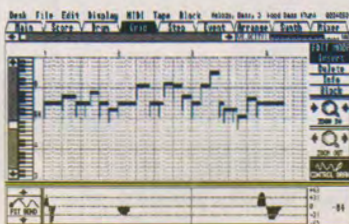
Concerto's Main screen showing the Pattern and Track Lists. All recording takes place here.



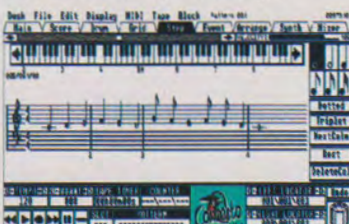
By selecting the relevant note value and clicking on the keyboard, an entire song can be entered in step time with the Step Editor.



The Event Editor lists each individual MIDI event and allows you to alter any portion of it – great if you like the numerical side of MIDI information.



The Arranger allows any pattern to be inserted into a song wherever you like, so if you like to record patterns and move them around, this is for you.



Instead of working with synth and drum sounds in terms of their numbers, the Synth Assigner lets you enter their names, save them and load them back as needed.

Concerto MIDI File Converter  
by John Gymer  
(c) Copyright Microdeal 1992  
All Rights Reserved

- [ 1 ] - Load Concerto Song File
  - [ 2 ] - Load MIDI Format File
  - [ 3 ] - Save Concerto Song File
  - [ 4 ] - Save MIDI Format File
- [ Q ] - Quit to Desktop

Concerto's Main screen showing the Pattern and Track Lists. All recording takes place here.

Low price

Pattern-based for ease of use

Multiple editing screens  
let you work the way  
you want to

Concise manual

Runs in medium and high  
resolutions

## PROS AND CONS

Slow conversion  
between MIDI Files and  
Concerto songs

"A powerful  
sequencing package  
at a very low price"

NAME: CONCERTO  
COMPANY: MICRODEAL  
CONTACT: 0726 68020

PRICE: £39.95  
RELEASE DATE: OUT NOW  
MIN MEMORY: 0.5 MB

EASE OF USE ★★★★★  
DOCUMENTATION ★★★★★  
EFFECTIVENESS ★★★★★  
VALUE FOR MONEY ★★★★★

OVERALL  
**93%**

Desk File Edit Display MIDI Tape Block Melody, Bass, D Wood Bass (Tun) 0034776

Main Score Drum Grid Step Event Arrange Synth Mixer

EVENT TYPE	EVENT LIST	EDIT MODE
Tempo	001/001/001 Note Pit: 065 Vel: 100 Len: 00198	Edit
Pitch Bend	001/001/006 PitBnd Val: 067	Delete
Accel/Ralen	001/001/006 Contrl Typ: 007 (Volume ) Val: 119	
Cresc/Dinin	001/001/012 PitBnd Val: 063	
Instrument	001/001/017 Contrl Typ: 007 (Volume ) Val: 119	
Pause	001/001/023 PitBnd Val: 055	
Stac/Slur	001/001/029 PitBnd Val: 051	
User Control	001/001/040 PitBnd Val: 043	
Note	001/001/040 Contrl Typ: 007 (Volume ) Val: 119	
	001/001/057 PitBnd Val: 039	
	001/001/068 PitBnd Val: 039	
	001/001/068 Contrl Typ: 007 (Volume ) Val: 119	
	001/001/080 PitBnd Val: 035	
	001/001/091 Contrl Typ: 007 (Volume ) Val: 115	

TEMPO 120 QUANT 008 TAPE TIMER 00h00:00s COUNTER 001/001/001

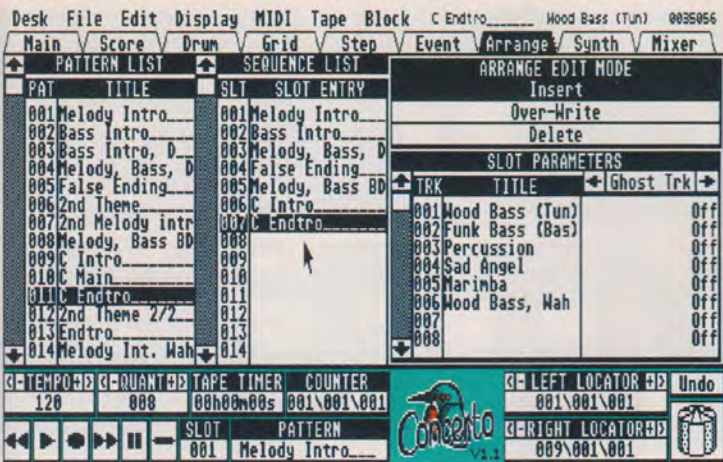
SLOT 001 PATTERN Melody Intro

LEFT LOCATOR 001/001/001 Undo

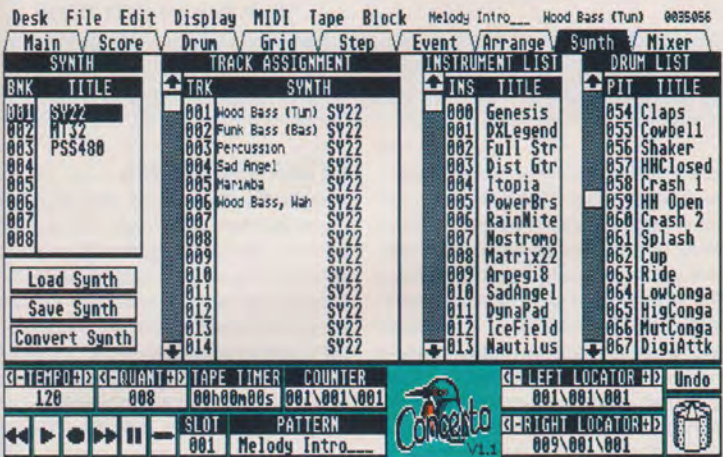
RIGHT LOCATOR 009/001/001

Music is a real-time art and the Mixer enhances this by allowing you to set fades, tempo changes and other performance-orientated features whilst recording them.

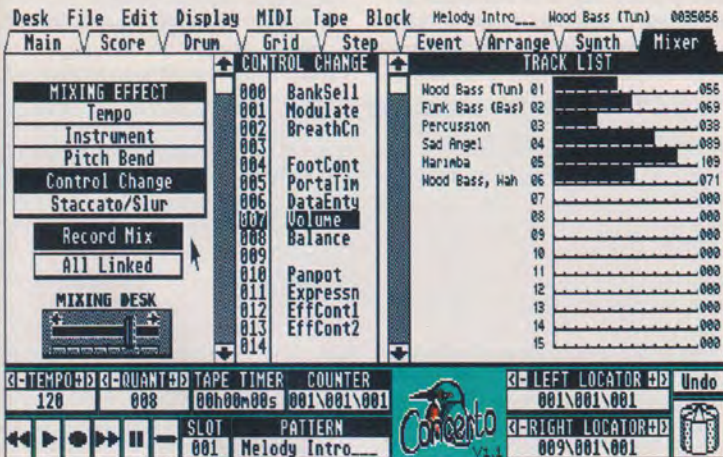




The Concerto MIDI File Converter changes MIDI Files into Concerto song files and vice versa.



Drum sounds often have to be altered when a song is recorded using one synth and played back on another. Drum Operations gives you a dedicated editor for this task.



Changing between synths can make tracks on Concerto play the wrong sounds. The Convert Synth box lets you transform sounds from one synth to another.

can press the F1 to F9 function keys on the ST to achieve this.

## SCORING ALL THE WAY

It's very rare to see a Score Editor on a budget sequencer, but **Concerto** has one. This shows the notation for a single track on a treble and bass clef arrangement and operates in one of four modes: Insert and Delete allow you to carry out basic alterations to notes by using a simple point and click process, while Block lets you drag out a region on-screen and use the various Block

cut/copy/paste functions to move or delete sections of the score. In Info mode, a click on any note brings up a box giving all information for that note including pitch, length and velocity, the latter of which can't be ascertained from the actual notation.

Score Editors aren't usually renowned for the way that they interact with the MIDI information. For instance, a pause sign on the score is usually there to be printed out, not to affect the playback. **Concerto**, however, makes a real attempt to translate some of

the more common musical symbols into MIDI information. Pause halts playback for a set period of time while Stac(cato) changes the lengths of notes. Even C-Lab Notator, which retails at £550, has no such facility.

There are certain functions which can be input onto a score more easily than onto other editing screens. Tempo changes are set by a simple click of the mouse as are patch changes for selecting different instruments for the part being edited.

Two other functions continue to put more expensive programs to shame. Songs can smoothly speed up or slow down by setting a range and the tempo change which occurs in that range; a similar facility is available for fluidly altering the volumes of a series of notes to great dynamic effect.

The smallest note length that the Score Editor will handle is a 32nd, and there is no print out facility - but this is hardly a serious criticism, given the low price.

## GETTING THE RHYTHM

Anyone who has worked with a drum machine that has a graphic display will appreciate the visual elements of **Concerto**. Drums are listed vertically to the left-hand side of a grid with bar numbers to the top and vertical lines showing the division of beats.

**Concerto's** Drum Editor works in a similar way. Each listed drum has an associated note value and number and although you can't change these on-screen, it is possible to alter the drum mapping from the Drum List in the Synth Assigner.

Recording drums from this screen is simple. Set the left and right locators, put **Concerto** into Cycle, click on Insert and hit Play. The screen loops around the bars in the locators and notes are entered by clicking in the relevant boxes on-screen in a manner very similar to a program called **MIDI Drummer**. You can Zoom In and Out and change the velocity, and hence the volume, of drums notes. The same four modes exist as for the Score Editor, allowing you to Insert and Delete notes, alter a Block of notes or change various aspects of individual notes using the Info function.

## IN STEP WITH GRIDS AND EVENTS

The Grid Editor is likely to be the main choice by non-notation users. This works in a piano-roll manner with a vertical keyboard and notes which look like flags; the pole shows the start of the note while the rectangle represents the length. With the same Edit modes as for the Score and Drum editors, it takes no time to get into this screen.

If working with numbers is your

## THE TRIANGLE AND COWBELL SYNDROME

When a percussion track is recorded, each different drum sound uses the MIDI note which coincides with that sound on the drum machine or synth.

If a different sound module is used, the MIDI note for the bass drum may now be assigned to a triangle while the note for the snare drum could be allotted to a cowbell. The ensuing cacophony would hardly be termed as being musical!

**Concerto** gets around this by using a dedicated Drum Operations box which allows you to convert MIDI note numbers so that you end up with the sounds that you originally intended. The velocity, which usually equates to the loudness, of certain drums can be changed in either the current pattern, all patterns or between the current set of bar numbers. Convert Synth carries out a similar exercise on synth sounds; these features are very useful and well implemented in **Concerto**.

## EDITORS ON BUDGET SEQUENCERS

The main difference between a budget sequencer costing less than £100 and a professional package priced at over £300 is the number, and variety, of editing screens and the ability to print out a score. With C-Lab's Notator and Steinberg's Cubase, both priced at around £500, you can construct and print out a finished score. They also have extensive editing facilities; for instance, Cubase has event, graphic, drum and score editors along with a MIDI Manager from which the sounds of any synth can be edited and an excellent, visual arrangement mode.

From the point of view of editing, **Concerto** is exceptional in its price bracket. The four editing screens allow you to work in any way that you wish; the additional Mixer and Synth Assigner are unprecedented in a sequencer costing less than £40.



# BUYERS GUIDE

What's the best in budget sequencing software?

Name	Price	Tracks	Screen	Min Mem (MB)	Event Editor	Graphic Editor	Score Editor	Score Print	Song Arrange	Drum Editor	MIDIFile Read	MIDIFile Write	Sample Playback	From	Contact
Concerto	£39.95	24	C/M	0.5	*	*	*	*	*	*	*	*	*	Microdeal	0726 68020
Cubase Lite	£99	16	M	1	/	/	*	*	*	/	*	*	/	Harman	0753 576911
EditTrack Gold	£99.95	60	C/M	1	*	*	/	/	*	/	*	*	/	Atlantic Audio	071-272 8944
MIDIStudio Junior	£29.99	20	C/M	0.5	*	/	/	/	/	/	/	/	/	Ladbroke	0532 637988
MIDIStudio Master	£99.99	20	C/M	1	*	/	/	/	*	/	*	*	/	Ladbroke	0532 637988
Pro 24 v3.0	/	24	C/M	1	*	*	*	/	*	/	*	*	/	SDL*	081-309 1111
Sequencer One	£19.95	32	C/M	0.5	/	*	/	/	*	/	*	*	*	Gajits	061-236 2515
Tiger Cub	£99	24	C/M	1	/	*	*	*	/	/	*	*	/	Zone Dist.	071-738 5444
Trackman II	£99.95	32	C/M	0.5	/	*	/	/	*	/	/	*	/	Hollis Research	0481 728286

\* Free with the Music Master Pack

forte, you will relish the Event List, where each MIDI event is shown in numerical detail. The Step Editor creates a part on-screen from scratch; set the note value, click on the keyboard and the note appears on the staff.

## MIXING YOUR INSTRUMENTS

Rather than expecting you to remember which number corresponds to which instrument in

your synths, **Concerto** allows you to name them in the Synth Assigner. The Instrument List is intended for use with a single, multi-timbral synth which is fair enough for a basic MIDI set-up. The Drum List fulfils a similar purpose for percussion instruments. The combined settings for the pair of these can be saved and reloaded as needed.

Many budget MIDI keyboards lack performance functions such

as a pitch bend wheel or modulation lever and even expensive ones don't have the necessary array of controls to alter the likes of volume or stereo pan position. The Mixer gives you an on-screen slider which is used to introduce and alter any performance information, which includes tempo changes and swapping instruments. As this can take place while **Concerto** is running, any such changes can be recorded and played back. The power of this should not be underestimated; effects such as fades in and out and movement of sounds between left and right channels in stereo become simple.

## WHAT'S ON THE MENU?

With so many editing screens, the menus might have been packed with functions making **Concerto** unwieldy to use, but this is not the case. With only six menu options, most of the functions can be learnt in an afternoon.

File holds the various Save and Load alternatives, along with Format Disk and New Folder options – many budget programs forget these. Edit includes the usual Quantise and Transpose functions along with Fill for "filling" a track with the same length note, which is useful for dance hihat patterns, and Drum Operations, practically a program on its own for drum note manipulation. Display deals with all on-screen elements from selecting the clef for the Score Editor to setting the drum and grid accuracy while MIDI handles filtering and the settings for other MIDI functions, including a System Exclusive librarian for saving and loading a synth's memory. Tape includes various playback and record functions, including Record Quantise which adjusts timing as you record, just like a drum machine.

## EXTRA PROGRAMS

**Sample Studio** is an extra program provided for STE and TT users which can put together a set of samples for use with **Concerto**. Depending on the memory available, samples in either .AVR or .SPL format can be loaded in and assigned to MIDI notes, saved as a set and loaded into **Concerto** as a synth set. While only one sample can be played at any one time, **Sample Studio** is an interesting extra, but will really need at least one Megabyte of memory.

Although **Concerto** doesn't have a menu option for loading and saving MIDI Files (these allow you to move song files between different sequencing programs), there is a separate program for converting back and forth between MIDI Files and **Concerto** song files.

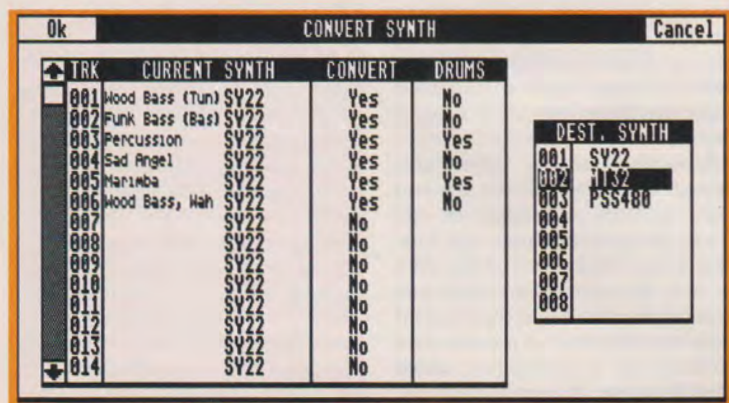
The only drawback is the lack of speed for this process; a 13-track MIDI File took over eight minutes to convert to **Concerto** format; a 14-track song in the other direction, complete with numerous tempo changes, took over fifteen minutes.

## FINAL COMMENT

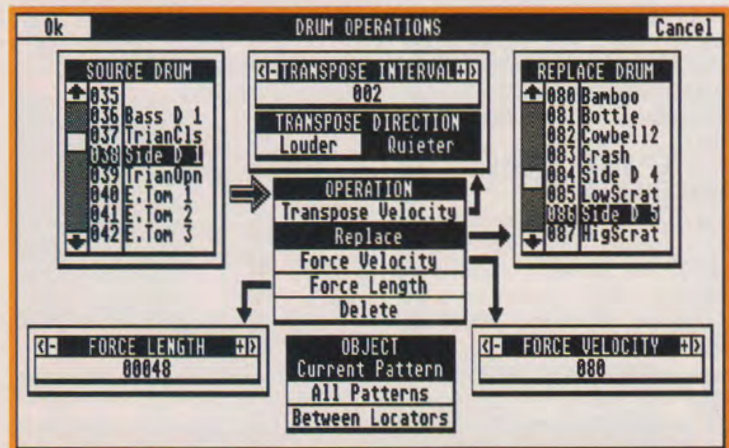
It is difficult not to be impressed with **Concerto**. The facilities that it has to offer are beyond those on some programs which cost £200.

There are a couple of minor gripes. While practically all menu options have keyboard equivalents, you have to continuously refer to the manual as there is no on-screen help menu. There could also be more information on how the Undo function works; this appears to be very limited and the manual is rather brief in its explanation.

These complaints aside, though, **Concerto** is an excellent purchase and will suit many musicians, without allowing them to quickly outgrow their investment.



With the Drum Editor, **Concerto** can be programmed in the same way as a drum machine with a display.



The Score Editor, a rarity in a program at this price. By using the Block Edit Mode, changes can be made to a group of notes.



# PLUG-IN PARTNERS



The ST may have built-in MIDI sockets, but there's always room to be found for those little extras

## MIDI CRYSTAL

EYE & I PRODUCTIONS (UK) ● £9.99 ● 0793 873888

**IN BRIEF:** You've probably found yourself once or twice in the position where you've loaded your sequencer, set a song to play and nothing has happened. Tracking down the culprit in the system is often awkward because you can't see whether MIDI information is being transmitted from the ST.

Voice Crystal from the USA has a solution. The **MIDI Crystal** is a small (around seven centimetres long) through connector which can be placed in-line with any MIDI Out.

It shows an indication of which type of MIDI signal is passing through; different MIDI messages often pass different amounts of data down the MIDI cable.

For instance, a System Exclusive

message gives a bright light as MIDI data is being transmitted quickly, while MIDI Clock leads to a dim glow due to a slower transfer rate.

The **MIDI Crystal** draws less than four milliwatts of power from a MIDI Out, so it has no effect on the normal running of the MIDI system. While it would certainly be cheaper for you to build a similar device, the **MIDI Crystal** has the advantages of being small, compact and bullet-proof to use.

**ST REVIEW COMMENT:** "Interesting trouble-shooting product. A little expensive, but possibly worthwhile when you consider the time wasted trying to sort out which piece of equipment is causing a problem in a MIDI system."

\*\*\*

## MIDI SPLITTER



INTONATION ● £30 ● 071-624 6194

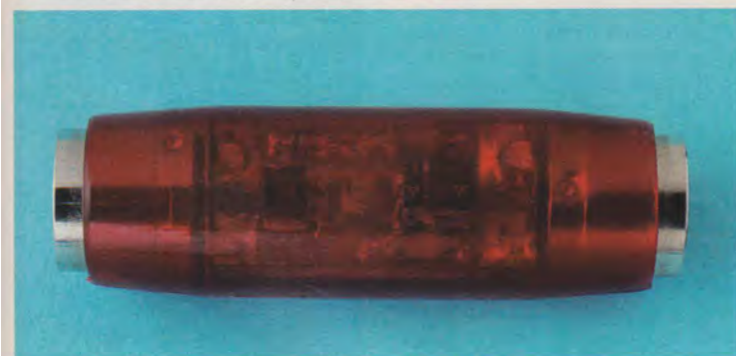
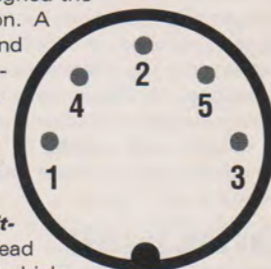
**IN BRIEF:** In their infinite wisdom, Atari designed the MIDI Out socket as a non-standard version. A proper MIDI Out socket only uses pins 2, 4 and 5; the ST's MIDI Out has pins 1 and 3 connected as a MIDI Thru. Hence if a MIDI cable connected to the MIDI Out has a blob of solder across pins 1 and 4, and pins 3 and 5, a permanent MIDI Thru occurs, causing havoc in a MIDI system.

UK-based Intonation launched its **MIDI Splitter** at the recent MIDI Music Show. This lead has a single MIDI connector at one end, which plugs into the ST's MIDI Out, and separate MIDI Out and MIDI Thru connectors at the other end. The quality of manufacture is high - metal plug and sockets, decent cable strain reliefs and good quality cable.

Incorrect MIDI leads will no longer cause problems. Also, you can run your MIDI system via the MIDI Thru port without having your sequencer booted up on the ST; you might be using your ST for a different purpose and simply wish to play a few notes on a master keyboard and hear the result.

**ST REVIEW COMMENT:** "Expensive; you could make your own for a fraction of the price. However it is well made and likely to solve any problems caused by the non-standard ST MIDI Out socket."

\*\*\*



## MODEMMIDI

UKMA ● £30.95 ● 081-368 2245

**IN BRIEF:** One problem of working with the current range of multi-timbral MIDI synths is that they can often playback notes on all 16 MIDI channels. The ST only has a single MIDI Out capable of sending out MIDI information on 16 MIDI channels, so what happens if you have two such synths? Companies such as C-Lab and Steinberg have expensive MIDI port expanders for **Creator/Notator**

and **Cubase** respectively which add multiple MIDI Out ports along with synchronisation facilities for locking the sequencer with a tape recorder. If you just want an extra MIDI Out at a cheap price, you're out of luck - until now, that is.

**ModemMIDI** plugs into the modem port on the rear of the computer to give the ST that extra MIDI Out to handle a total of 32 MIDI channels. It's well-built with a metal MIDI socket

and screws to properly fasten it to the modem port.

There would be little point in having such an add-on unless it can be used with most of the popular sequencers, and this is the case with **ModemMIDI**. You can plug it in and go with Steinberg's **Cubase**, C-Lab's **Creator** and **Notator**, Gajits' **Sequencer One Plus**, Digital Muse's **Virtuoso**, Hollis Research's **Trackman** and Hands On's **OnStage**.

The various commands to set up the modem port are included in the short manual so that programmers can add **ModemMIDI** to their custom MIDI projects.

**ST REVIEW COMMENT:** "The access to an extra 16 channels is great for users of sequencers supporting **ModemMIDI**."

\*\*\*





# ONSTAGE

*Do you find that using an ST and monitor live is a risky business? Then OnSTAGE may be just what you've been waiting for...*

**M**ore and more musicians are using their ST to provide backing music for live performances, but while the computer itself is reasonably robust, the monitor is certainly delicate.

Apart from the obvious problem posed by transporting a fragile TV screen to and from gigs, monitors also tend to be affected by strong electrical fields such as those from stage lighting. This will invariably make the picture tremor, which in turn renders the screen unusable.

The other problem that is usually posed by working with a sequencing program live is the hassle entailed in continuously having to use menus to select functions. All that is really necessary is a system which allows you to select songs via the ST's keyboard, and that is where **OnSTAGE** comes in.

### THE LIVE SYSTEM

**OnSTAGE** is a MIDI File Playback (MFP) program designed for live performances, which uses a small plastic box (display unit) with coloured indicators to show what is happening at any time, rather than a monitor or TV.

Also included is an Edit program. This uses MIDI Files so that you can create your songs on your ST sequencer, save them as MIDI Files and then load them into **OnSTAGE**.

Because performances often run in "sets", the Edit program lets

you load up to 32 songs and place them in any order that you wish.

### CREATING SETS

The main screen for **OnSTAGE Edit** is quite sparse. On the left-hand side is the Track List which shows details for each track of the current song, including track name, MIDI channel and program change, which is used for selecting the sounds on MIDI synths. In the centre are the four banks, each with eight slots, where loaded songs are placed, and on the right-hand side are the

five standard transport controls of Play, Rewind, Fast-Forward, Pause and Stop.

There is a set of information boxes at the bottom of the page: these give the current song position in terms of time and bars/beats, time signature, tempo and a pair of indicators show whether MIDI data is currently being received or transmitted.

Having previously saved songs in MIDI File format, a double-click on a bank slot brings up the file selector from which a song can be selected. A swift click on Play and ... nothing; the song has to be transferred to the Track List before it can be inspected or played; this is achieved by dragging it from the slot and dropping it in the Track List.

At this point, each track of the song has the MIDI channel assignment that it was originally saved with. A double-click on a particular track leads to the Track Form box where the MIDI channel can be altered and a program change set.

This is useful if the song is going to be used with a different MIDI synth from the one that the song was created on. Other edits are also available; for instance, Initial Volume allows you to set the levels of different tracks in a song so that they are balanced against each other, while Velocity Adjust can be used to change the sound character of a track because a note's velocity is often used to alter the tone between mellow and bright. There is also the



**Allows for up to 32 songs to be loaded in one operation**

**Plays live without the monitor**

**Accepts songs in MIDI File format from any sequencer**

**Facility to load banks of songs while playing**

**Remote control from a MIDI keyboard**

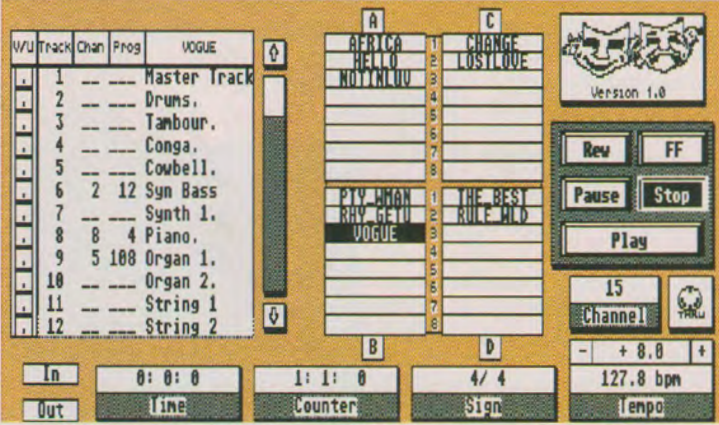
**PROS AND CONS**

**Requires a separate sequencer program if original songs are to be used**

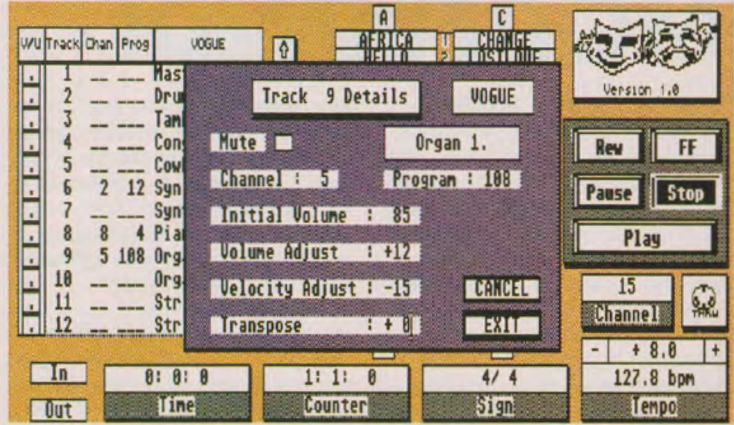
**LIVING PROOF**  
*Was there life before OnSTAGE?*

Musicians have been using sequencers live for years. However, OnSTAGE has two main advantages over previous methods. First, if your main sequencer is ST-based you could use the ST live but run the risk of getting your monitor damaged – they're certainly not intended to be "road-worthy" – or of having the picture interfered with by stray electrical fields. Second, you could use a hardware sequencer which is a stand-alone box and so robust enough to tolerate being used live. The disadvantage here is that you would have to transfer all of your songs from your ST sequencer, which is very time-consuming as few sequencers of this nature can read MIDI Files and those that do will cost more than an ST, a budget sequencer and OnSTAGE put together.

Few hardware sequencers will have sufficient memory to have 32 songs loaded simultaneously and will generally not have the continuous playback and load-while-play features of OnSTAGE.



The main screen with various songs loaded into the four banks. Information for the tracks of Madonna's "Vogue" is currently being looked at.



A closer look at the Song Details of the current song. The size, in Kilobytes, and the number of tracks are shown; a song can be deleted or replaced from here.



option to mute, or turn off, a track. While such facilities don't allow you to edit individual notes or MIDI events, they are welcome in that they allow you to ensure that songs on playback carry similar qualities.

A click on the Play button, or pressing the Enter key, now plays back the current song and lets you check that what you hear is what you want. This is repeated for each song that you want to include within your set; if you mistakenly load the wrong song, double-click on the name (which leads to the Song Detail box) and delete it.

Dragging songs around between bank slots allows you to place them in any specific order - there is even the option to swap songs in two slots.

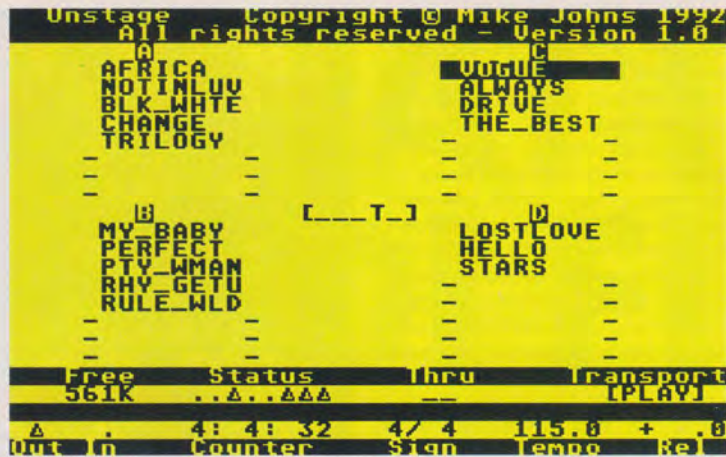
Once you are happy with the positions, you can save the set as 1.SET, 2.SET and so on; the number indicates which of the ST's "F" keys will load that particular set once the MFP part of **OnSTAGE** is used.

## TO PLAY OR NOT TO PLAY

The **OnSTAGE Edit** program takes up more memory than the MIDI File Player which means that you can fit more songs into RAM when using the live performance set-up. However, you can't have all of these songs loaded into memory at the same time when putting the set together.

Happily, there is a solution to this problem, which is to create the set without loading the MIDI song data. This simply means that you can't audition the songs; this is what Fast Set, found in the File menu, does. As many songs as required are continuously loaded from the file selector and appear with their names greyed out in the bank slots.

A similar problem can occur if you load in a completed, or partially-completed, set. If Autoload, from the Options menu, is left unticked, MIDI song data for a set will not be loaded into memory. Both of these choices are purely for the positioning of songs in



The **OnSTAGE MFP Screen** which is only used until you are familiar with the numeric keypad control on the ST. The songs in the various slots are listed along with information such as the tempo, bar counter and free memory.

slots; no individual track editing is possible.

One other useful function is Set Overlay. If you load a set of songs, any current songs are automatically deleted, but if Set Overlay is selected, the only songs which are erased are those whose slot is needed for the set being loaded. In this way, you can build sets using just one of the four banks and easily move songs around.

This is also useful when you are using an ST with one Megabyte or more of memory because songs from multiple disks can be loaded into memory.

With live work, it is essential to keep a good atmosphere going once one has been created. This usually means non-stop music, which **OnSTAGE** provides using the Autoplay feature which moves straight on from one slot in

a bank to the next at the end of a song. You can even change banks while the music is playing - this lets you play all songs in a set without having to stop, if you so desire.

## REMOTE CONTROL

There are various reasons why you may not be near your ST on stage, the main one being space. **OnSTAGE** has a facility for assigning keyboard notes to the principal features such as the five transport controls and songs one to eight in bank A.

As you are playing live, the chances are that you will be playing a keyboard, drum pads, guitar synth or some other MIDI controller and will want to play the same synth that **OnSTAGE** is using. For this purpose, there's a MIDI merge feature; any MIDI information received at the MIDI In port is mixed with the song data being transmitted by **OnSTAGE**.

If your live equipment includes a drum machine, **OnSTAGE** also transmits the necessary MIDI information (MIDI Clock, Start, Continue and Stop) to ensure that the rhythm element keeps in time with the rest of the band!

## ON STAGE WITH ONSTAGE

So much for the putting together

*"A well implemented idea, with little competition"*

NAME: ONSTAGE  
COMPANY: HANDS ON MIDI SOFTWARE LTD  
CONTACT: 0705 221162

PRICE: £99.95  
RELEASE DATE: OUT NOW  
MIN MEMORY: 0.5 MB

EASE OF USE ★★★★★  
DOCUMENTATION ★★★★★  
EFFECTIVENESS ★★★★★  
VALUE FOR MONEY ★★★★★

OVERALL **88%**

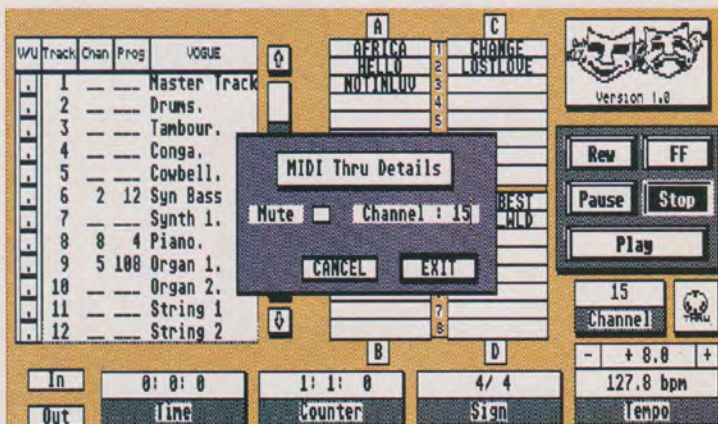
of a set - how does **OnSTAGE** actually operate live? The **OnSTAGE** display unit connects to the ST's printer port; any concern over whether this is working can be allayed by using a small program which sequentially lights up the red, amber and green indicators. A system disk has to be created, which contains the autoload program and a system file in a "Code" folder, and the various sets transferred to this disk along with the songs to be played. Boot up with this disk and **OnSTAGE** is ready to do what it was designed for - playing songs.

If a monitor is still connected at this point, the MFP screen will be seen, showing the banks, their allotted songs, the amount of free memory and so on. When you try out **OnSTAGE** for the first time, it's worth having this as a reassurance.

However, the whole point of **OnSTAGE** is that it operates without the monitor! Banks A, B, C



Certain elements for individual tracks can be altered from the Track Details box, including the initial volume and program for selecting the correct sound.



If a keyboard is connected to the ST's MIDI In, whatever you play can be combined with what **OnSTAGE** is playing by setting the MIDI channel for the relevant sound.



## INSIDE INFO

Hands On MIDI Software Ltd is one of the main creators of MIDI File backing tracks in the UK. Set up in 1989, they supplied song files for the Roland TenTrax sequencer and have also been utilised by Yamaha and Casio at various music shows and by the education departments of Commodore and Philips.

Other current products for the ST include a Roland Sound Canvas editor (£39.95) and a MIDI port expander called "16+" (£29.95). On the educational front, Hands On is supplying the Associated Board examinations for piano, violin, flute, clarinet and trumpet on MIDI File for grades one to five. Forthcoming will be a visual editor for Yamaha's TG100 sound module (£39.95).

and D are selected by using "(", ")", "/" and "\*" respectively, while the keys "1 - 8" select the song in that numbered slot for the chosen bank and immediately set it into play. "0" stops playback and mutes all current notes, while "." pauses playback and leaves any current notes sounding. To continue playing, "Enter" is pressed; Rewind and Fast-Forward operate via the "<" and ">" keys. The only other keys used are "+" and "-" which alter the speed, or tempo, of playback.

A major point is that banks of songs can be loaded while **OnSTAGE** is in use. This load-while-play facility is very powerful when used in conjunction with the Set Overlay feature; you can

start playing a song, load a different bank of songs, move to that bank and be ready to play a new song without interrupting any of your playback.

How well does it work? As a measure of how good it really is, the creator, Mike Johns, has been using it as a performing musician for some time and it's easy to see why. Movement between songs is easy - all you need is a set list in front of you - and the display unit can be placed wherever you need it by using a printer extension cable.

## FINAL COMMENT

**OnSTAGE** is a good idea which has been well implemented. The manual is excellent and includes various hints and tips for working with disk drives, taking your ST on the road, explanations of MIDI Files and so on.

The master disk also includes a selection of MIDI Song Files from Hands On MIDI Software Ltd, the distributors, whose songs are among the best in the land. The various titles shown in the screen shots are all included on the disk along with various others.

**OnSTAGE** has no competition, with the exception of stand-alone sequencers such as Roland's MC-50. While this can load and playback MIDI Files, it has to use a separate piece of software and costs more than an ST and **OnSTAGE** put together.

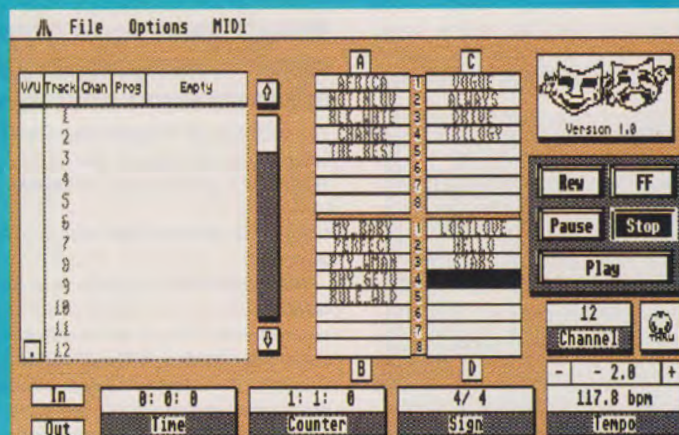
With the upgrade to v1.1 adding compatibility with ModemMIDI (see page 112) and Hands On's own 16+, each of which give access to an extra 16 MIDI channels, **OnSTAGE** is an essential item for any gigging musicians who want to use their ST live; buy and enjoy.



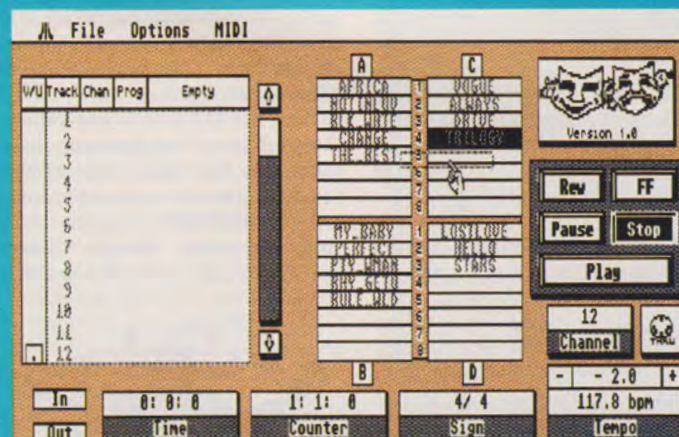
## STEP BY STEP



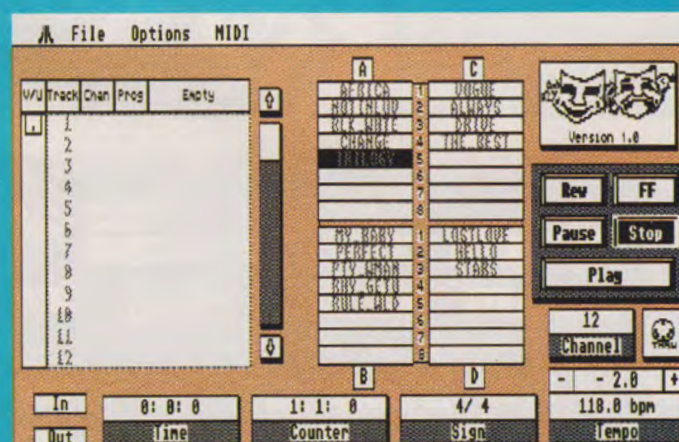
There are two ways to work with the OnStage Editor. The normal method is to load the data for each song into memory, but as the OnStage MFP program takes up less memory than the Editor, you can't make the most of it without using the Fast Set feature. In this mode titles are greyed out, and songs can be loaded very quickly into bank slots.



- 1 **OnSTAGE** is in "Fast Set" mode where only the song titles are loaded, not the actual MIDI information. This lets you put together a set at double-quick speed.



- 2 Swapping songs around is as simple as dragging a title from one slot ...



- 3 ... and dropping it into another. You get the option of either a straight swap or the title in the slot being overwritten.



There's often a menu option on a sequencer to allow you to save a song as a MIDI File; here's a brief run-down of what a MIDI File is...

# WHAT IS A MIDI FILE?

Let's say that you have a sequencer program on the ST and create a song. Unfortunately, you can't play piano and so decide to take your song file on disk to a friend's house for the piano track to be added. He loads up his sequencer (which is different from yours), pops your disk into his drive, starts to load the file and... nothing. It won't load.

This scenario led to various software companies working together and creating the Standard MIDI File Specification in 1987. While there were various teething problems at the beginning - for example, sequencers not recognising each others, or even their own, MIDI Files - nearly all current sequencers will both read and write MIDI files.

There are three different types of MIDI File. Format 0 is for single tracks; this could be used when all that you have recorded is something like a piano accompaniment part. Format 1 is used for multiple tracks; you would use

this if your song has lots of instruments like bass, brass, strings and so on. Format 2 is for multiple patterns; hardly any sequencers have used this to date and so you can ignore it. How do you decide which format to use? Generally you don't; the sequencer decides automatically for you.

## OUTSIDE HELP

Some programs use external programs to convert between their song format and a MIDI File. The reason for this is to keep the size of the main program down and so allow it to still function on a 520 ST. This is the case with *Concerto*, which is reviewed on page 106 of this issue.

What can be saved in a MIDI File? Most of the functions supported by sequencers, including things like time signatures from notation packages and various tempo changes.

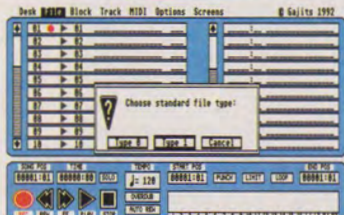
Track names are also saved, but there are two ways of achieving

this so sometimes you will find the track names have been either deleted or corrupted.

Most of the time, the intricacies of MIDI Files are invisible to the user, as they should be. Simply use the "Save as MIDI File" option and you end up with a .MID file written to your disk.

Can MIDI Files be moved

between different computers? Yes; as the disk format for STs and PCs is very similar, you can take disks from either computer and load MIDI Files into the other. Amiga, Mac and Archimedes computers can read PC and ST disks if the right software is used so movement between most micro-computers is possible.



C-Lab's Notator and Steinberg's Cubase have options for saving and loading MIDI Files, Gajits' Sequencer One Plus lets you select the format, while Microdeal's Concerto uses a separate program to keep the size of Concerto down.



## MODEST MIDI

Having problems with the language of MIDI? Our glossary should help you...

### AFTERTOUCHE:

Extra pressure brought to bear on the key of a keyboard after it has been initially played. Used to control certain MIDI effects such as modulation or pitchbend. Often referred to simply as "pressure".

### CHANNEL:

There are 16 MIDI channels, each of which usually accommodates a different sound. For instance, Piano may be on MIDI channel 1, bass on channel 2 and so on.

### CONTROLLERS:

MIDI Controllers can alter the performance of a MIDI synth. For example, Modulation (Controller #1) can add a "warble" to sounds, Volume (#7) will affect the level of the sound and Sustain Pedal (#64) acts like the damper pedal on a piano. Each different Controller has its own unique number.

### MIDI:

Acronym for the Musical Instrument Digital Interface, created by American and Japanese manufacturers in 1982.

### MULTI-TIMBRAL:

Literally meaning "many sounds", a multi-timbral synth plays more than one sound by responding to information on more than one MIDI channel. For example, piano might be on MIDI channel 1, bass on MIDI channel 2 and drums on MIDI channel 10.

### NOTES:

In MIDI, all notes are numbered between 0 and 127 which gives a total range of over ten and a half octaves.

### PITCH BEND:

Literally bending the pitch of a note once it has been played. Most synths have a pitch bend wheel to allow you to control pitch bend during a performance.

### PROGRAM CHANGES:

These are usually transmitted from a computer to a synth to select a specific sound. You could call this "sound change"; the ST sends a message to a sound module telling it to go to a certain sound.

### SOUND MODULE:

A synth without the keyboard. Usually has a small screen to see the name (or names if multi-timbral) of the sound(s) playing. A sound module may let you edit the characteristics of the sounds, or may simply be a preset sound player.

### STANDARD MIDI FILE:

More commonly known as a MIDI File, this allows you to create a song on one sequencer, save it and load it into a different sequencer. You can even move song files between different computers.

### SYNTHESISER:

A sound-creating machine, usually with a keyboard. There are many different types of synthesised sounds, although many of the current models use sampled sounds.

### VELOCITY:

A MIDI Note has a velocity which is a measure of how fast your finger has pressed the key on a keyboard - the faster you press, the higher the velocity value. It's often used by synths to change a sound's volume, but may also be used to change the tone; for instance, a high velocity could be used to make a piano sound brighter.



# BUILDING A BASIC MIDI SYSTEM

*An ST and a sequencing program: what else do you need for music?*

In this issue, the review of *Concerto* gives you an idea of just how powerful a sequencer you can buy for only £40. The built-in MIDI sockets mean that you don't need to buy a separate MIDI interface as Amiga, PC or Mac owners would, so you save even more money. All you need to be able to create songs and hear the results is a keyboard which contains sounds (usually called a Synthesiser), or a separate keyboard without sounds (commonly known as a Master Keyboard) and sound module.

Pressing a key on a MIDI keyboard doesn't send out sounds; it transmits instructions from its MIDI Out which give information about the key press. They are dispatched down a MIDI cable as pulses, being sent from the MIDI Out and received at the MIDI In of a sound module or computer.



## STARTING FROM THE BEGINNING

Figure 1 shows the most basic set-up for a MIDI system; a synthesiser connected to an ST which will have a sequencer program loaded. Pressing a note sends the information about that note to the ST, allowing it to be recorded. When the sequencer plays back, the notes are transmitted from the ST's MIDI Out, received by the synth's MIDI In and funneled through to the sound generators in the synth. Most sequencers have a "soft(ware)" Thru option so that you can continue to play the synth at the same time as it is being played by the computer sequencer; the keyboard information is mixed with the notes being played back. Unless the synth has a built-in amplifier and speakers, you'll need to connect the audio

outs to a hi-fi system or possibly use a pair of headphones if the synth has a socket for them.

There is a problem: if you've recorded a piano part on a sequencer and then playback, it plays that piano sound. But what if you want to record a string part? If you press the keys, you'll get the piano sound. The way around this is to use a multi-timbral synth. This can literally play "many sounds" at the same time, using different MIDI channels. Such a synth will usually have a Local Control Off mode where the internal sounds aren't played via the keyboard. By changing the current MIDI channel on the sequencer, sounds on any multi-timbral part can be played.

## ADDING A SOUND MODULE

Most low-cost synths aren't multi-timbral, so how can you build up a MIDI system to play drums, bass and so on? The answer is to use a separate sound module; this is like taking the synth's internal sounds and placing them in a box. Figure 2 shows a typical set-up of this type. When the sequencer plays back, the MIDI information is transmitted from the ST's MIDI Out and received by the synth's MIDI In. The MIDI Thru is then used to pass on an identical copy of this data to the sound module. By having the sounds in the synth and the sound module set to different MIDI channels, the different parts can be played back.

You can add further sound modules by connecting the MIDI Thru of one to the MIDI In of the next in a "daisy chain". Be careful though; MIDI information tends to get corrupted after the third or fourth module leading to symptoms like notes hanging on after they should have stopped.

## INSIDE INFO

Pressing a key on a piano uses linkages to move a hammer which hits a string, thus leading to the creation of a sound in a rather mechanical manner. Each key is independent, but this type of autonomy does not exist with MIDI; all MIDI information from a keyboard goes down the one MIDI cable connected to the MIDI Out. A press of a key on a MIDI keyboard leads to the transmission of three pieces of information.

The first of these is the fact that a MIDI Note On is happening along with which of the 16 MIDI channels is being used. Second comes the note number; MIDI supports a 128 note range which more than encompasses the span of any MIDI keyboard ever built (a standard piano has 88 keys). Finally, the velocity of the key press is transmitted. This number lies between 1 and 127; higher values often change a sound's tone to make it appear brighter.

## WHAT'S A SEQUENCER?

In its most basic sense, a sequencer records MIDI data, along with the time it received it, and then plays it back with fidelity. In practice, sequencers are far more complex than this, offering graphics, various editing screens and other features.

Hitting a key on a keyboard sends out a MIDI Note On; releasing that key then sends a MIDI Note Off and the sequencer subsequently calculates the length of the note by subtracting the Note On time from the Note Off time.

So is MIDI just a bunch of numbers? Yes - but MIDI can be used to create any style of music, and most synths and sequencers keep the numbers well hidden from you.

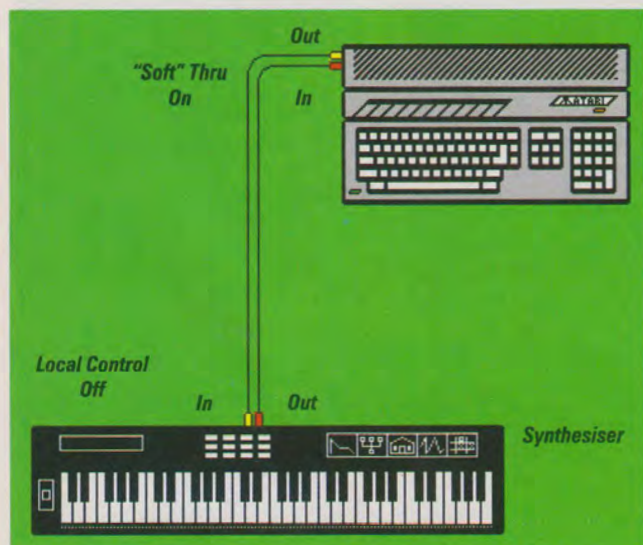


Figure 1: A basic MIDI set-up. If the synth is multi-timbral and supports Local Control Off, the choice of sound can be controlled from the computer.

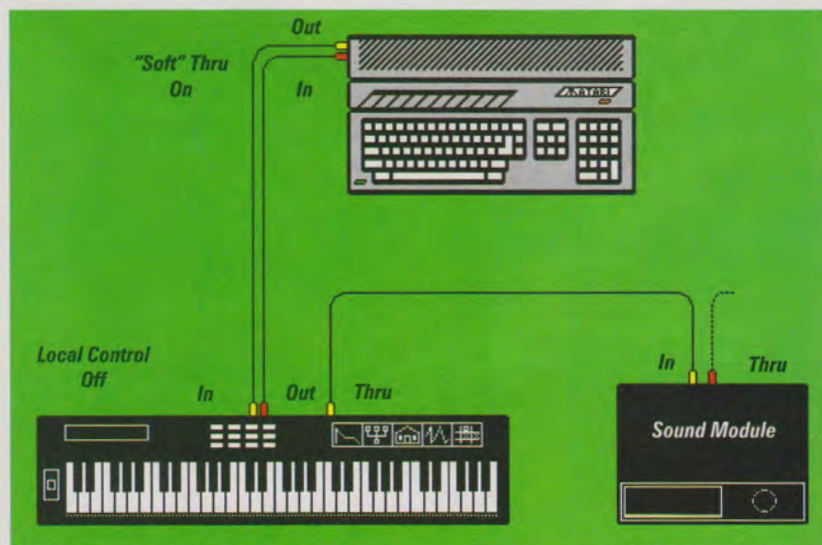


Figure 2: Using the synth's MIDI Thru, further sound modules can be added to increase the number of sounds available to you.



# ZYDEC TRACKBALL



## First impressions are deceptive with this unit

The immediate impression is of a rather neat-looking unit, about Walkman size - 11cm by 16 cm. The left-hand side houses a fairly small ball while the micro-switches are positioned along the top edge. This switch placement makes it difficult to decide where to site the unit; as the cable also emerges from the rear, you can't place it in front of the keyboard while the size and shape make it a little awkward to position at the side of the ST.

The ball is very light but of high resolution so a couple of finger rolls move the cursor from one side of the screen to the other. This is just as well, as the Zydec trackball is very susceptible to skating even under normal use, mainly due to its lack of weight. This insufficiency of mass means that the ball does not bear down effectively on the rollers thus causing the skating effect.

The three buttons act in a different way from either of the units. The left and right buttons act as per usual, but the middle one acts as a lock; hold down the left button, click on the centre one and the left button is locked. For instance, say that you need to

*Neat looking, but the Zydec trackball shows that looks aren't everything.*

drag a file from one window to another. Hold with the left button, click on the middle one and drag anywhere you wish without having to touch either of the buttons. A similar effect is very useful when working with lines and curves in an art program. To unlock the file, simply click on the centre button again.

This unit is designed to be used by a right-handed person; the ball is rolled by the thumb and the buttons are operated by the first, second and third fingers. Left-handed use is not possible.

Held in by a locking ring, the ball can be removed in two seconds flat and access to the rollers is very good.

**"Nice feel but ball a little too light for accuracy"**

**NAME: ZYDECK TRACKBALL**

**COMPANY: EVESHAM**

**MICROS**

**CONTACT: 0386 765500**

**PRICE: £29.95**

**RELEASE DATE: OUT NOW**

**MIN MEMORY: N/A**

**SMOOTH ROLL** ★★★★★

**SWITCH RESPONSE** ★★★★★

**ACCURACY** ★★★★★

**EASE OF USE** ★★★★★

**VALUE FOR MONEY** ★★★★★

**OVERALL 80%**

Trackball and switches nicely positioned  
Rollers easy to clean

### PROS AND CONS

Cursor skates badly on screen

# ALL OUR YESTERDAYS



## Times have certainly changed on the trackball front since the release of the original Atari Trak-Ball

The Atari Trak-Ball originated from the Atari 8-bit computer (the design dates back to 1983) and measures some 22cm by 13 cm - hardly small. It is no longer manufactured but can be picked up cheaply secondhand.

It only has two switches which are situated 17cm apart. This makes it difficult to press down both buttons at the same time if an operation requires

*The original trackball, the Atari Trak-Ball is slow, noisy and awkward to use.*

such, and it's absolutely impossible to then move the ball without using two hands which rather defeats the object.

The ball is large and heavy (about the same as the Marcus trackball) but very noisy. The resolution is also very low - it takes upwards of four rolls to motor across the screen - but there is no skating with this one. Without the use of a mouse accelerator, the Atari Trak-Ball is probably unuseable.

The switches are also very unresponsive making it very heavy going when you have to double-click a lot and you can pretty well forget about cleaning the rollers; the four screws which hold the shell together are underneath the rubber feet.

# BUYERS GUIDE

## At-A-Glance Buyer's Guide to Trackballs

	Alfa Data TRK-MT-A	Marconi Marcus	Zydek
Price	£29.95	£49	£29.95
Resolution (dots per inch)	162	150 (approx)	200
Tracking Speed (mm/sec)	1100	unknown	350
Use of third button	Left + lock	Extra right button	Lock
Cable length (m)	1	1	2



**Vic Lennard rolls the best trackballs through their paces in our in-depth look at an under-used piece of hardware. . .**

As soon as you unpack an ST from its box, you are presented with a device that is specifically designed to keep your fingers away from the keyboard - the mouse. There is little doubt that the mouse has influenced the way in which we work; most people select options from menus rather than committing a whole host of keyboard commands to memory. Moreover, it would be practically impossible to use an icon-based system such as GEM without a mouse or some other similar pointing device.

A similar device? Is there one? Yes - the trackball. This is essentially an upside-down mouse; instead of rolling the ball on a surface, it gets rolled by your fingers. The ball is in contact with two rollers, which handle the two basic directions of motion, and a third roller to stabilise the ball. As with a mouse, the buttons are on the top of the unit.

There are many advantages in substituting a trackball for your mouse. For a start, because you don't need to move it around in the same way as you do a mouse, it takes up less space.

As a trackball is finger-operated, your hand usually rests just behind the unit and remains stat-

ic; using a mouse requires a fair amount of wrist and arm movement which can lead to aches after hours of repetitive use.



#### ACCURACY

The main benefit of working with a trackball is the accuracy that you achieve. Any program that requires you to draw lines, curves or generally move with precision across the screen will yield better results if you use a trackball - and that includes most art, desktop publishing and music programs.

Trackballs also tend to require less maintenance than mice as no surface-borne dirt is transferred to the rollers via the ball. That said, however, the rollers still need to be accessible so that they can be cleaned when the trackball starts to feel rough.

So what are the disadvantages? All trackballs suffer from "skating"; if you roll the ball too hard, the cursor either moves in the opposite direction or appears to remain static for a moment before suddenly shooting off in the direction of the rolling ball. How susceptible a trackball is to this is down to the tracking speed which is sometimes given as part of the specifications.

Fortunately, most trackballs have a high resolution; one roll of



the ball or so and the cursor moves the width of the screen.

Cost is relatively high; a good trackball now costs about the same as a good mouse used to, but this has to be balanced

against the fact that trackballs last longer. I've been working with the same unit for the last two and a half years; how many of you can attest to that with a mouse?

## ALFA DATA TKB-MT-A

**The best of the bunch can be interchanged between ST and Amiga computers**

Measuring some 14cm by 11cm, the Alfa-Data TKB-MT-A is small enough to fit in the gap you usually leave at the right-hand side of the ST for disk drive access. The top face is curved downwards towards your hand with the grey ball at the top of the slope. You need to leave a small space behind it for the palm of your hand to rest on, but the switches

are well positioned for normal use. These are part of the casing with one either side and the third next to your palm. The unit is interchangeable between ST and Amiga computers via a rear flick switch, and a slightly more expensive version has an illuminated trackball which lights up in green and red depending on which switch is being pressed.

The ball is quite large and smooth in use; you can cover the width of the screen in just over one roll. Skating is certainly evident here, but the resolution is high enough for you not to need to move the ball very fast.

#### SWITCHES

The switches are very good; high

quality micro-switches similar to those used on a good mouse. Minimal movement is required to operate it and it gives a distinct "click" when pushed. The right and left switches operate as you would expect, but the bottom switch functions as a latching left switch. This means that you no longer need to continuously

*The Alfa Data TKB-MT-A is available with a ball that lights up.*



# ON THE RIG



# MARCONI MARCUS TRACKERBALL

hold down the left switch when you are drawing a straight line or a curve; you simply click on the bottom switch, move as you need to and then click on the left switch to disengage. With games, this useful facility can be used as an auto-fire option.

There is no way of reversing the right and left switches, so if you're left-handed and want to use the trackball the other way round, you'll need to get hold of a freeware program from Double Click Software, called **DC Lefty**, which automatically swaps the right and left buttons.

Access to the ball for cleaning purposes is annoyingly awkward; five screws have to be removed, two of which are hiding underneath rubber feet. Having said that, it does come with a two-year guarantee, so the manufacturers obviously have faith in the longevity of the unit.



## A smooth but noisy trackball from Marconi

The Marcus Trackerball measures 20 cm by 12 cm and has a slope resulting in the back edge being 7cm high. This means that Marcus lines up nicely on the right-hand side of the ST and appears to be an extension of it. The bottom 10cm is designed for you to rest the palm of your hand on with the ball nicely placed for finger or thumb movement and the three switches in easy reach.

### ROLLING ON

The ball is large, reasonably smooth to roll, but noisy. However, it rolls freely due to its weight

and so you tend to get into a habit of rolling it with your thumb and catching it with your fingers when the cursor gets to the required position. The feel is reassuring and accurate, and it is difficult to get it to skate under normal conditions.

Marconi has implemented the buttons quite cleverly - and they are buttons, not micro-switches, which means that they are heavy duty and have to be pressed firmly. The centre, oval-shaped, button acts as the left button of a mouse while the two outer, round-shaped, buttons each take the place of their right-hand namesake. Consequently Marcus can be used right or left-handed with equal ease.

Marconi states that "regular cleaning is not required", but it is

**"Built to last and accurate to use"**

**NAME: MARCONI MARCUS TRACKERBALL**

**COMPANY: GEC**

**CONTACT: 0522 510500**

**PRICE: £49 EX VAT**

**RELEASE DATE: OUT NOW**

**MIN MEMORY: N/A**

**SMOOTH ROLL** ★★★★★

**SWITCH RESPONSE** ★★★★★

**ACCURACY** ★★★★★

**EASE OF USE** ★★★★★

**VALUE FOR MONEY** ★★★★★

**OVERALL** **83%**

*The Marconi Marcus is a chunky trackball which will certainly stand the test of time.*

dubious as to what this means; any device that is in a dusty environment or has a sweaty hand using it is bound to need cleaning from time to time!

The ball is not removeable without disassembly via four cross-head screws, a process which is fairly easy to carry out. This is certainly a professionally-made trackball whose failure rate would be very low.

**"Easy to use with a positive feel"**

**NAME: ALFA DATA**

**TKB-MT-A**

**COMPANY: GASTEINER**

**CONTACT: 081 365 1151**

**PRICE: £29.95**

**RELEASE DATE: OUT NOW**

**MIN MEMORY: N/A**

**SMOOTH ROLL** ★★★★★

**SWITCH RESPONSE** ★★★★★

**ACCURACY** ★★★★★

**EASE OF USE** ★★★★★

**VALUE FOR MONEY** ★★★★★

**OVERALL** **91%**

**Ergonomic design**

**High quality micro-switches**  
**Locking left switch feature**

### PROS AND CONS

**Rollers awkward to clean**

**Heavy duty manufacture**  
**No skating of cursor on-screen**  
**Immediate right or left hand use**

### PROS AND CONS

**Expensive**

# HT TRACK





# WIN A COMPLETE MIDI KIT!

*Making music with your ST doesn't have to be either difficult or expensive. On page 106 we've just reviewed one of the best low-priced sequencers we've ever seen – Concerto from Microdeal got an ST Review award because of the amount of high-end functions available for only £39.95. And to use MIDI effectively, there can't be a better entry point than Roland's PC 200 GS Master Keyboard – especially when it comes with a Roland CM 300 Sound Module and a Roland CS 10 integrated amplifier and mini speaker system. All this classic kit is worth over £700, but it can be yours for free in this easy-to-enter competition.*



*The Roland PC 200 GS Master Keyboard. A full-size, four octave keyboard from the best manufacturers in the world!*

**M**IDI Monthly is the newest section to be added to ST Review. And within its pages, it gives ST owners a chance to keep up to date with one of the ST's greatest strengths – MIDI. And in recognition of the fact that ST Review is the first magazine to cover MIDI properly, Roland (UK) Ltd. have donated the MIDI hardware on this page to the lucky winner of this month's MIDI Monthly competition.

## THE PRIZES

*The lucky prize winner will receive:*

- A stunning, Roland PC 200 GS Master Keyboard
- A Roland CM 300 multi timbral sound module which holds 317 unique, sampled sounds.
- A Roland CS 10 amplifier with built-in miniature speakers
- A copy of Concerto – Microdeal's amazing ST Review award-winning, music sequencer

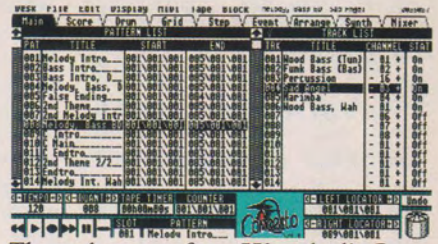
Three runners-up will each receive a copy of Concerto.

### COMPETITION RULES

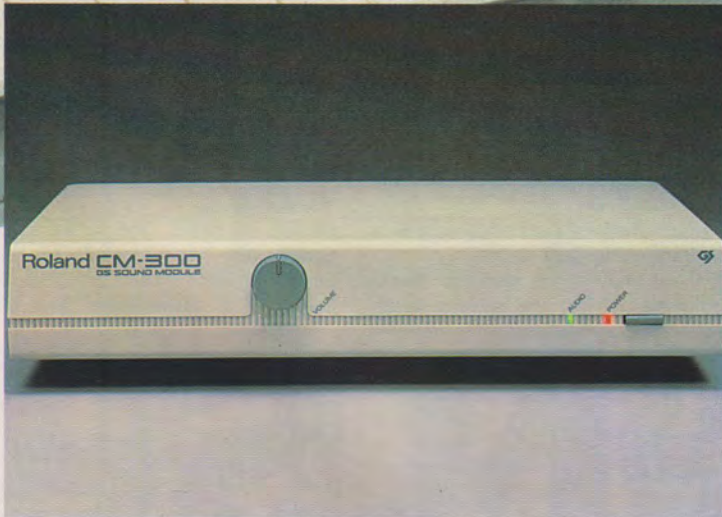
The closing date for this competition is 14th August. Any entries arriving after that date will be ineligible for entry. This competition is not open to any employees of EMAP Images, Roland (UK) Ltd or Microdeal, and the editor's decision is final. No correspondence will be entered into.



# A ROLAND MASTER KEYBOARD AND ALL YOU NEED TO MAKE MUSIC WITH YOUR ST ARE UP FOR GRABS.



The main screen from Microdeal's Concerto; turn to page 106 for the full lowdown.



Roland's amplifier and integrated speakers can plug into almost anything but complements the other prizes on offer!



The heart of any master keyboard is its sound module and Roland's CM 300 has a hearty 317 sampled sounds on offer.

## THE WINNER TAKES IT ALL!

All you have to do to enter the competition is to answer the following questions..

- 1 Which Swedish group, who are the subject of Erasure's latest album, had a hit with a song called *Winner Takes It All*?
- 2 How many keys are there on a Roland PC 200 MkII?
- 3 What musical hardware do you use with your ST?
- 4 How many hours do you spend each week on ST music?
- 5 How do you rate ST Review's MIDI Monthly section (out of 10)?

### Answers:

- 1 .....
- 2 .....
- 3 .....
- 4 .....
- 5 .....

Name.....

Address.....

Postcode.....

Put your replies on the coupon (or a photocopy), and send it to; ST REVIEW, MIDI MONTHLY COMPETITION, 30-32 Farringdon Lane, London EC1R 3AU to arrive here before 14th August.



**With various different choices available, which screen accelerator is the one for you? Ofir Gal examines the options ...**



**S**T owners tend to become very defensive whenever the names PC or Mac are mentioned, fiercely defending their choice of home computer.

However, when no-one else is listening, a fair few of us are highly likely to quietly admit that some screen operations are painfully slow, text scrolling and various graphic routines in particular. The reason for this lies within **TOS**, the ST's operating system, which performs all screen operations, disk access and many other tasks.

All STE, Mega ST and later STFM models are equipped with a Blitter chip which is specifically designed to speed up screen operations such as text display. STs which have the Blitter installed show a marked improvement in display speed, especially with scrolling text and graphics. The Blitter can be easily switched on and off from the desktop which is particularly useful as some programs, and many games, are not Blitter-compatible and are inclined to crash. Although the Blitter considerably improves the situation, the benefits are restricted by the inherent failings of **TOS**, which was written in C.

While this is an efficient and fast computer language, it cannot match the speed that can be achieved from a program written in machine code. This prompted several ingenious programmers to rewrite all of the screen handling routines of **TOS** in assembler instead of C. The difference that

this makes is quite astounding with some screen operations being speeded up by a factor in excess of 10.

The only drawback is that screen accelerators can't usually be used with games software because most games use their own graphics routines which bypass **TOS** altogether.

### QUICK ST 3

**Quick ST 2** has been available as Shareware for some time and has become a favourite with many ST users owing to its low price and regular updates.

As **Quick ST 2** has suffered from incompatibility with many products, it has now been replaced by **Quick ST 3** (currently version 3.05) which offers improved performance and better compatibility but is now available as a commercial product.

**Quick ST 3** is an auto-loading program, which means it has to be placed in the auto folder of the boot disk. Several versions of the program are provided on disk to suit most needs, including compatibility with large monitors, although the program called **Quick STE** may cause a degree of confusion as the "E" stands for "enhanced" and has nothing to do with the Atari STE.

Also featured on this disk are **MonSTER**, a large screen emulator, **Quick Index**, which can measure the performance of an ST, **QST Off** and **QST On** which temporarily switch **Quick ST** off and on, and a customising desk accessory.

This allows the desktop background pattern and system fonts

## WORKING TOGETHER

*Why do clashes exist between programs?*

Programs that are correctly written should happily co-exist, but this is not always the case. This may cause problems when trying to run certain accessories or auto-programs and it is usually difficult to pinpoint which program is to blame.

Incompatibility with screen accelerators may also arise if the main program is using its own screen accelerating routines; a common problem is a "ghost" being left after a dialogue box is closed or when exiting the file selector. For this reason it is impossible to use two screen accelerators at the same time - it is also inadvisable to use screen accelerators with computer games.

to be changed as well as some additional mouse control features.

The manual provided is on 12 A5 pages and covers all the features of **Quick ST** and the additional utilities.

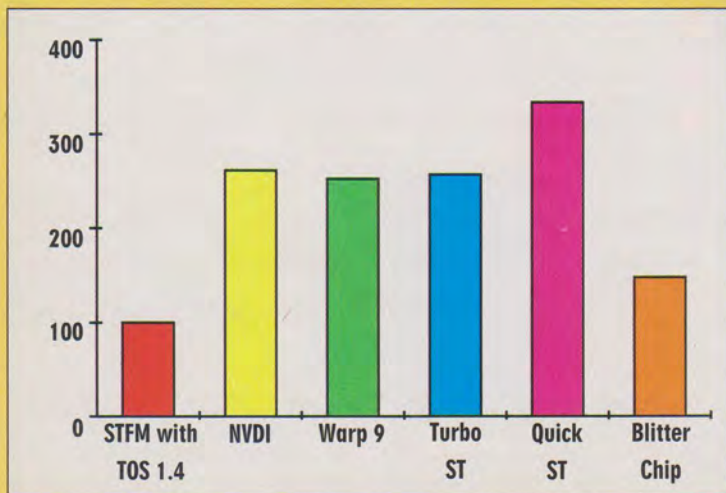
### WARP 9

Darek Mihocka, the creator of **Quick ST** has moved on to MicroSoft where he is busy developing the **Gemulator**, an ST

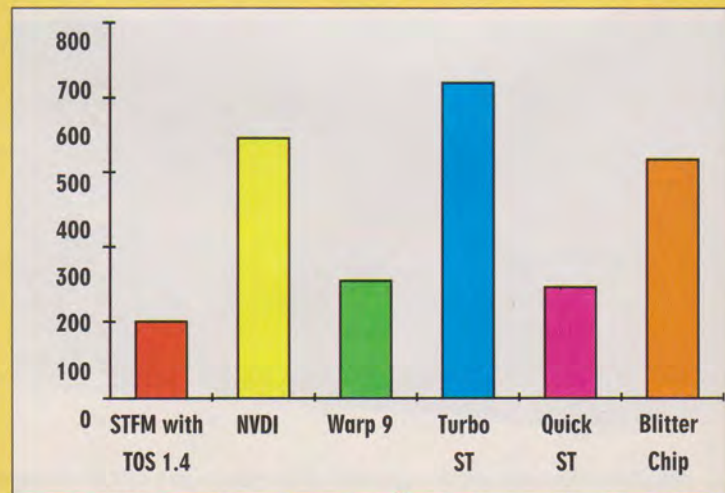
## BLITTING

Block Image Transfer, or Blitting, is a technique that moves blocks of memory around quickly. The Blitter chip uses this method to speed up text formatting, text scrolling and image movement on-screen. If an ST has a Blitter chip, this will be indicated under the Options menu of the desktop; if not, a blitter chip can be installed on an ST running **TOS 1.2** or later.

# SCREEN SP



The Dialogue Box graph shows the speed with which dialogue boxes are re-drawn using the different accelerators. As you can see, Quick ST scores well in this category.



The VDI Text bar chart gives an indication of how word processors benefit from having the various accelerators installed. As you can see, Turbo ST is ahead by a margin.



emulator for the PC. CodeHead Technologies have since taken over **Quick ST** and have improved its compatibility. Many new features have been added and the product has been renamed **Warp 9** (currently version 3.6).

Likewise, the manual has been completely re-written and it is now a hefty 45 pages long. **Warp 9**, like **Quick ST**, is placed in the auto-folder and is supplied with a control accessory enabling **Warp 9** to be turned on and off as well as allowing for alternative system fonts and desktop background pictures.

There are a large number of fonts supplied on the disk. Other useful features are the excellent shareware programs **Pinhead 2.1**, which speeds up the loading times of most programs, and **Little Green Selector 1.8**, which is a replacement file selector. **Warp 9** also includes a user-configurable

mouse accelerator and other mouse enhancing features.

**TURBO ST 1.84**

**Turbo ST** is yet another American product, and it is one that many ST users have opted for because of its high speed and compatibility with most programs.

Six versions of **Turbo ST** are supplied on disk; monochrome, colour and large screen versions, each as an auto program and a desk accessory.

The accessory versions of **Turbo ST** can be switched on and off at any time and the disk includes a text file, the function of which is to allow programmers to control Turbo ST from inside their programs.

Unlike the other products covered, no additional features are offered and the 23-page manual concentrates rather heavily on statistics showing the perfor-

mance of **Turbo ST** under different circumstances.

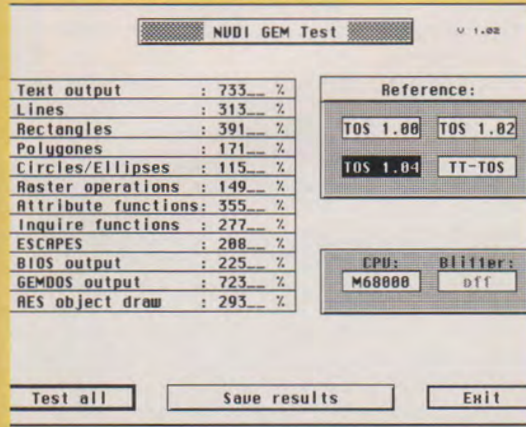
**NVDI 2.03**

**NVDI** from Bela, a German company, is quite a different creature. Unlike other screen accelerators, it replaces many **TOS** functions including the terribly slow **GDOS** (soon to be replaced by Atari with **FMSGDOS**). Similar to **Warp 9** and **Quick ST**, it allows the loading of alternative screen fonts and comes with a desk accessory and a customising program. The desk accessory is also supplied as a .CPX extension for use with the new Atari TT Control Panel. **NVDI** must be installed as an auto program and includes a mouse accelerator which can be switched off using the customising utilities. An installation program is provided which will install **NVDI** on the boot disk and, if needed, will also create a **GDOS**

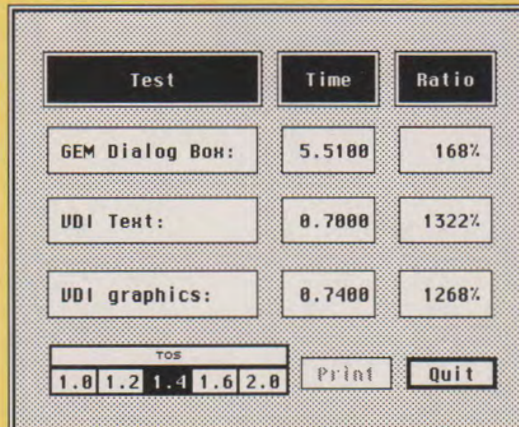
ASSIGN.SYS file. The 16-page manual covers all features and includes technical details for programmers. **GEM Test** is also included which, like **Quick Index**, allows you to test the performance of **NVDI**.

**CARRYING OUT TESTS**

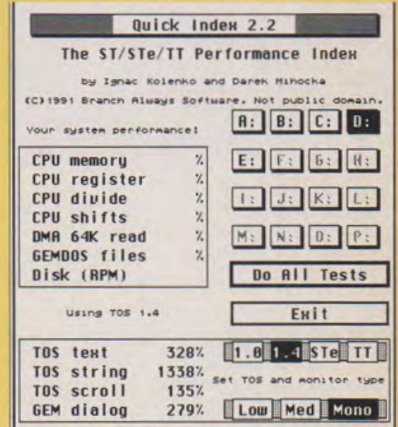
Using the test programs that manufacturers supply, it is possible to assess the performance of a screen accelerator. Test results can, however, be misleading as the outcomes obtained depend on which screen function is being tested and whether that function is used by your main programs. For example, **Warp 9** does very little to speed up the display of outlined text while **NVDI** performs this task with great haste. However, outlined text is rarely used and this applies to many other functions that test programs evaluate. The only function that most



The NVDI Gem Test examines various obscure functions as well as some more of the obvious ones.

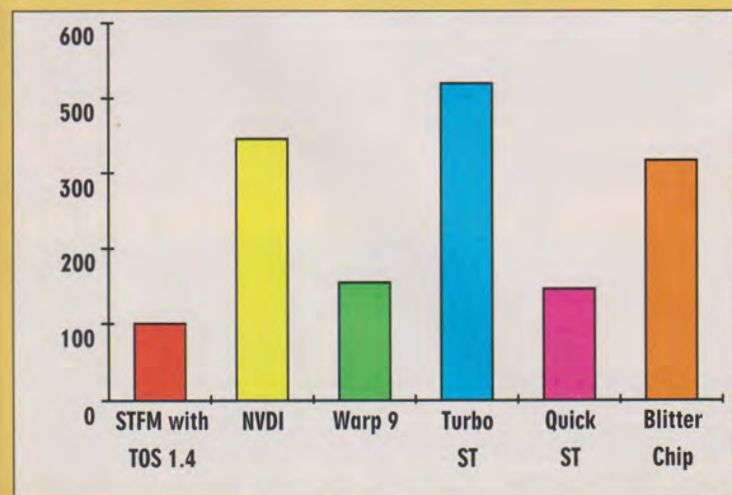


A custom set of tests which aim to show performance under typical working conditions.

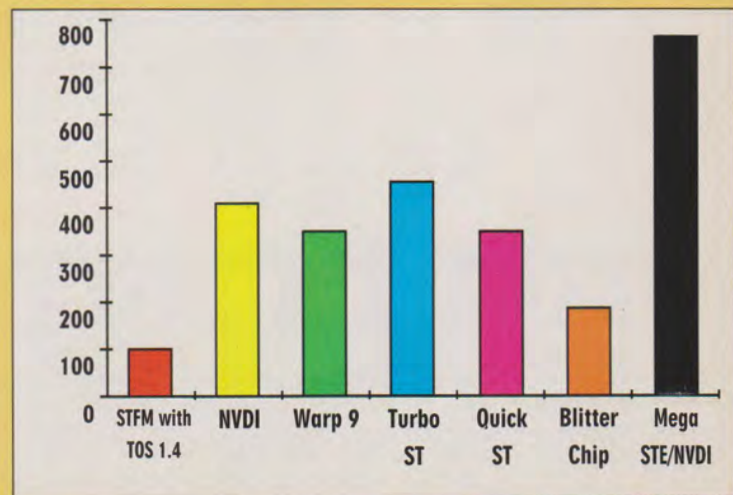


Quick Index mainly tests TOS functions which are rarely used in GEM programs.

# EED KINGS

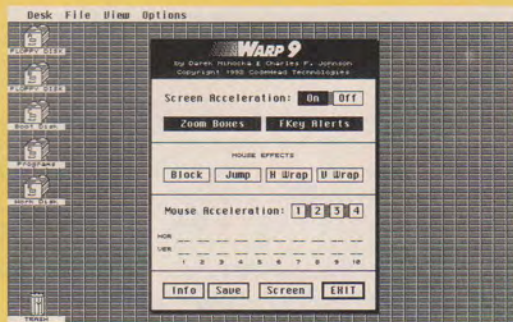


The VDI Graphics bar chart reflects the performance of the software accelerators with the on-screen drawing of various shapes. Turbo ST heads the group again, although the ST's Blitter chip shows a significant gain.

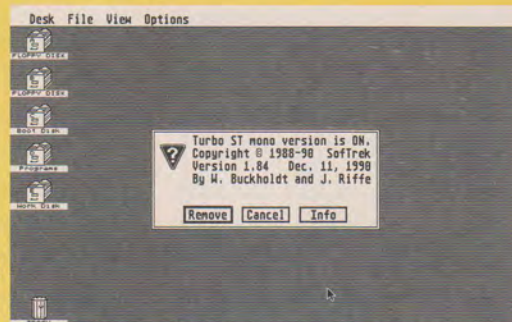


All tests taken into account, the Overall Performance graph gives results weighted towards the more useful test functions. For raw speed, Turbo ST comes out on top - but compare it with the Mega STE column on the far right, which contains a Blitter.





The Warp 9 control box lets you set-up your mouse to do fancy tricks.



The dialogue box is used to turn Turbo ST on or off.

## SPOT THE DIFFERENCE

### What's the difference between Auto programs and Desk Accessories?

Auto programs must be placed in the Auto folder on the boot disk and are automatically loaded at boot-up. There is no limit on the number of auto programs although the order in which they are loaded can sometimes be important as can the memory that they require. Auto programs are usually inaccessible; they simply load and remain resident in the background.

While desk accessories are programs which are also loaded at boot-up, access to any settings is usually available from other programs via the Desk menu. The Atari Control Panel is an example of a desk accessory; this allows the user to configure certain elements of the system such as the speed of mouse click, screen colours and the system time. A maximum of six desk accessories can be present.

GEM programs share is the dialogue box, and all four accelerators scored well in this department, but not all dialogue boxes are the same and **NVDI** performs slightly better on those that incorporate icons and graphics. The results of the various tests are so conflicting that an independent benchmark (test) program has been written to test the most common screen operations, namely: standard VDI (Virtual Device Interface) text as used by programs like **First Word Plus**, the drawing of rectangles and circles as used by art packages and a complex dialogue box incorporating text, icons and a fill pattern.

#### TEST RESULTS

The screen accelerators were tested using three different benchmarking programs; the bar charts show how they performed in comparison with Atari's own Blitter chip.

**Turbo ST** is certainly better at displaying text but not as efficient with dialogue box drawing. **NVDI** and **Turbo ST** are much faster than **Warp 9** and **Quick ST** when it

comes to displaying graphics – this may be important if you use art packages. **NVDI** and **Turbo ST** make use of the Blitter chip to further increase performance although this is not reflected in the graphs. In fact, **Warp 9** and **Quick ST** show a striking similarity in performance which is not surprising as **Warp 9** is basically a later and more compatible version of the latter.

The Blitter chip is generally not as effective as the software accelerators except where graphics are concerned where it comes into its own.

Also of interest is the much improved performance of the Blitter-equipped Mega STE running at 16 MHz and "super-charged" with **NVDI**. It is possible to modify standard, 8 MHz STs to run at 16 MHz and above (which will speed up non-screen operations) by using accelerator cards such as **ADSpeed** or **Turbo 20/20**.

Another option is to replace **TOS** with alternative operating systems such as **EOS** or **KAOS**, which will again improve many **TOS** functions.

#### COMPATIBILITY

All four programs perform well and an important factor when deciding which one to buy is its compatibility with your principal applications. No program of this nature is going to be compatible with all applications – in fact, there are text files provided with **Warp 9** and **NVDI** which list all known incompatibilities with these programs.

Because of its nature, **Calligrapher** is a good example for a compatibility test – **Quick ST** and **Turbo ST** cause immediate crashes but **Warp 9** works fine, a testament to the fact that this has been extensively upgraded.

Of particular interest is the way that the various programs use the Blitter chip. **Turbo ST** and **NVDI** are significantly improved while no difference is made to the working of either **Warp 9** or **Quick ST**. **Quick ST** becomes rather slow if many desk accessories are in use and tests on the new Mega STE show that **Turbo ST** does not always install itself properly on boot-up,

rendering it ineffective. Memory requirement of each program is similar at around 60 Kilobytes.

#### CONCLUSION

If cost is no object, **NVDI** is the obvious choice, offering a very reliable and user-configurable system. Although slightly slower than **Turbo ST** in some routines, it offers better compatibility with other programs and extra features such as a full replacement for **GDOS**, a mouse accelerator and a sharper system font. **NVDI** has some extra functions and the manual contains useful information; it shows a high performance in all screen functions.

Taking price into consideration, **Quick ST** is on its own. However, while its performance is good, there have been a fair number of incompatibility reports and neither graphics nor desktop display are improved to any great extent. Bearing in mind the situation with **Warp 9**, it is also unclear whether **Quick ST** will be further updated and supported in the future.

## BENCHMARKS

**Benchmarking programs can be useful when trying to assess the effectiveness of operation-enhancing hardware and software.**

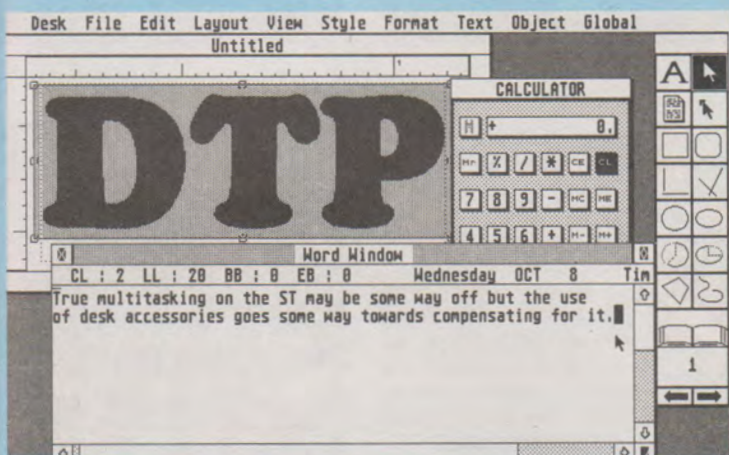
All benchmarks work by simply repeating selected operations and measuring the time a computer takes to perform these operations. The results are then compared with the performance of a standard ST. Using benchmarks can sometimes produce misleading results; **Quick Index**, for example, measures functions such as **TOS** string display, which is rarely used, and does not test for functions such as bold or italic text. **GEM Test**, on the other hand tests the display of double-sized and outlined text, functions which are similarly rarely used. Normally, benchmarks cannot test menu drawing and desktop operations.

## BUYERS GUIDE How the accelerators compare

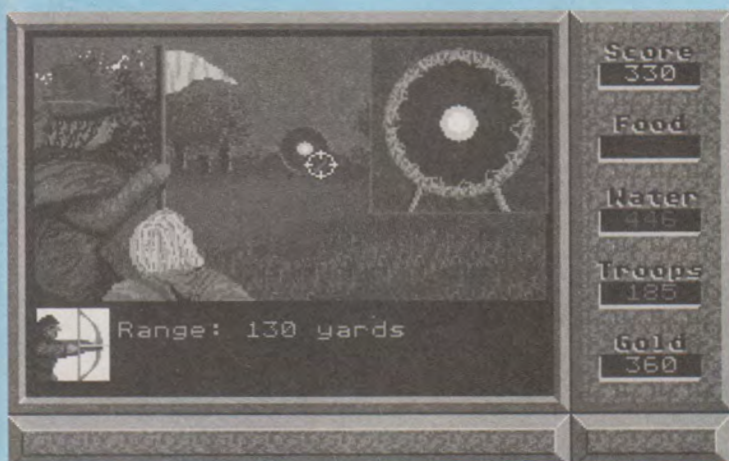
	Version	Price	Weighted Overall %	Mouse Accelerator	Switch On/off	Replacement System Font	Desktop Pattern/Picture	GDOS replacement	Improved Performance With Blitter	Overall Score	Contact
<b>NVDI</b>	2.03	£39.95	407	★	—	★	—	★	★	88%	0753 832212
<b>WARP 9</b>	3.60	£29.95	347	★	★	★	★	—	—	80%	0753 832212
<b>TURBO ST</b>	1.84	£34.95	454	—	★	—	—	—	★	85%	0525 718181
<b>QUICK ST 3</b>	3.05	£12.95	349	★	★	★	★	—	—	81%	0602 410141



# ST BUYER



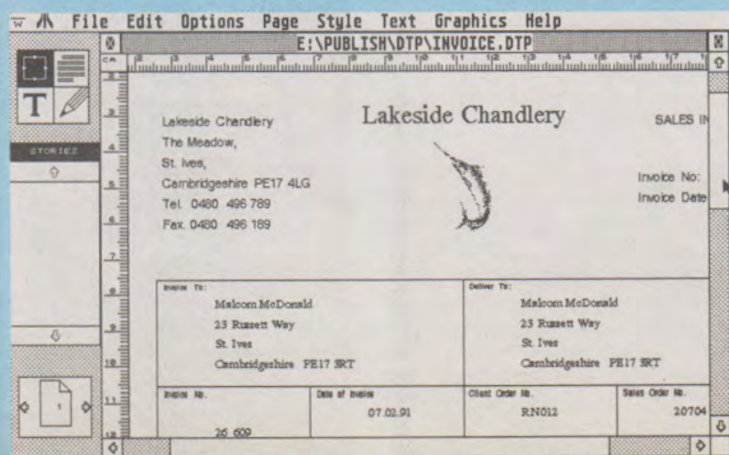
Welcome to the blistering blues where we show you how to really get to grips with your ST. There are 32 pulsating pages, all of which are packed with information, tests, tips and in-depth tutorials to put you out in front in terms of getting the most from your machine.



This month, we continue our series on Powering Up Your ST. Part three looks at alternative file selectors that give you a chance to organise your files and move them quickly and easily.



On the subject of alternative programs, why not save yourself a few pounds with our look at Public Domain programs in PD Zone starting on page 128. This covers screen grabbers and picture converters which will be a boon to anyone using graphics or who needs to import pictures into their Word Processor or DTP packages. Indeed, if DTP is your thing, then turn to page 138 to uncover our Timeworks 2 tutorial.



And still there's more with the comms pages, readers' letters, your technical questions answered with Ask the Experts, a chance to Learn the Lingo, and finally the opportunity to have your say in the Opinion page.

You'll never wash away the blues...





# FLEXIBLE

*In the third part of our unique productivity series, Maurice Collins looks at Desk Accessories and how they can make life easier*

## Desk

Desktop Info...

Diamond Format  
Free RAM size  
Abbrev. ST  
Re-Sync  
Diamond Find  
It's the COPS!

## Desk

Desktop Info...

Turbo ST  
Satellite  
MultiDesk Demo  
DC RightCall v1.0  
CALCULATOR  
Dave's Formatter

## Desk

Desktop Info...

The Chameleon™  
QST Customizer...  
DarkLord  
vclock v1.4  
About MegaSnap™  
Harddisk

The GEM desktop is so easy to use, with its point and click approach, that it's very easy to overlook one of its most powerful features – the desk accessories (DAs). These are probably the most under-used element of the ST's working environment. So what are they? And how do they work?

Essentially, DAs are a special kind of program. Normal GEM or TOS programs are run by double clicking on them. They then carry out whatever task or tasks they are designed to do until you decide to quit. When you do, the memory they used is freed for use by the next program.

Unlike GEM or TOS programs, DAs can't normally be loaded by double-clicking – instead, they have to be installed at boot time by the operating system.

The major advantage of this type of program is that, being memory resident, they are available at all times, even when you are running other programs or applications such as word processors, DTP or paint packages. When DAs are called, they are run from the ST's RAM and not loaded from disk, so they can be accessed very quickly. This offers an element of multitasking: it enables users to switch almost instantly from an application such as a word processor to, say, a calculator accessory, carry out a quick calculation, and then switch back again.

## TASKS

There are hundreds of different DAs available, particularly in the public domain, and the list of tasks that they can carry out is virtually endless. The most common use of a DA is to provide a function that wouldn't normally be available from within a program.

For example, you may want to format some disks for storage while you are running your music sequencer or sampler, or keep an eye on free RAM while you are in the middle of writing or testing a program. There are specific DAs that let you carry out these tasks without having to quit the program and then reload.

Some programs, such as *Didot Lineart*, can be installed as DAs, offering exciting multitasking possibilities when running alongside DTP programs or word processors.

There are also some accessories available that can perform system modifications – such as accelerating mouse movements or speeding up the screen display. The advantage over AUTO folder programs is that they can be switched on and off at will.

## INSTALLING DAS

To load a desk accessory, it must be in the root directory (not in a folder) of the boot disk when the ST is switched on or reset. It must also have an .ACC extender so that it is recognised as an accessory by the operating system.

When the ST boots, the operating system looks for a folder named AUTO, and it then executes all the programs inside this folder, in the order in which they were placed inside. Next, the operating system looks for any programs with an .ACC extender and loads them into memory, placing their names in the free accessory slots.

DAs are always selected in the same way: you move the mouse pointer to the GEM menu bar and place it over the menu on the extreme left. On the GEM desktop this left-hand menu is called "Desk", but in many programs it is simply the Atari logo, the sign of the Fuji. All the available DAs will be listed in the drop-down menu. To load, click the left mouse button and the chosen accessory will run.

If there are more than six accessories in the root directory, however, only the first six will be loaded. This is a limitation of the ST's operating system and the only way to solve it is by using specially written software, such as the PD utility *DC STUFFER* or the commercial program, *MultiDesk*.

The main headache when using DAs is, of course, memory. One of the benefits of upgrading to two or four Megabytes of RAM is that you can install the accessories, whatever their size, without running out of memory. With one Megabyte of



## PRG OR ACC?

*Just because a program has an .ACC extender, it doesn't mean it will run as an accessory*

Accessories are programmed in a slightly different way to normal GEM programs although some have associated resource (.RSC) files just as many GEM programs do. All GEM programs, including accessories, are initialised via the AES call, "APPL\_INIT" (AES, Application Environment Services, is part of GEM). In the case of a DA, however, it then installs itself in the accessory slot by passing its name to the operating system by means of the "MENU\_REGISTER" call. It is then assigned a unique ID number and enters a continuous loop waiting to be called by an "AC\_OPEN" call from the AES.

Some programs, however, have been written in a way that allows them to have either .PRG or .ACC extensions and to work as programs or desk accessories. Examples include *Fastcopy III* and *Fastcopy Pro*, *MultiDesk*, *Maxifile* and *Didot Lineart*. The advantage of this is that if memory is tight it may not be possible to keep a program in the accessory slot all the time – it is far better to run it as a program from the desktop when it is needed.



# FRIENDS

RAM, it is quite possible to install a good range of smaller accessories and still run most applications, but with a 520 ST/STE, you will undoubtedly have to be careful.

When looking at memory requirements, it is important to realise that an accessory's physical size is not the same as the amount of RAM it uses. Many accessories will reserve their own buffer areas or set aside extra space for data. The popular screen grabbing utility, **SNAPSHOT.ACC**, for example, takes up only seven Kilobytes of disk space but well over 40 Kilobytes in memory. A good rule of thumb is to add 50 per cent again, plus 32 Kilobytes if the accessory has anything to do with screenshots or graphics.

## USING DAS

Many accessories such as mouse accelerators are either on or off, a state which can be readily altered from the "Desk" menu. However, turning an accessory "off" does not remove it from memory. To free the RAM, the ST has to be rebooted without the accessory present. The easiest way to disable an accessory is to rename it by altering the extension to anything except .ACC. The most common alternative is .ACX, the traditional extender of a disabled accessory.

DAs can be used in any properly written GEM program, with a menu bar along the top. However, some programs such as **Signum II** refuse to allow the user access to accessories (they are "greyed out" in the menu). This is due to a lack of memory - the application itself has stolen all free RAM and there is none left for other programs. This can be a little annoying when you've got a four Megabyte machine and your word processor reserves over three Megabytes of memory!

Other programs, such as **Protext**, make it awkward because they're not true GEM programs. This is due to the need to improve on GEM for faster text scrolling and so on. Still, inconvenient access is better than no access at all.

You won't be able to use DAs with programs with .TOS and .TTP

extenders. These are non-GEM programs which bypass the GEM part of the operating system entirely. Happily, very few major applications are of this type.

Compatibility can be another problem when using DAs. Regardless of how stable an accessory might appear, when it is installed alongside others it might well prove incompatible.

There are hundreds of combinations of accessories and programs that don't work. They are impossible to document as the various **TOS** versions play a part in it too. Music programs such as sequencers are notoriously difficult to get on with, but there are often clashes when accessories do similar jobs or affect the same parts of the ST's operating system.

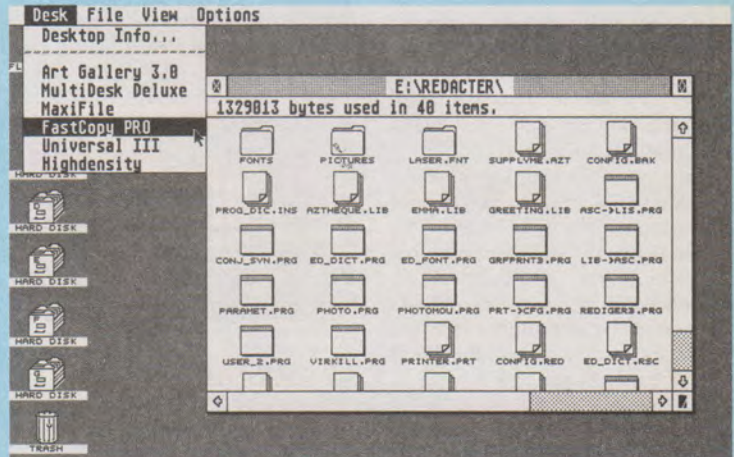
On the plus side, however, there are several utilities to help you get the best from your accessories. In the first article in the series, we looked at programs such as **XBoot** and **Superboot** which let you choose which DAs to load at boot time. If you use several different sets of accessories for different purposes, utilities such as these are indispensable.

If you like things tidy, there is also an AUTO folder program called **ACC.FOLD.PRG** which lets you keep all your accessories in a folder called **ACCS** instead of cluttering up the root directory.

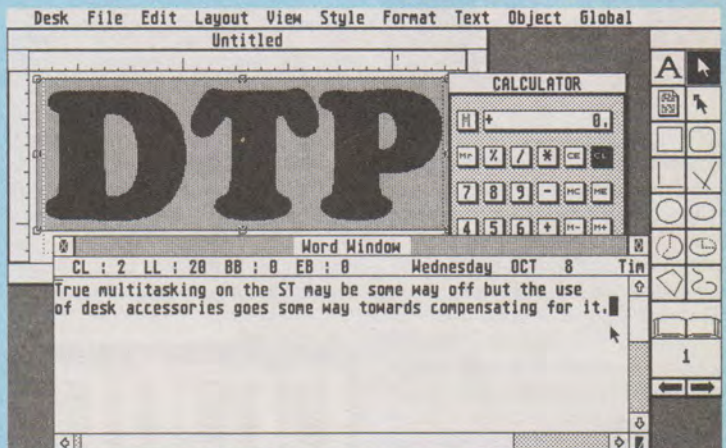
## ON THE COVER

If you still need convincing of how useful Desk Accessories are, just take a look at the main disk on this month's cover which features four great desk accessories for you.

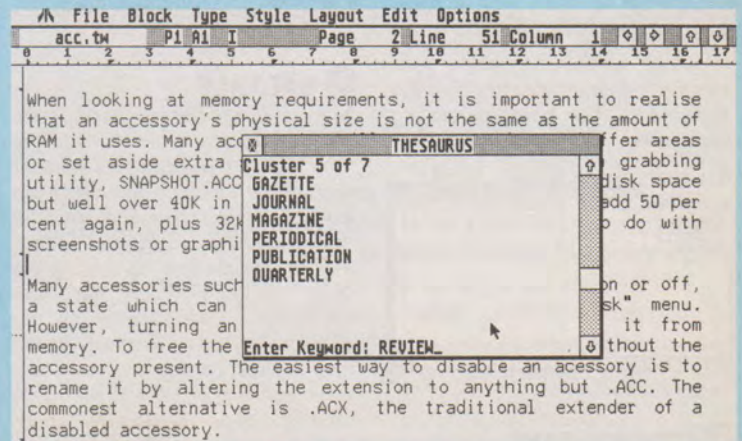
**VClock** is the best on-screen clock ever while **Siren**, commonly known as "It's The Cops", presents a novel way of being shown when each hour has passed. **Trhodem** is a demo version of **Turbo ST**, the fastest screen accelerator in the business, and **Abbreviator ST** automatically changes your word processor comments into their full glory.



Six DAs installed in the GEM desktop. The same six will still be available if you now run a word processor or other GEM program.



Two DAs in use alongside **Pagestream** - the nearest yet to multitasking.



**That's Write** has no built-in thesaurus, but installing one as a desk accessory certainly improves matters.



# TEN OF THE BEST

So what are the best accessories available?  
Here's what we think...

## 1 MULTIDESK

There are several methods of getting around the ST's restriction on the number of permitted DAs. The most well-known is **MultiDesk**, the tried and tested accessory loader from Codehead. It is itself an accessory which takes up one of the six GEM slots and lets you load up to 32 more DAs, memory permitting. These extra accessories are called up from within **MultiDesk**. It is fully configurable and setups can be saved for later use, making it much easier to load different sets of DAs for different purposes.

The Deluxe version will even let you load and unload non-resident accessories known as MDXs even when running major applications, something you could never do before. It will also support up to 96 DAs at once although more are possible by installing **MultiDesk** inside itself several times.



## 2 CHAMELEON

The other answer to the problem of having to reboot your system every time you need to change or load more accessories is a tiny PD accessory called **Chameleon**. It "reserves" an accessory slot for programs which you can then fill or empty as required. It won't work from within all applications, but it is a very worthwhile piece of software that frees you from the need to reboot when you want to change accessories. Once accessories are loaded, they can easily be discarded and the only sign that **Chameleon** is at work is the right-pointing arrow in the desk accessory menu indicating that the relevant DA has been loaded via **Chameleon**.



## 3 CONTROL PANEL

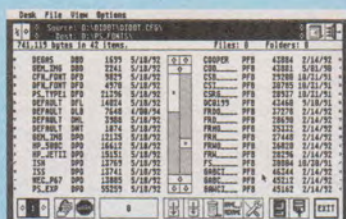
The ST's control panel accessory is a PD program given away with

every ST. There are quite a few alternatives around, but the original Atari version is still widely used and deservedly so. It enables you to control everything from the colour of the desktop to the speed at which double clicks are registered, not to mention the RS232 and printer port parameters. All parameters can be saved in a **DESKTOP.INF** file from the desktop. The date and time can also be set from the control panel.



## 4 MAXIFILE

Codehead's **Maxifile** is, without doubt, one of the most powerful accessories available on the ST. It isn't so much an accessory as a replacement filing system or desktop! Calling **Maxifile** reveals a semi-graphical menu which makes copying, moving and general file management very much easier, but it also offers disk formatting and copying (including full MS-DOS compatibility), search facilities and disk information. One of the best features is the level of configurability - there are no less than 15 options for warning dialogues and a fully configurable printer driver.



## 5 RAT TRAP

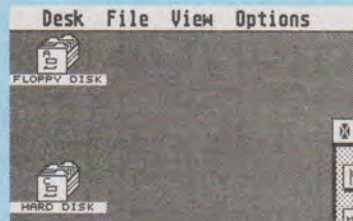
Mac users will be familiar with this one. **Rat Trap** is a small PD utility which dates back to the earliest days of the ST when converts from the Mac couldn't stand the way the menus would drop down whenever the mouse strayed outside the GEM window. With **Rat Trap** installed, it takes a click on the menu bar to activate a menu. It still has its uses, particularly in art and DTP packages, where dropping menus can get in the way, especially when you need to draw lines or objects very close to the menu bar. It can be turned on (half) or off

as required but selecting "full" is decidedly dodgy - you can't access the menus at all!



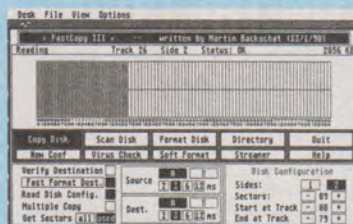
## 6 CALCULAT

We all need to do simple calculations now and again, whether it's working out how much will be left in the bank account or converting pounds into pesetas in preparation for the annual migration to warmer climes. There are several around, but my favourite is **CALCULAT**; it combines simplicity with a clear display and as an accessory, it's always there whether I'm desktop publishing, writing a letter or doing my accounts. It can carry out most day to day tasks as well as storing numbers, and its small size enables it to be positioned almost anywhere on the desktop.



## 7 FASTCOPY

As copiers go, both **Fastcopy III** and **Fastcopy Pro** are fast, flexible and easy to use. **Fastcopy III** is available from all good PD libraries, but if you want to go one better, **Fastcopy Pro** takes some beating. Both versions can be run as accessories or programs, depending on the situation or the amount of RAM available. The **Pro** version features limited hard disk back-up and support for high density drives, as well as mouse acceleration and a number of fully configurable options.



## 8 ART GALLERY

If you're into art and graphics, the chances are that you have a large collection of clip art, quite possibly in **Degas**, **NEO** or **Tiny** format. It can be tedious trying to remember which one contains that little symbol you know is there somewhere. With an accessory like **Art Gallery** (another one from Codehead) you

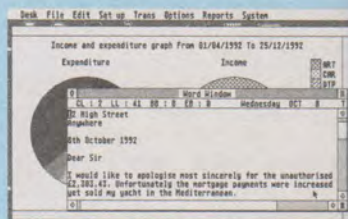
can view your graphics files from within DTP, art or even word processing applications. **Art Gallery** can also be run from the desktop as a program or installed as an application for viewing graphics files.



## 9 NEWWORD

Another interesting PD accessory is **Newword**, a fully-fledged word processor that can be called up at any time. You could be doing your accounts and realise that you need to write a quick letter to your bank manager - a quick click on **Newword** is all it takes. It comes with online help and some extensive documentation.

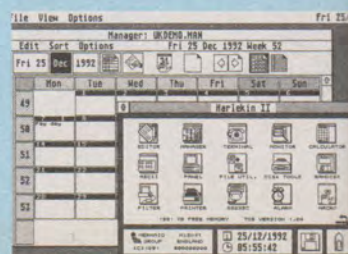
It has full text word wrap and plenty of file management and editing commands. It will print to standard Epson compatible or ASCII printers and is well worth investigating for those whose need for word crunching is limited to the odd letter.



## 10 HARLEKIN 2

No top 10 list would be complete without a mention of **Harlekin**. This renowned accessory does it all, from text editing to time management, from disk formatting to communications. The new version, **Harlekin 2**, is even better, with more built-in utilities and features than virtually any other single piece of software. It also takes up less memory than the original, useful for those of you with less than one Megabyte of RAM.

It is largely icon-driven, in keeping with the ST's graphical environment, and is compatible with most applications - a welcome improvement on the original.

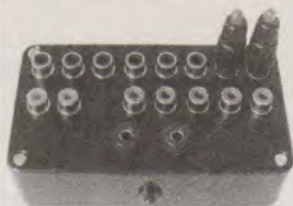




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# P D Z O N E

## OZONE

GOODMAN ENTERPRISES

● DISK NO: GD1425 ●  
£2.75 ● MEMORY 0.5MB ●  
SHAREWARE

**IN BRIEF:** *Ozone* is a platforms and ladders game in the traditional mould. As usual with this type of game, you use the joystick to guide your character around the screen, bouncing from one platform to another.

You can either dodge the nasties or shoot them – the choice is yours, but it's important to remember that you're playing against the clock.

You can pick up and use objects, pull levers and go through doors leading to other parts of the level. Your aim is to reach the exit door before your time runs out. Assuming that you manage to achieve this, you are awarded with a bonus which is based on

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the time remaining, before you progress to the next level. There are 13 levels in all and each one is as captivating as the last.

**ST REVIEW COMMENT:** "*Ozone* is a delightful game with superb graphics and good sound. Challenging, addictive and good fun for the whole family."



*Ozone is an addictive platforms and ladders romp, featuring good graphics and sound.*

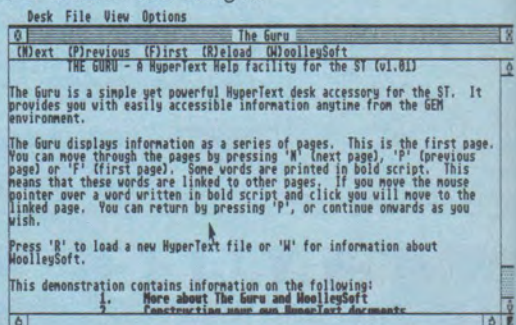
## THE GURU

CALEDONIA PDL ● DISK NO: AU-0154 ● £2.50 ● MEMORY 0.5MB ● SHAREWARE

**IN BRIEF:** *The Guru* is a hypertext program – a cross-referenced, linked text system. You can read the current page, then move back and forth as you would with a book, although its greatest strength lies in its ability to cross link. Simply click the words in bold and you will be taken to the appropriate page to read the linked text. You may continue paging from there or return to the position where you made the link.

**ST REVIEW COMMENT:** "An excellent program which can be put to a number of uses. It would be invaluable for educational use if someone were to write tutorials or revision aids using it."

★ ★ ★ ★



*Guru is an ACC which can be accessed from within any GEM based program. documents.*

## ESCAPADE

NEW AGE PDL ● DISK NO:  
BUGAM 102 ● £2.95 ● 0.5MB  
● LICENCEWARE

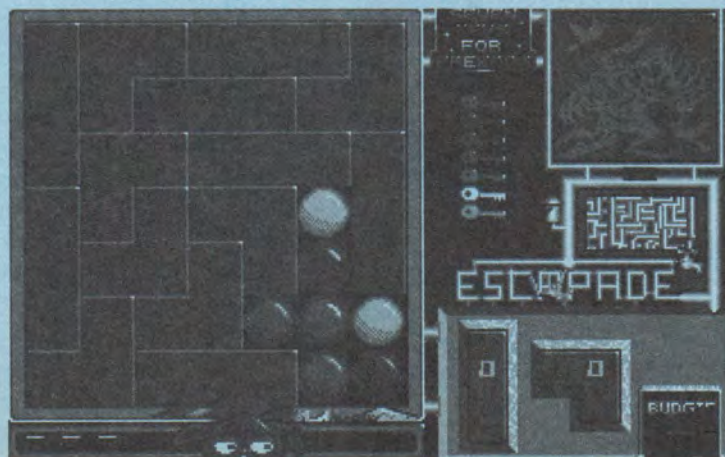
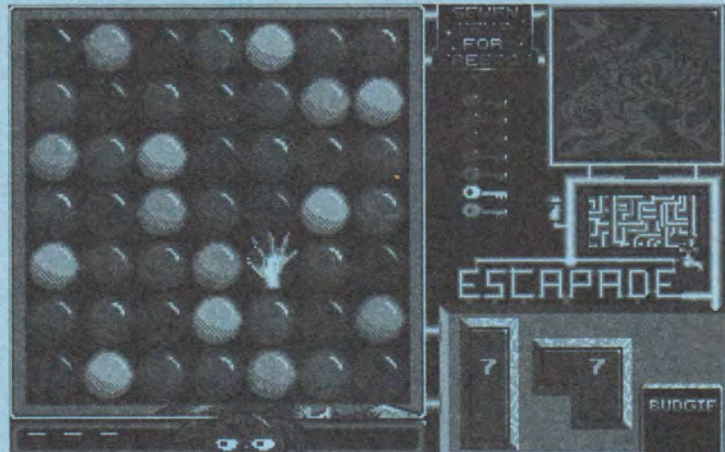
**IN BRIEF:** *Escapade* is set in the second medieval age, in the far distant future. The latest form of torture involves imprisonment at the top of a tower which has two doors. The unlocked one leads directly to hell and the other is locked by an electronic puzzle device.

You are the latest victim of this torture, and you must decipher the puzzle to open the door. You are given no food or water, so solving the puzzle is a matter of life or death! What is beyond the door, no-one knows. This one's a real mind boggler if ever I saw one!

**ST REVIEW COMMENT:** "This is the most original game to appear in a long time. You get plenty of background on the plot but are given no hints as to how you begin to tackle the puzzle."

★ ★ ★

*Escapade: clicking on different beads has different effects, but you have to choose which order to select them in.*



## TOP TEN

1

DC FREEWARE ● GOODMAN ENTERPRISES ● DISK NO: GD1164 ● £2.75 ● MEMORY 0.5MB ● PUBLIC DOMAIN

A total of 30 small but useful utility programs from Double Click Software. They allow passing parameters to a GEM program, making a GEM window active by moving the mouse across it, rescuing ASCII text from corrupt files, magnifying the area around the mouse or playing samples in the background on an STE.

2

WORD RACE ● CALEDONIA PDL ● DISK NO: SES-7 ● £2.95 ● MEMORY 0.5MB ● LICENCEWARE

One for the kids. Choose from eight different subjects, then enter the race. You run against the computer and progress with each correct letter guessed. Continue until you guess the whole word and win that lap. After five laps you go back to



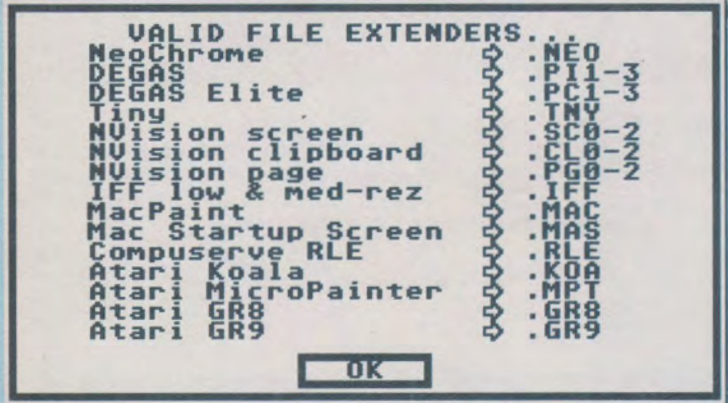




PD ZONE

# PICTURE THIS

Do you want to use your ST for graphics, but don't want to spend a fortune on graphic utilities? No problem! The Public Domain should cater for all your needs. . .

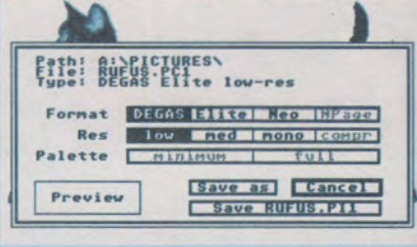


The Picture Convert & Display Disk converts to and from a whole host of formats.

## PICTURE CONVERT & DISPLAY DISK

GOODMAN ENTERPRISES • DISK NO: GD253 • £2.75 • MEMORY 0.5MB • PUBLIC DOMAIN & SHAREWARE

**IN BRIEF:** This is a disk full of picture conversion programs. Using separate programs, you can convert to and from Degas, Neo, GIF, Colr, SPC, SPU, IFF, Koala, Print Master and Print Shop. It's a pity that no-one has written a program to convert between all these formats, but this disk is the next best thing. Each program converts between two formats, but by using a combination of programs, you can convert to or from almost any of the above. For example, to convert from GIF to Degas, you would convert from GIF to SPC, SPC to SPU, then SPU to Degas. It sounds long-winded, but it's invaluable to graphic artists!



**ST REVIEW COMMENT:** "Converts between most ST picture formats and a few 'foreign' ones too. The disk also includes viewer programs for most file types." ★★★★★

## ULTISNAP

FLOPPYSHOP • DISK NO: UTL.3094 • £2.50  
 • MEMORY 0.5MB • NOT STE • PUBLIC DOMAIN  
**IN BRIEF:** *Ultisnap* is a snapshot program with a difference. Instead of attaching itself to the keyboard buffer and being activated by a key combination, it hooks itself onto the screen memory buffer and is activated by the reset button. Simply put *Ultisnap* into the Auto folder and reset your machine. The program will install itself in memory and exit to the

Desktop. Now run the program which has the pictures you want to grab (resetting if necessary). When the required picture is displayed on screen, swap back to your *Ultisnap* disk and press reset. The program will find the picture in memory and allow you to save it back to disk.

**ST REVIEW COMMENT:** "It sounds like a lot of hassle but it seems to work with everything and it's actually quite simple to use. Even boot disks can have their graphics snapped." ★★★★★

Thrax's Ultimate Screen Saver!!  
 Version 1.1  
 Degas file name?

*Ultisnap* prompts you for a filename if it finds a screen in its buffer when you run it.

Thrax's Ultimate Screen Saver!!  
 Version 1.0  
 © Martin Packer 1989  
 Install resident portion at:  
 1 - 520ST physical top of memory  
 2 - Actual physical top of memory

*Ultisnap* gives you two options for installation. The 520 option allows some erratic programs to run.

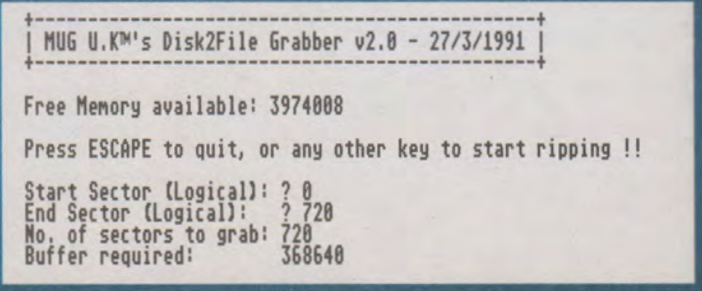
## DISK GRABBER

FLOPPYSHOP • DISK NO: UTL.335 • £2.50 • MEMORY 0.5MB • PUBLIC DOMAIN

**IN BRIEF:** This program is designed to let you search whole disks for graphic and sound data. The program asks you to enter the start and end sectors to grab and loads these into memory. If you have a 0.5MB machine, you will need to grab a double-sided disk in two chunks. Once in memory,

the contents of the disk (or the specified sectors) are saved out as a file onto a blank disk. You can then use the Crack File option in Crackart (see below) or use MONST if you know what you are doing, to search for the graphics you want. *Disk Grabber* does what it sets out to do, but it's not really suitable for the novice user.

**ST REVIEW COMMENT:** "This program is unique in the sense that it captures the entire contents of a disk and saves them to a file. It can even be used on boot disks with moderate success." ★★★★★



The menu screen isn't much to look at, but it performs well.



## PICTURE HUNTER

L.A.P.D. ● DISK NO: U.42 ● £1.50+50P P&P ● MEMORY 0.5MB ● SHAREWARE

**IN BRIEF:** *Picture Hunter* requires a long-winded set-up procedure, but it's well documented. Assuming that you have completed the installation procedure, select the appropriate menu option. These allow you to load from the Desktop, from Auto or from boot. When the screen you want appears, press the reset button. Assuming all has gone well, you will see a rather corrupted looking screen. Now you can scroll through memory until you find what looks like your grabbed picture. Use the arrow keys to line it up on screen, swap over to your *Picture Hunter* disk and press Space. You are now given the option to save the picture to disk.

**ST REVIEW COMMENT:** "*Picture Hunter* is fiddly to set up and only runs in low resolution. However, it can capture pictures from boot disks and does run on the STE."

★★★★

PICTURE HUNTER V 1.4 CLD INSTALLED  
SELECT OPTION...

- 1- LOAD FROM BOOT.
- 2- LOAD FROM AUTO.
- 3- GO TO DESKTOP.
- 4- TEST BOOT SECTOR.
- 5- INSERT PICTURE HUNTER BOOT SECTOR.

CODED BY RED DEVIL.

*Picture Hunter's* menu screen is easy to use, despite the long-winded installation procedure.

DMJ's GIF to Spectrum Converter  
Copyright © 1991 Damien M. Jones  
All Rights Reserved.

From: A:\ARAFAT.GIF  
To: A:\ARAFAT.SPC

v2.8 April 11, 1991

dmj software



## CRACK ART

GOODMAN ENTERPRISES

● DISK NO: GD1524 ●

£2.75 ● MEMORY 1 MB ●

SHAREWARE

**IN BRIEF:** Apart from being the best art package on the market at any price, *Crack Art* has two little-known options, Crack Disk and Crack Program. These allow you search through a program file or an entire disk for graphics. Crack File searches the specified file for picture and palette data. Crack Disk asks you to specify the number of sides, tracks and sectors

per track. It then attempts to find any graphic data and associated colour palette. This function is not foolproof and can crash on boot disks. Regrettably, neither function is documented in the manual, even if you can read German. Both are fiddly and involve searching for the graphic and palette separately.

**ST REVIEW COMMENT:** "Two powerful features in a package designed for an entirely different purpose. They may be fiddly, but they're easier to use than *Disk Grabber*."  
★★★★

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## DMJ GIF V2.0

WIZARD PD ● DISK NO: ART 19 ●

£2.25 ● MEMORY 0.5MB ● SHARE-

WARE

**IN BRIEF:** *DMJ GIF* is the best program available for scaling large GIF files down to low resolution Spectrum 512 format. It performs especially well with high resolution 640x400 pictures with 16 colours, cutting them down to 320x200 with 512 colours.

The program may appear to be slightly limited in that it only accepts one type of input and saves out in a single output format. However, taking these limitations to one side, there is nothing that can really match the incredible quality of the converted files, as you can see from the picture, that we converted below right. What's more, if you have an STE, the resulting file is saved using the STE's extended palette. Two small utilities allow non STE owners to view the saved STE file and STE owners to display it in 3,375 colours.

**ST REVIEW COMMENT:** "*DMJ GIF* provides you with a way of not only viewing GIF files, but of saving them in a popular ST graphic format with little loss of quality. In fact, some of the results are enough to rival some commercial products."  
★★★★

*DMJ GIF* takes about 20 minutes to process a picture. However, the results, as you can see on the right, are well worth waiting for. *DMJ GIF* resized this picture from 640x480 into a Spectrum 512 screenshot. It has since been converted to Degas format.





# DEGAS CONVERT V2.04

L.A.P.D. ● DISK NO: A12 ● £1.50  
+ 50p P&P ● MEMORY 0.5MB ●  
PUBLIC DOMAIN

**IN BRIEF:** *Degas Convert* has been around for about five years, but the latest version is a far cry from its humble beginnings. Essentially, the program serves two purposes, to convert pictures into high-res screens and to print them (on 9-pin Epson and compatibles). Although the program runs in medium or high resolution, it only saves out in Degas high res or IMG formats. It will take any picture in Degas, Neo,

Tiny, DOO or PIC format (in any resolution) and convert it into a high-res screen.

It uses custom written dither routines which may be performed automatically by the program or altered by the user to suit.

**ST REVIEW COMMENT:** "*Degas Convert* makes a better job of some conversions than others. They generally look better on paper than screen (as they are scaled to the resolution of the printer)."

\*\*\*



Above: *Degas Convert* makes a better job of some screens than others and this one has come out exceptionally well.

Left: *Degas Convert* can bring joy or terror onto your screen, as you can see here! The printout is even better (or worse!).



# GEMVIEW V1.1

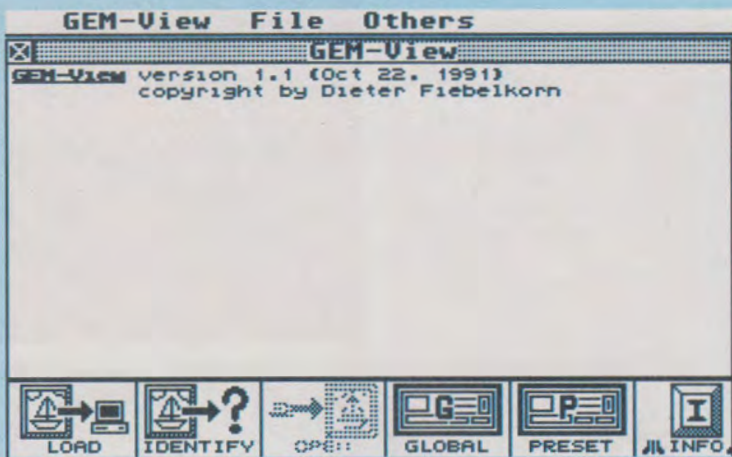
FLOPPYSHOP ● DISK NO: ART.56  
● £2.50 ● MEMORY 0.5MB ●  
SHAREWARE

**IN BRIEF:** *Gemview* runs as a PRG, ACC or GTP, you simply rename it to suit. It allows a graphic to be loaded, viewed and saved from within a GEM window. Pictures larger than the screen size can be viewed using the scroll bars. *Gemview* loads Degas, Neo, IMG, GIF, SUN, PAC, IFF, BMP, RLE, GVW, GEM, ART, Tiny, DOO, SPU, SPC and XBM files. Files are saved back as mono IMG or colour X-Bitmap files. *Gemview* allows you to enlarge or reduce pictures by a specified percentage and displays any resolution of file on any monitor. The only failing is the restriction of colours to that available in the current resolution.

**ST REVIEW COMMENT:** "This program has evolved into a highly professional product over the past year. It can now load more file types than any other program available."

\*\*\*\*

*Gemview* displays the picture in a standard GEM window, allowing you to use the scroll bars to view the whole image.



# TOP TEN

1

**IFF CONVERT ● WIZARD PD**  
● DISK NO: ART 04 ● £2.25  
● MEMORY 0.5MB ●  
SHAREWARE

*Iff Convert* accepts input in Degas, Neo, Tiny, IFF, SPC and SPU formats and outputs in Neo, Degas and IFF. It accepts IFF files in low res, high res or HAM mode and reduces colours to 16 before saving out in the specified ST format.

2

**TINYSTUFF V3.2 ● FLOPPYSHOP**  
● DISK NO: UTL.61  
● £2.50 ● MEMORY 0.5MB ●  
SHAREWARE

*Tinystuff* is another oldie but remains most capable. It will convert from Degas, Tiny, Neo, Doodle, MacPaint, Mac StartupScreen and PC Paint, to Tiny, Degas, Neo, Doodle, MacPaint or PC Paint. Any resolution of picture can be converted from one format to another, even if it can't be viewed on screen.



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REVIEW  
BUDGET BUY**

## VIEWGIF V1.2

WIZARD PD • DISK NO:  
ART 04 • £2.25 • MEMORY  
0.5MB • SHAREWARE

**IN BRIEF:** *ViewGif* is undoubtedly the single most powerful graphic converter available.

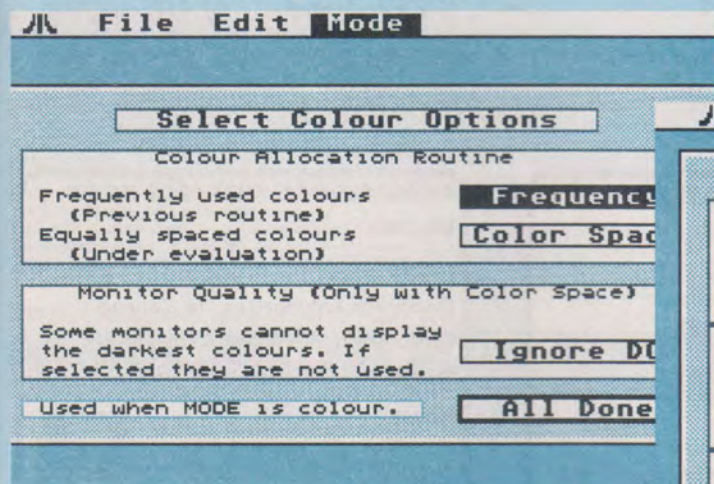
It will accept input in GIF, IFF, LBM, MAC, Neo, Degas, FL and CP8 formats and saves in GIF, FL, Neo, Degas, AIM, CP8, SPU, MacPaint and Mac StartupScreen formats.

Pictures which are larger than the physical screen area of the ST can be viewed by scrolling

through the image with the arrow keys and may be saved out in sections or re-scaled to fit the physical screen area and saved as a single file. MAC files save out with a true MacBinary header and can be transferred to the Apple Macintosh and used without adaptation.

**ST REVIEW COMMENT:** "Simply the best program for converting graphics between the ST, Amiga, PC and Macintosh. It's hard to see how anyone could possibly improve on this!"

★★★★★



*ViewGif is the best when it comes to reducing large images. The colour options screen gives full user control over colour GIFs.*

## SNAPSHOT

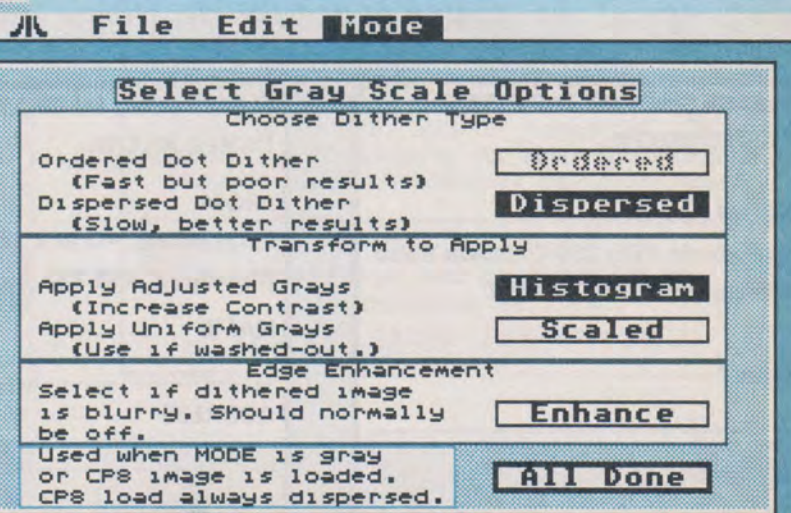
FLOPPYSHOP • DISK NO:  
UTL.51 • £2.50 • MEMORY  
0.5MB • PUBLIC DOMAIN

**IN BRIEF:** There seem to be a lot of picture grabbers around called *Snapshot*. This particular one is a suite of three programs. Run *Snapshot* before running the application you wish to take the screenshots from. It may be run from an Auto folder to save memory. Now run the program which you want to snapshot and press the ALTERNATE and HELP keys simultaneously. The screen will flash for a couple of seconds to let you know that the snapshot has

been taken. Exit the program and run *Snapsave*. It saves your picture as SNAP1.NEO, SNAP2.NEO etc. Contrary to expectations, you can use this program in any resolution. However, only *Picswitch* (available on Goodman's disk GD253) can convert medium and high res Neo files to usable formats. The third program in the suite is simply a slideshow for displaying your screenshots.

**ST REVIEW COMMENT:** "This is a very useful set of programs which can snapshot equally well from GEM or non-GEM programs. It's just a pity that it doesn't save in Degas format."

★★★



# GAMES & UTILITIES

3

**PICSWITCH** • WIZARD PD •  
**GOODMAN ENTERPRISES** •  
DISK NO: GD253 • £2.75 •  
MEMORY 0.5MB • SHARE-  
WARE

This was the first multi-format picture converter on the ST. It handles conversion from Degas, Neo, Tiny, IFF, NVision, MacPaint, Mac StartupScreen, MicroPainter, Koala, GRB, GR9 and RLE and writes out in Degas or Neo format. It is also one of the best colour to mono converters available.

4

**KEYSHOT** • WIZARD PD •  
DISK NO: ART 19 • £2.25 •  
MEMORY 0.5MB • PUBLIC  
DOMAIN

*Keyshot* is yet another ACC. It lies dormant until you press the ALT+HELP keys, then the screen flashes briefly. Select *Keyshot* from the menu and you are given the choice of saving the screen in

Degas or Neo format. *Keyshot* can also capture screens from within non-GEM programs.

5

**DEGAS SNAP** • WIZARD PD •  
DISK NO: ART 19 • £2.25 •  
MEMORY 0.5MB • PUB-  
LIC DOMAIN

*Degas Snap* is an ACC and will operate from within any GEM-based program. When the graphic you require is on screen, simply go up to the menu bar and select *Degas Snap*. The screen will be saved in Degas format. It's as simple as that. It even lets you know if you have run out of disk space.

6

**FREEZE** • FLOPPYSHOP •  
DISK NO: UTL.06 • £2.50 •  
MEMORY 0.5MB • PUBLIC  
DOMAIN

*Freeze* is almost identical in operation to *Degas Snap*. You select the ACC from the menu when the graphic to be saved is being dis-

7

**CONVERT TO IMG** • FLOP-  
PYSHOP • DISK NO: ART.44  
• £2.50 / MEMORY 0.5MB •  
SHAREWARE

A simple program which takes Neo, Degas (compressed and uncompressed), Spectrum 512 and MacPaint files and converts them to black and white IMG files, as used by most Desktop Publishing packages. The program is fully GEM based and does pretty good mono conversions.

8

**GRABBER** • FLOPPYSHOP •  
DISK NO: UTL.23 • £2.50 •  
MEMORY 0.5MB • PUBLIC  
DOMAIN

*Grabber* returns to the Desktop after installing itself and allows you to run another program. When the graphic you want to grab appears on screen, simply press ALT+HELP to save it as a Degas screen. Consecutive screens are saved as PICTURE1.PI1, PICTURE2.PI1 etc.

played. *Freeze* scores over *Degas Snap* in that you are allowed to specify of the screenshot.

9

**ARCHIVARIOUS** • CALEDO-  
NIA PDL • DISK NO:  
AG-0068 • £2.50 • MEM-  
ORY 1 MB • MONO •  
SHAREWARE

An impressive program from Germany which operates as a picture database. Most of the usual functions of a database are available as well as the ability to load and display STAD files and convert these to Degas or Doodle formats. Numerous extras like the ability to zoom pictures to 200 per cent and 400 per cent, are also included.

10

**SNAP** • FLOPPYSHOP •  
DISK NO: UTL.241 • £2.50 •  
MEMORY 0.5MB • PUBLIC  
DOMAIN

*Snap* is a very easy utility to use - you simply run it before the program you want screenshots from. It will install itself and return to the Desktop.

Press ALT and both SHIFT keys to save the current screen to disk in Degas format. Multiple screens are saved as SNAP\_A.PI1, SNAP\_B.PI1 etc.



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# DIY QUESTS



## GET THE MOST OUT OF ISSUE 2'S £25 STAC GIVEAWAY

**W**e've already explained the four types of conditions used in the program, but to refresh your memory, they are:

### LOW PRIORITY CONDITIONS

These are executed after the user has typed in a command. They usually act on what the user has typed, such as picking up objects.

### HIGH PRIORITY CONDITIONS

Executed before the user types anything, these are high level instructions that recognise certain circumstances, such as death.

### LOCAL CONDITIONS

Local conditions determine the outcome of an action in a single room. For instance, the instruction Go West may have a perfectly happy outcome if you exit into meadow. However if you go west from a drawbridge and fall into a moat you'll have to program in a drowning.

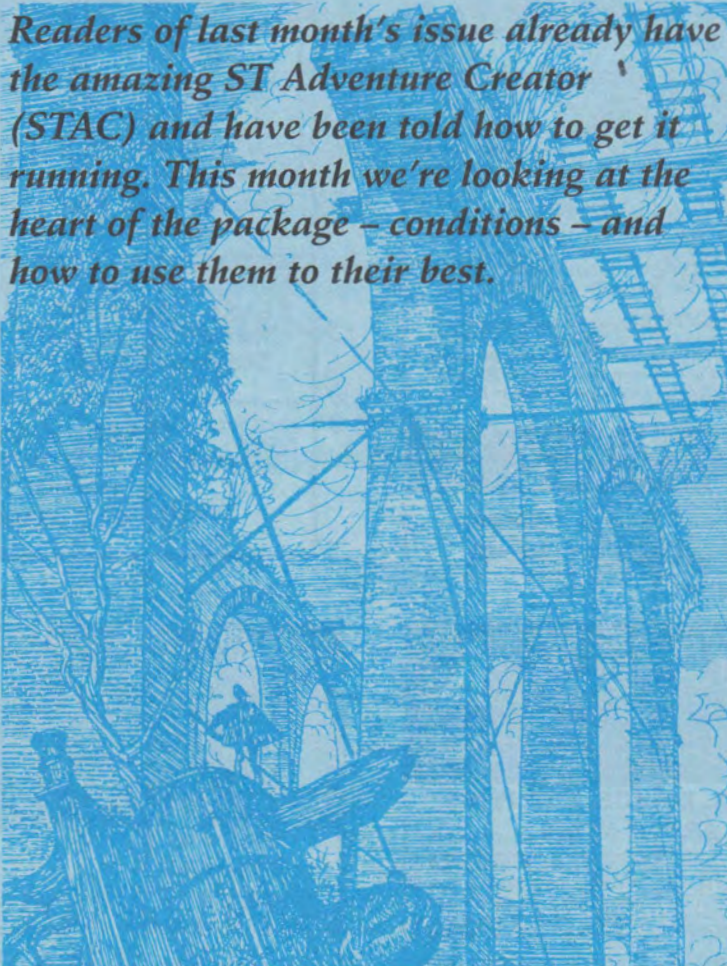
### SPECIAL CONDITIONS

These are small sets of instructions that can be called on at any time, such as letting the player know that a treasure chest can't be carried because one is being held, or letting the players restart the game once they have died.

For the most part, conditions are exactly what you would expect them to be — tests for certain happenings and then a set of actions based on the results. For example, if you type in "Push The Red Button", one set of conditions could check you still have your hands, that there is a red button in the game and you are in the right location, and then perform all the reactions caused by the pressing of the button. Anyone who has ever programmed in a high level language such as BASIC will know the format already. The layout goes something like: IF (X) THEN (Y) ELSE (Z) End Command

(X) is the test itself. Here the machine checks all the terms you have set and then replies with either true or false. (Y) is the set of actions followed if the response is true. (Z) is an optional part of a condition and gives a further set of instructions should the response be false. In our red button example

*Readers of last month's issue already have the amazing ST Adventure Creator (STAC) and have been told how to get it running. This month we're looking at the heart of the package — conditions — and how to use them to their best.*



(X) would be the list of tests we have already described, (Y) would be the results of the button being pressed, say, the button lights up and a door opens. (Z) would be the result if any of the conditions were failed, such as a message saying you can't do that.

The End Command tells the program what to do once it has worked through an instruction. "Wait" tells the program to place the cursor on screen and wait for the next command. This is used after something has been displayed so that the users can see for themselves.

But what happens when an off screen action takes place, such as when a player picks up an object? All that happens within the program is that the room number allocated to that object is changed. The player needs a prompt to tell them this has taken place, so you need to end the line with the com-

mand "ok". This prints the "Okay" message on screen.

Third and finally, "Newcom" prompts the player for a new instruction. This might seem odd, considering that this is what the program does automatically. In practise it isn't. Let's say you have just entered the command "Get All", yet there are 200 objects in the room and you can only carry one. This means that from the second object onwards the program will continue to put the "You can't carry any more" message on screen, unless you end the line with the "Newcom" command.

### COMMANDS

The most popular use for conditions is to check commands that have been entered. Commands can be split into three distinct components, Verbs, Nouns and Adverbs, and for any word to be accepted it must already exist in

one of the three word lists. To check if a word has been entered, use Verb, Noun and Adverb. To see if the player has tried to pick up a dead rat, you would use the condition: If Verb "Get" and Noun "Rat" then Get 1 Ok

You may have spotted the new instruction in that line - Get 1. This is all part of the object handling routines in the program.

### OBJECTS

The program handles everything numerically. All words have numbers, as do objects, location descriptions, graphics and scores. In the last example, we assumed the rat was object 1, so on checking if the user had entered the command "Get Rat" the program got object 1 and moved it into the inventory, a mysterious location numbered -1. To put the object down in the current location, we use the command Drop. So the correct condition to add now is:

If Verb "Drop" and Noun "Rat" then Drop 1 Ok

## OBJECT CONDITIONS

There are a variety of other commands associated with handling objects, and to go into each one like this would take far too long, so here it is, your at a glance guide to object handling conditions.

### -GET

Used in the form "If (Something) Then Get X" (X=Object number)

This command moves objects from their location to the inventory. Can be used alongside commands like Here to check validity of input.

### -DROP

"If (Something) Then Drop X"

This is the opposite to Get, and moves objects from the inventory to the current location.

### -LIST

"If (Something) Then List X" or "If (Something) Then List With"

Gives an on screen listing of all objects at location X or all objects carried when used in the command List With.



*The ST Adventure Creator allows anyone to write first class games for their ST. Last month we gave you the program - now here's part two of our tutorial. . .*

current location.

**-SETSTR**

"If (Something) Then Setstr X"  
Strength is a numerical measurement of how much weight the player can carry. This command lets you set the strength level as X.

**-WEIGHT**

"If Weight X>Y Then (Something)"  
Gives the weight of the specified object and then tests it with a numerical condition. In this case the test is "Is the weight of X more than the number Y. Other comparisons are "<" - Less than, "=" - equals to or ">" unequal to. Any comparisons can be strung together as many times as you wish. This command can also be used in conjunction with mathematical equations using the standard notation. For example "If Weight 1 \* 10 <= 100 Then Dropall Ok" would see if the weight of object 1 multiplied by 10 was less than or equal to 100. If so, then all objects would be dropped.

**MESSAGES**

Sometimes, you'll need the game to say a little more than just "Okay". All the comments the program comes up with are held in the Message list and are called using conditions.

**-MESSAGE**

"If (Something) Then Message X"  
Used to print message number X in the message bank once a condition has been met. If the player has typed "Wiggle Eyes", the message could be "That will only get you in the funny farm", therefore the condition would be "If Verb "Wiggle" And Noun "Eyes" Then Message 1 Wait"

**-LF**

"If (Something) Then Lf Message X"  
Prints the message on a new line instead of printing it with anything else. Lf stands for Line Feed.

**-PRINT**

"If (Something) Then Print (X)"  
Used to print numerical information. If you wanted to know the weight of an object, then you could use the condition "If Verb "Weight" And Noun "Sausage" Then Print Weight 1 Wait"

**ROOMS**

Part of creating true atmosphere in an adventure is convincing players that their surroundings are real, and that these commands let you create a "real" world for the player.

**-LOOK**

"If (Something) Then Look"  
This prints the full room description, lists all objects in the current room and displays the picture if there is one.

**-GOTO**

"If (Something) Then Goto X"  
This command moves the player to a specified location once the conditions have been met. In the test adventure, you can't enter the cave until you have the lamp. The difference between a connection in the room description and a condition is that in this case, certain tests have to be passed, where as in the other you are free to come and go as you please. This command also prints the long description of the room you enter.

**-MOVETO**

"If (Something) Then Moveto X"  
This is exactly the same as the Goto command, except that it doesn't print the new description.

**-TEXT**

"If (Something) Then Text"  
Turns the graphics off.

**-PICT**

"If (Something) Then Pict"  
Turns the graphics on.

**-SPLIT**

"If (Something) Then Split"  
Switches between 40 and 80 column text modes.

**MARKERS**

Markers are switches that are used to store information on various parts of the game, for example if a certain button has been pressed or if a door has been left open. . .

There are 512 of these little switches, numbered from 0 to 511, and each can be set or reset (on or off). For example, let's say the adventure is set in the arctic circle. You come across a small hut with only two rooms and one external door, the one you enter by. When you come in, the door is open, so marker 4 is set (on). You enter the other room, and the program checks to see if the door is open. It finds it is and sets marker 5.

When you next enter the room with the door, the program sees

that marker 5 is set and tells you that a Yeti has entered via the door you carelessly left open and has eaten you alive - Game Over.

**-SET/RESET**

"If (Something) Then Set X" or "If (Something) Then Reset X"  
These commands put marker X in either the set or the reset position.

**-SET?/RESET?**

"If Set? X Then (Something)" or "If Reset? X Then (Something)"  
These instructions check the state of marker X and return a value of true if the marker is set (in the case of Set?) and false if otherwise.

**-CHANGE**

"If (Something) Then Change X"  
Flips marker X from set to reset and vice versa, depending on its original state.

Counters hold numerical information and keep track of things such as money. There are 512 of them, and they can be used with the following commands:

**-SETCNTR**

"If (Something) Then Y Setcntr X"  
Sets counter X to amount Y. Y can be a number, or another source of numerical information, such as the Weight command.

**-COUNTER**

"If Counter X (Expression) Then (Something)"  
Reads the contents of counter X and uses it in a mathematical expression.

**-INC/DEC**

"If (Something) Then Inc X" or "If (Something) Then Dec X"  
These increments (add 1 to) or decreases (subtract 1 from) are useful for things like countdowns. By adding 1 to a counter every turn, and acting upon it when it reaches a certain number, you can set traps or bonuses wherever you like.

It's all down to your own wicked mind!

**-+COUNT/-COUNT**

"If (Something) Then Y +count X" or "If (Something) Then Y -count X"  
Adds or subtracts amount Y from counter X. Used when changing counters by amounts greater than 1.

**THE END**  
You now have almost everything you need to know to write your own adventure. The only two commands I need to tell you about are Death and Success. As they suggest, these signify the end of the game in two different ways, and print out two very different messages. Both are used in the format "If (Something) Then Death/Success" and ask the player if they want to play again.  
And that's it. If you come up with something outstandingly incredible, or just rather good, then let us know. You never can tell, it might even work its way onto one of our outstanding coverdisks, making you a little profit into the bargain!



# GETTING STARTED WITH TIMEWORKS 2



## PART THREE STATIONERY

*In the third part of his tutorial on Timeworks 2, Terry Freedman looks at how to create your own stationery*

Whether you're using *Timeworks Publisher 2* for your own personal use, for a club or society newsletter, or for a small business, there is a great deal to be said for developing a "House Style" to make things easier for you and for anyone else who has to produce material on your behalf.

This is the name that is given to the branding of stationery by the use of a basic design, or at least some common elements. For example, for business use you will require letterheads - headed notepaper, compliments slips, invoices and so on.

With *Timeworks Publisher 2* it's relatively easy to create a House Style: you can create special paragraph styles and then save them for use in any document by saving the style sheet separately from the original document, as explained in the first tutorial.

Also, you can build up a design from many different elements which you can "mix and match" in any document you like. This guide is designed to take you through the various stages in creating your own stationery.

**1** Invoice, DTP as it would appear on paper.

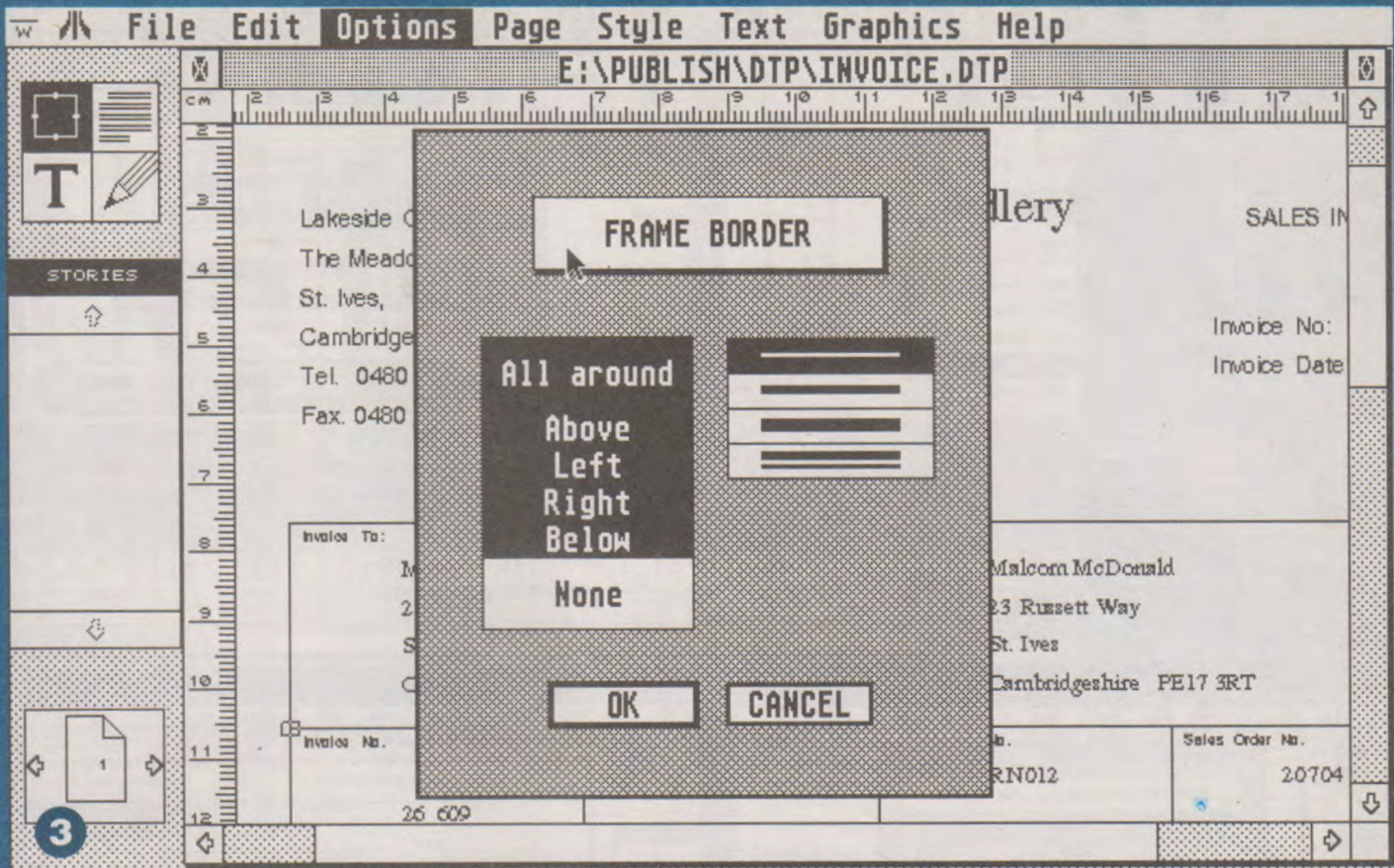
**2** Invoice, DTP with all the frame guidelines visible.

**1** First, you need to open the document called *INVOICE.DTP*. This comes with *Timeworks Publisher 2* and should be in the *DTP* folder, which is, in turn, in the *PUBLISH* folder.

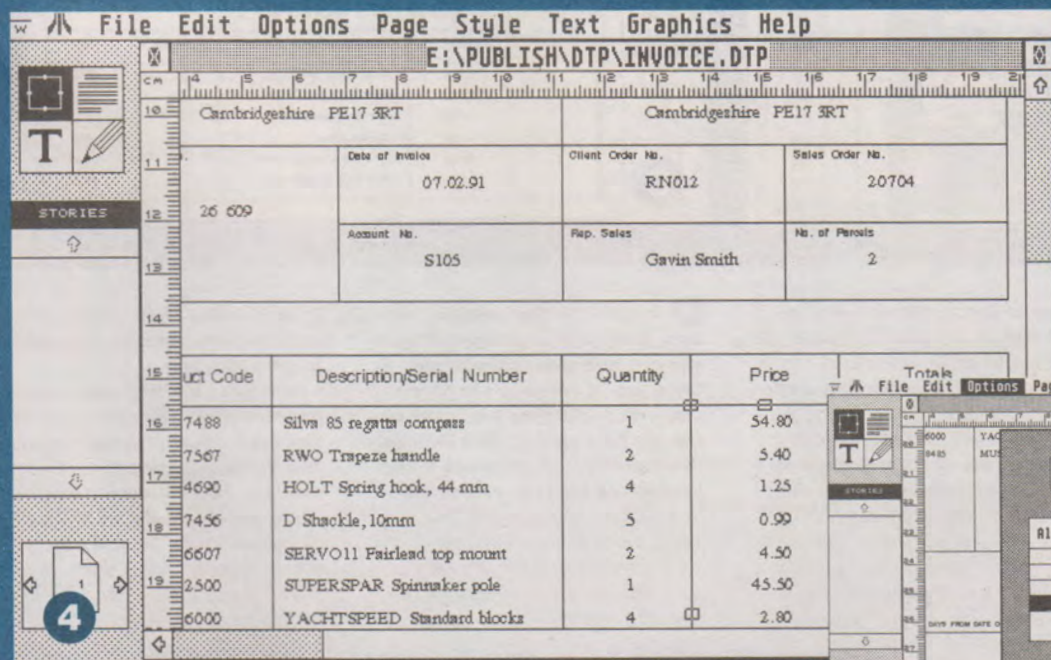
**Picture 1** shows you how this would look if you were to print it out, or if you've set up *Timeworks Publisher 2* so that it doesn't show any guidelines.

**2** It looks complicated, with vertical and horizontal lines all over the place and so on. However, pressing *Alternate E* will reveal that the document has been built up from lots of different frames.





3

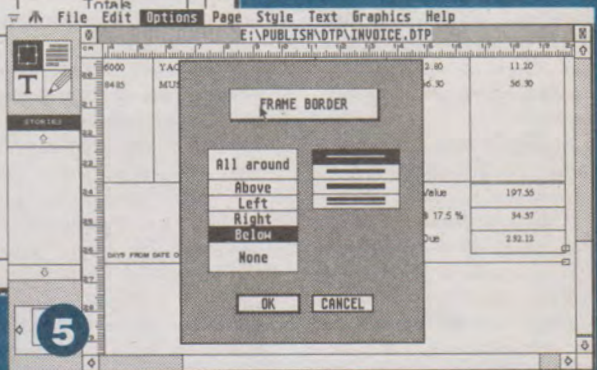


4

3) A frame dialog box tells you all you need to know about your border.

5) Further down the INVOICE there are columns of text and numbers.

4) The dialog box of the very last frame on the page shows that only the bottom of it has been given a border.



5

3) To see how the vertical and horizontal lines were created and aligned properly, simply click inside a frame to highlight it, then select Frame Border from the options menu. The dialog box which appears will tell you whether there is a border all around the frame, or just one or

two sides, or not at all, and how thick the border is.

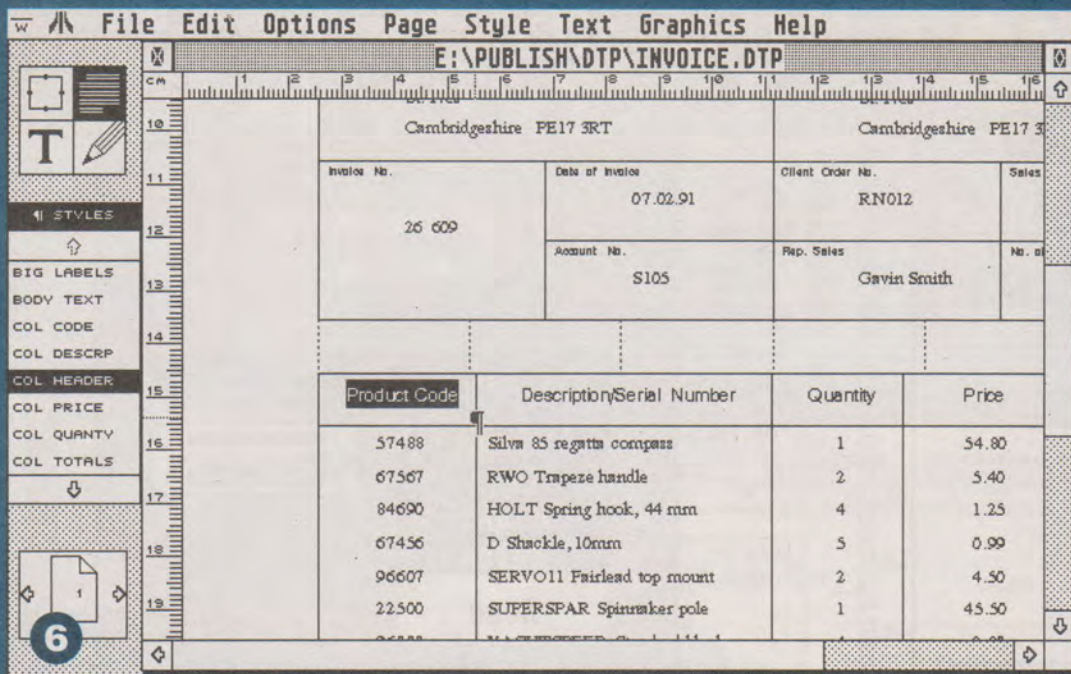
4) If you want to create, say, a vertical line to separate one part of the document from another, all you need to do is to draw a frame and give it a left, right or left and right border.

You might find it useful to highlight many different frames in turn in the INVOICE document, to see how the frame borders differ, and to see how the overall effect was created. For example, the horizontal line along the bottom of the invoice was created by placing a border on the bottom of the frame.

5) Now take a look further down the document.

As you can see, it changes rather dramatically. Suddenly, there are several columns, all of which contain vertical lines separating them, and with text or numbers all perfectly aligned.

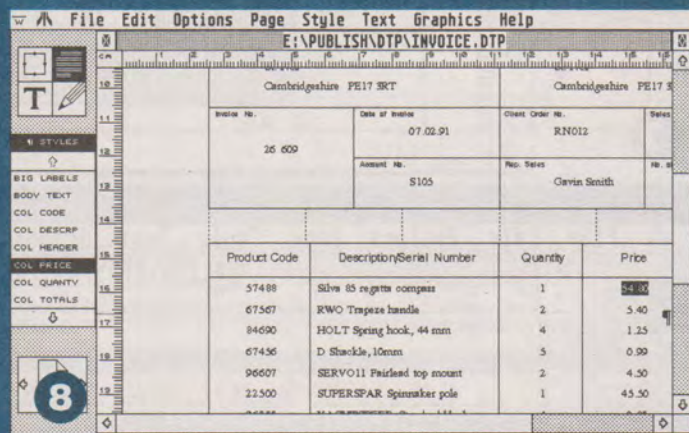
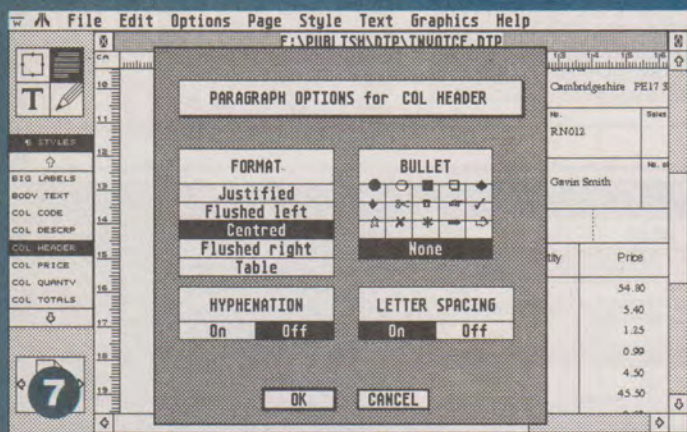




6) In paragraph mode, high-light one of the column headings...

7) ...and double-click on it to reveal the paragraph style's attributes.

8) Still in paragraph mode, select one of the prices...



**6** Change to Paragraph mode by clicking on the paragraph icon in the toolbox - it's the one on top of the pencil icon. You'll notice that all the info below the toolbox has changed: it now contains paragraph styles, which are all fairly descriptive.

With paragraph mode selected - the mouse pointer will have turned into a symbol which looks like a letter "P" back-to-front - click on any item of text. The text will turn white on a black background, showing that it has been selected, and a paragraph style will also be selected automatically in the information box on the left-hand side. Now, if you double-click on the paragraph style or the text, you'll be able to examine the attributes of that paragraph style. (If you find it difficult to double-click quickly enough, select Paragraph style from the Text menu instead. It has exactly the same effect).

As you can see, there's quite a bit of choice involved. Bear in mind that any changes you make to a paragraph style will affect every

piece of text to which that paragraph style has been assigned. So this might be an opportune moment to disable the Automatic Timed Backup.

In the example shown, we've decided to look at the paragraph style called Column Header. By clicking on the Options section in the paragraph style dialogue box, we can see exactly what was done with the text. It has been centred, hyphenation has been turned off and there are no bullets.

**7** You might want to try out the effects on the text of altering some or all of these attributes. Click on OK or Cancel, and select the numbers in the prices column. Obviously, if you're going to be producing columns of figures, you'll want the numbers to be aligned properly - in this case, lining up the decimal points. That way, no matter how large or small the number, and no matter how many figures there are to the left or right of the decimal point, they will always be neatly lined up.

**8** Double-clicking on these numbers, while still in paragraph mode, shows some interesting things. Once you've obtained the paragraph style dialogue box, click on the Set Tabs option. This informs you that the tabs are set by their position on the ruler rather than their width, and that the first one is set to 1.5". It also tells you, amongst other things, that it's a decimal tab, which is why all the numbers are aligned along the decimal point.

Incidentally, setting up a paragraph style with a decimal tab as its attribute isn't enough to cause the numbers to be lined up properly. You also have to place a tab in the text. This is achieved by the complex procedure of pressing the Tab key before you type the numbers in. Nine times out of 10, you can do so at the word processing stage in the confident knowledge that the tabs information will be kept intact when you finally import the text file into Timeworks Publisher 2.

Now that you've got the hang of

it, try clicking on other bits of text and checking out what their paragraph styles are.

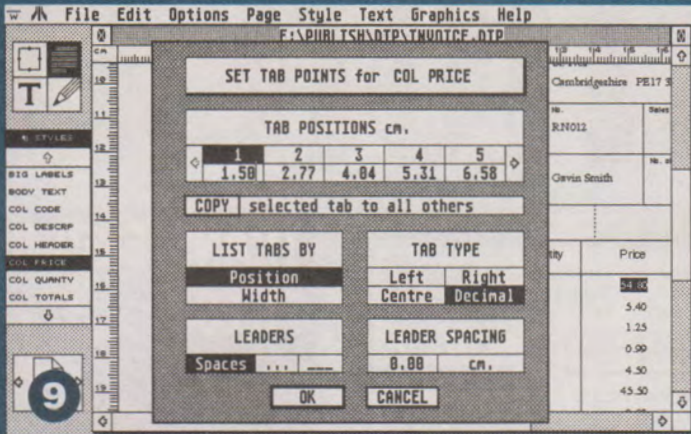
You might also like to see what happens when you change the font size and style, which you can also do from within the paragraph style dialogue box. (You could also polish up the design-sense brain cells by pondering on the question of which fonts are most suitable and which least suitable for a document such as this).

Now, suppose you create a paragraph style for every possible occasion, and they're all contained within one document.

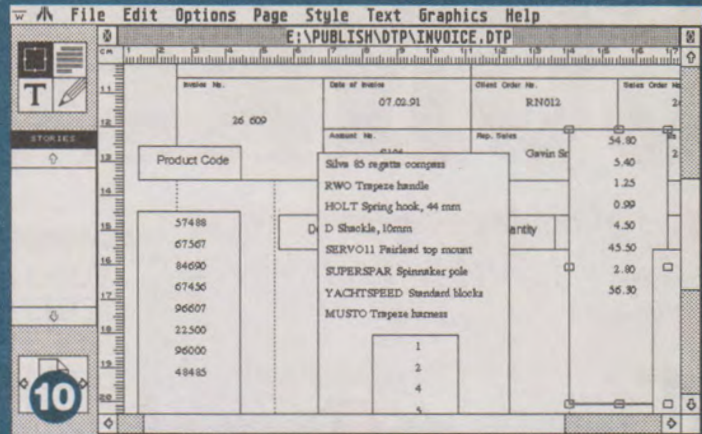
What do you do? All you need to do is save the style sheet from within the File menu, and then use it with new documents whenever you like.

In case you still don't believe that a complicated-looking document like INVOICE.DTP was created out of lots of smaller frames, click on different frames in turn, and move them about or even delete them. That's exactly what's been done in picture 8.

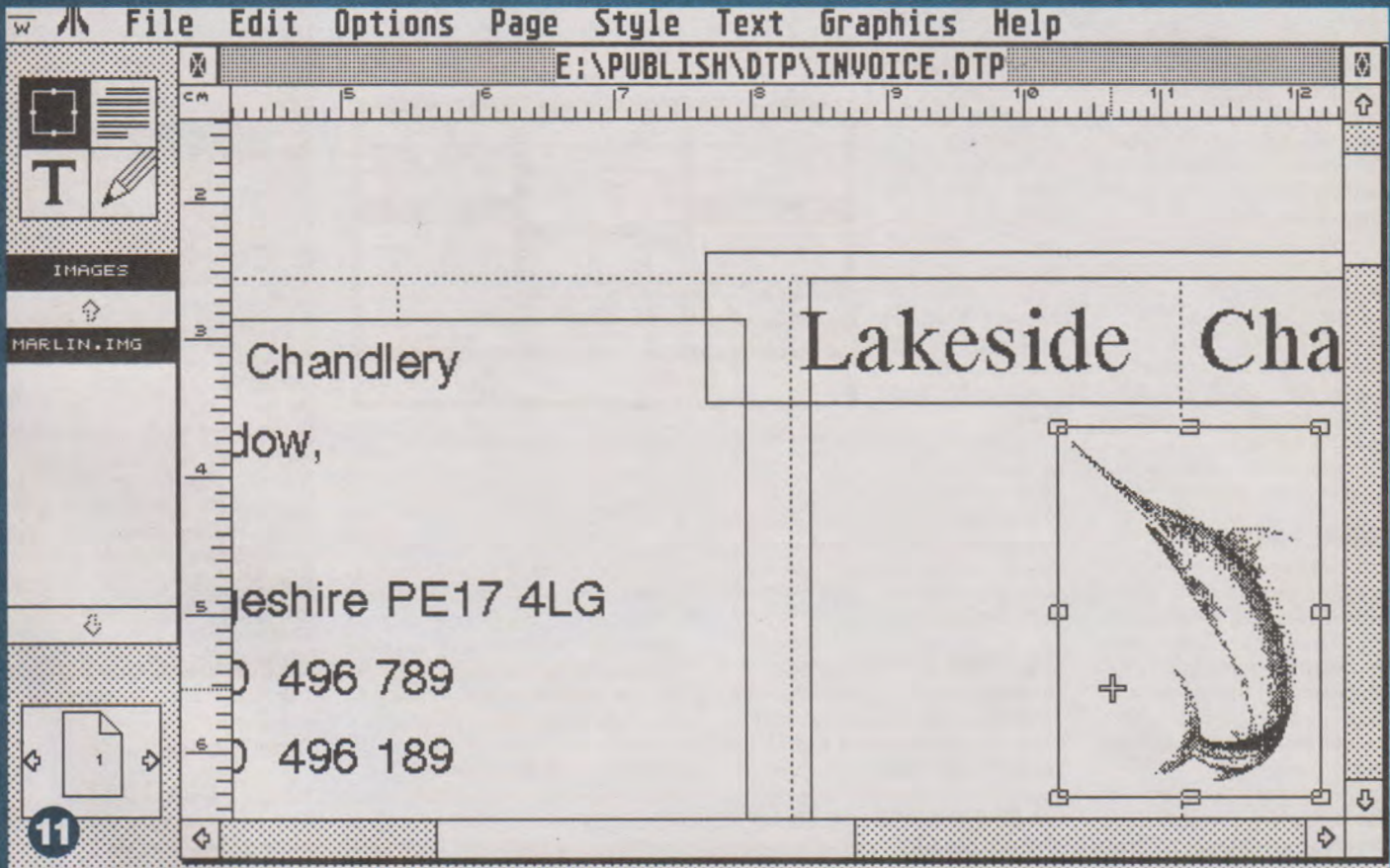




(9) ... and look at the tabs dialogue box to see how the numbers are aligned.



(10) Juggle the individual frames around to prove that this document is actually a collection of parts.



(11) Click on the graphic to reveal what it's called in the Browser.

9 The picture of the fish at the top of the document was created in a painting package, as you can see if you select the frame it's in. It's called MARLIN.IMG - this name appears in the information section (the Browser) on the left-hand side, below the tool box. In fact, this picture appears in several documents: try loading up Memo, Letter or Report, for example.

and-match idea mentioned earlier. Either create your own graphics using a package such as Hyperpaint or Degas Elite, or you could buy some clip art disks.

These are disks containing lots of pictures on various subjects or themes, and are available really cheaply from PD libraries. In the example here, the logo was created in Hyperpaint by using a combination of drawing tools and the text facility, saved as an IMG file, and

then imported into Timeworks Publisher 2, where it was cropped and scaled.

The computer was supplied with Timeworks Publisher 2 - it's called PC.GEM and it can be found in the PICTURES folder.

The picture could be used as a logo for business or personal stationery.

Why not try creating your own individualised stationery using paragraph styles and graphics?

**NEXT MONTH**  
WE LOOK AT HOW TO USE  
TIMEWORKS PUBLISHER 2  
TO REALISE YOUR DREAM  
OF BECOMING A NEWSPA-  
PER MAGNATE.



# CONNECTION TO

*Prices of modems have plummeted, but what software do you need to use one?*

Most Bulletin Board Systems (BBS) host interesting discussions on all kinds of topics. While computing and the various makes of computer are bound to be popular subjects, you will find conferences on chess, bridge and other games, films, cooking and so on.

On-line conversations take place in "chat" mode - guaranteed to push up the telephone bill - which are often heated, as fingers on a keyboard appear to work faster than the human brain.

Off-line messages in a conference usually lead to useful replies; so, as you can see, a BBS can be a valuable source of information.

Many people use a BBS to obtain PD software. The perfect platform for this service, small programs such as utilities or bug-fixes can be found in abundance; you can transfer these from the BBS to your computer by "downloading" them.

## TERMINAL PROGRAMS

A modem on its own is of little use without a program to allow you to gain access to a BBS. Such a program will have set-up parameters for what you see on screen, how you transfer files between your computer and that of the BBS, which folder your downloaded files are saved in and so on.

Having just spent upwards of £100 on a modem, the last thing you need is to spend more money on a program to use it! The good news, therefore, is that most Comms software is either PD or shareware - a brief look at a few of the better examples follows.

## VANTERM

Probably the most popular shareware package, **VanTerm** is now at version 4.0. The documentation included with it is brief because it has one of the best on-line Help files of any ST program - you can point to any menu option and get an immediate on-screen comment.

The usual terminal options are

Thanks to Mike Goodman of Goodman International (0782 335650) for providing the four programs featured on this page.

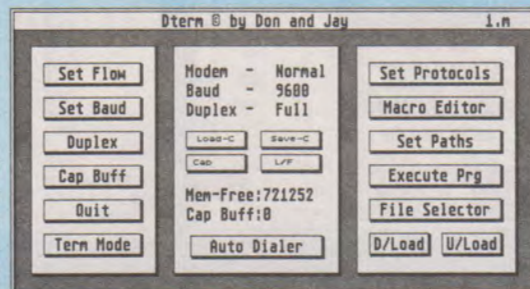
available and **VanTerm** has both an autodialer and a programmable ST function keys. The only fly in the ointment is the lack of ZModem support; only XModem and YModem are handled within the program; a separate ZModem module can be used via the Execute Program function although such a module is not included with **VanTerm**.

There are plenty of useful facilities, such as the ability to create and delete folders, change paths for saving downloaded files, display, delete, rename and copy files along with free memory and free disk space meters.

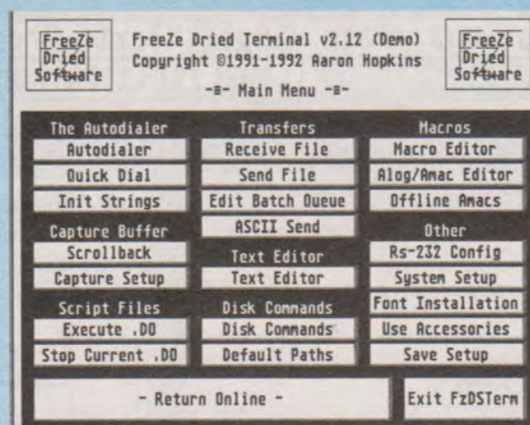
## UNITERM

**Uniterm** has been around since 1986, and is looking very dated. The documentation is not of the highest order and while **Uniterm** has many functions, figuring out how they work is not easy. For example, setting a path for downloaded files to be saved to has to be carried out from a command line, not a file selector. Comments such as "Reset Tektronix Mode" may mean a great deal to a Comms specialist but it just doesn't cut it with the casual user.

Only XModem and YModem are supported directly, but the Run Program option will also allow you to access the RZ and SZ (Receive and Send ZModem respectively) modules which are included with **Uniterm**. Each of these are .TTP programs which means that you are again forced to use a command line display where it is easy to type the incorrect commands.



*Dterm; an excellent simple-to-use comms program.*



*Freeze Dried, the latest flavour-of-the-month.*

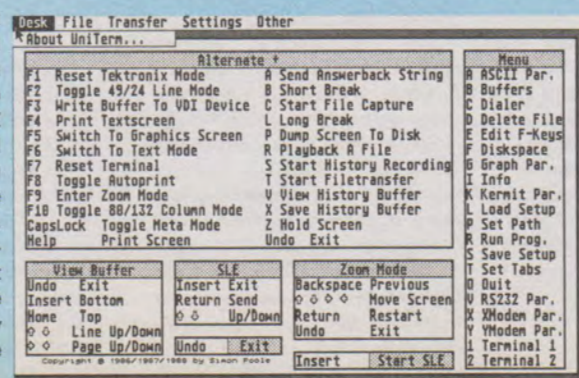
## DTERM

This is my personal favourite. While not GEM-based, which means that it doesn't use menus and the like, **Dterm** is extremely easy to use. Most of the on-screen buttons set a particular function and the setting for that function is shown in the central section of the display.

Transfer protocols include X, Y and ZModem, so you rarely need to use the Execute Program option. However, the autodialer is a must; it saves a lot of on-screen hassle with trying to remember telephone numbers and passwords.

In use, **Dterm** is simple. The set-up options are saved when you first

*The original standard, Uniterm is now showing its age.*



## TRANSFERRING FILES

There are various protocols which are used for file movement. The simplest of these is ASCII which is generally used for text transfers; other protocols encode data to speed up transfer. The efficiency of these follows their alphabetical order; XModem is generally less effective than YModem which is in turn slower in transfer than ZModem.

YModem uses a fixed size block of data; this is usually anywhere between 128 and 1024 bytes (one Kilobyte). At the end of each block being transferred, an acknowledgement is sent; if the block contains an error, the entire block has to be re-sent. With ZModem, blocks can be of variable size which leads to less data being retransmitted when errors occur.

ZModem will probably be your first choice: it compresses data "on the fly" and so gives extremely good results with non-compressed files. If files are already compressed by LZH or some other process, then there is little to choose between using YModem, with one Kilobyte blocks, and ZModem.

use it and a click on the relevant number in the auto-dialer sets **Dterm** in motion.

## FREEZE DRIED V2.12

This has one immediate disadvantage for 520 owners; it needs one Megabyte of RAM upwards. It's another non-GEM program, but one that is well set out and easy to use; more to the point, it is immensely powerful.

**Freeze Dried** supports X, Y and ZModem protocols and allows you to set up a script; this effectively allows it to run itself once you set it in motion. Different fonts are offered for screen use and a comprehensive autodialer is also included.

Unfortunately, the PD version has many of the main features disabled. There again, the full version is available for only £15.



# YOUR MODEM

*The following is a list of ST Review recommended Bulletin Boards. Each board is entirely specific to comms users with an ST*

## TELL US ABOUT IT

If you operate an ST-specific Bulletin Board and would like to appear in this list, just contact us with the following details: your town/area, BBS name, telephone number, times, the maximum baud and your name.

TOWN/AREA	NAME	NUMBER	TIMES	MAX SPEED	SYSOP
Aberdeen, Scotland	STatic BBS	0224-648277	24 hrs	v32bis/HST	Colin Bruce
Ainsdale, Merseyside	D-Term BBS	0704-79873	10pm-7am	2400	David McGarry
Aylesbury, Buckinghamshire	InterNet	0296-395935	24 hrs	v32bis/HST	Ben Van Bokkem
Bath, Avon	The BathTUB BBS	0225-480103	24 hrs	v32/HST	Paul Williams
Birmingham, Midlands	The Magic Castle	021-430-3761	24 hrs	v32/HST	Mick Coleman
Bournemouth, Dorset	Lightfingers Palace	0202-485723	24 hrs	2400	Richard Davies
Bradford, Yorkshire	Magnum BBS	0274-547006	24 hrs	2400	Keyop Troy
Bradford, Yorkshire	T.G.M	0274-547006	24 hrs	v32bis	Paul Simmonds
Bristol, Avon	The Laser Dome	0272-572322	24 hrs	v32bis/HST	Matthew Adlard
Cardiff, Wales	The Dream Machine	0222-341713	24 hrs	v32bis/HST	Dave Thomas
Chelmsford, Essex	The Hobbit's Burrow	0245-358667	24 hrs	2400	Andy Styles
Crewe, Chesire	Reachout CBBS	0270-583287	24 hrs	v32/HST	Steve Caple
Diss, Norfolk	Skull BBS	0379-740972	8pm-8am	v32/HST	Iain Coates
Eastbourne	The Excelsior BBS	0323-643165	24 hrs	v32b/HST	Paul Whitaker
Folkstone, Kent	FolkeSTone QBBS	0303-245203	24 hrs	2400	Robert Darling
Gateshead	Quanta NE	091-447-5472	9pm-8am	2400	Derek Stewart
Halifax, West Yorkshire	QueST BBS	0422-381164	5.30pm-4pm	v32/HST	John Carolin
Hatfield, Hertfordshire	The Torture Chamber	0707-270945	24 hrs	HST	Steven Gee
Hull, Humberside	Midnight Resistance	0482-74943	24 hrs	v32bis	David Bennet
Barking, Essex	The Darkside	081-591-8826	10pm-8am	v32bis/HST	Mark Atkinson
Finchley, London	The Tavern	081-445-6514	8pm-6am	v32bis/HST	Paul Baker
Leeds, West Yorkshire	STealth BBS	0532-360887	8pm-6am	v32/HST	Donald Harding
Lowestoft, Suffolk	Disabled Data Link	0502-518274	24 hrs	2400	Cliff Jones
Lowestoft, Suffolk	Disabled Data Link	0502-588505	24 hrs	HST	Cliff Jones
Middlesbrough, Cleveland	Cliffnet BBS	0642-467324	12 pm-10am	v32/HST	Clifford Cook
Nantwich, Chesire	Money Maker	0270-71402	24 hrs	2400	Chris Conwell
Newcastle	Sounds Digital	091-284-6019	6pm-8am	v32/HST	Wally Beben
Norwich, Norfolk	Track 83	0953-851351	24 hrs	v32bis/HST	James Partner
Oxford	DacWorld IES	0867-577724	24 hrs	v32/HST	Tom Crossland
Penarth, Wales	Black Cat BBS	0222-707359	24 hrs	v32bis/HST	Mark Butler
Plumstead, London	Fortress BBS	081-317-3158	24 hrs	v32bis/HST	Kevin Osborne
Plumstead, London	MicroMola	081-316-7402	24 hrs	v32bis/HST	Roy Florentine
Rainham, Kent	Wombats Burrow II	0634-377303	24 hrs	v32	Dave Burns
Rochester, Kent	The Hotel BBS	0634-831389	24 hrs	v32bis/HST	Kit Watson
Royston, Herts	FFABBS	0763 261624	24 hrs	2400	Tony Rolt
Solihull, West Midlands	Quantum	021-707-0681	24 hrs	v32bis/HST	Paul Brownlow
Stockon-on-Tees	Mininet-3 BB	0642-672813	24 hrs	v32/HST	Mini Mansell
Stockport, Chesire	STun	061-429-9803	24 hrs	v32/HST	Daron Brewood
Wooton Bassett, Wiltshire	My Little Phoney	0793-849044	24 hrs	v32bis/HST	Steven Green
York	System X	0904-612934	24 hrs	v32bis/HST	Paul Bulmer



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***IT'S TOO GOOD TO MISS!!***

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# ASK THE EXPERTS

## OLD SOFTWARE NEVER DIES



HELP! I am an STE owner with a bit of a problem. No, it's not compatibility. No, it's not my disk drive breaking down, nor is it the blitter chip blowing its brains out! It's a simple problem of where I can get hold of some software from the dim and distant past.

1) **10th Frame** by Accolade - the one and only Bowling Simulator. It has to be cheaper than the real thing!

2) **Arena** by Psygnosis - although slow, the graphics were nice.

3) **Brataccus**, also by Psygnosis - I never did understand the game, but enjoyed it anyway. I know you're all laughing and falling off your chairs, but after selling the ST since it came out, in a shop in Luton, I became addicted to these old timers and would like to play them again. Provided, of course that they'll work with my STE!

Congratulations, by the way on your excellent magazine. The cover disks on the July issue were brilliant, especially **Asteroids**. I even wrote to David Cowan to congratulate him on it. Looking forward to your August issue. Keep up the good work.

**Robin Bithrey, Dunstable, Beds**

*I'm afraid that the games you mention are all a distant memory, Robin. I agree that there are few to compete with the likes of 10th Frame, one of my personal favourites from those days, but unfortunately, that's all they are - fond memories. Perhaps some kind reader out there has a copy of one or all of these that they'd be willing to swap or sell to you. Drop us a line if you can help.*

## BUGS A KNIGHTMARE?



In reference to the letter concerning the game **Knightmare**, I also had problems with this game.

The bug was fixed and now works fine, however perhaps there could be some early versions still on the shelves that are still bugged. I would suggest that Mr. Kerr checks the number on the options screen after booting. If the number is not V1.5, then contact Mindscape for a replacement. I have always found Mindscape very helpful in the past.

Has anyone had any problems

with **Elvira II** by Accolade? There appears to be at least two bugs in this which makes it almost impossible to play. The worst is a constant bombing out when trying to explore the spider maze area, between two and nine bombs are not unusual. The game also has a habit of writing saved games to different FAT sectors on the save disk and refuses to restore them.

Having contacted Accolade UK, I am told that only the parent company can do anything about it and Accolade USA dispute that there is a bug. I feel very bitter that having paid good money, I can only play about a quarter of it. Maybe if some others are having trouble we can pressure Accolade into doing something. My software dealer won't change the game or give me a refund as the game is now two months old. Can I get any redress from Accolade?

**D. Clifford, Swindon, Wilts**

*We contacted Accolade and they admit that there is a problem with one of the disks (with the Spider Maze, in fact). At the time of writing they are waiting for the American developers to send over a replacement version of the disk - and this will be bug-free. All of the problem disks will be replaced free of charge for all existing owners of the game; however the FAT sectors Save problem is new to them so they will be getting in touch with you to get more complete details.*

*If anyone is experiencing similar difficulties with the game the feel free to contact on Accolade on 081 877 0880.*

## DRIVE UPGRADE DIFFICULTIES

I have a 1987 520STFM and have been intending to upgrade to a double-sided disk drive for some time. I tried a unit from Evesham Micros, but it was about half the size of the original drive and the leads wouldn't reach at all.

Can you suggest a more suitable alternative? Is there an official product?

**John Collins, Acocks Green, Birmingham**

I think we managed to answer this one in our extensive feature on drive upgrades in the last issue. If you missed it, try our subscriptions dept. Very often, if the lead has to be turned through 180 degrees, they can come up short. Any one

of the internal drives in the buyers guide should be suitable for you, the best overall in our tests of external drives (which basically use the same mechanism) was the Cumana, but Power do an internal replacement for £35.

## SLOW EMULATION?

I have AT Speed C16, the PC emulator. The problem is that I tested the speed of the CPU with various PC utilities, and here are the results:

**Norton CPU speed 3.6  
PC Tools relative speed 315%**

AT Speed C16 should have a clock speed of 16MHz and a Norton Factor of 8.2. My tests imply that my emulator is a 286 4.77MHz. Two true 286 machines were tested and here are those results:

**286/8MHz Norton 4.4, PC Tools 435%  
286/11MH Norton 6.3 PC Tools 540%**

Hence I believe that my AT Emulator is not working correctly. Is there any reason why it is going slower than these machines? Maybe I have incorrectly installed the board and it is only partly working?

I have tried calling the Silica and Compo helpline, but they could not help. Is there any advice you can give me to find out if the board is properly installed and what the true clock speed is?

**N. Gani, London, SE1**

*Norton Utilities is notorious for giving different results with different versions; part of the reason for this is that Norton have changed the principles they use for creating their benchmarks. With the relevant version, you will get a Norton factor of 8.2 and a clock speed of 16 MHz.*

*There are various inherent problems of using a PC emulator inside an ST. The first of these is that if a piece of PC software needs to talk directly to a piece of hardware specific to the PC, it can't actually do so; the DOS hardware is being emulated in software and so a software routine is performing the task. Non-standard DOS tasks will certainly cause problems which an emulator may not be able to handle.*

*The AT Speed C16 has a 32 MHz clock crystal from which*

*Any questions? Whatever you need to know about your ST or anything connected to it, we can answer. Our panel of experts are waiting to help you...*





the 16 MHz on-board clock is derived. When the board has to speak with the ST's memory, it can only do so at 8 MHz due to the clock speed of the ST.

Consequently, you don't get the expected performance jump when moving from an 8 MHz to a 16 MHz AT Speed.

Anyone using a PC emulator on the ST must ask themselves why they are so doing. If it's to run PC software eight hours a day, an emulator is not the answer; get a PC. If you want to learn about DOS, continue with DOS programs outside of work hours, and use the emulator for occasional work only, that's fine.

## SPECTRUM 512 ON THE STE

Please could you tell me if there is a utility that allows a user to edit Spectrum 512 .SPC/.SPU files in STE full colour, as the copy of the program I received with Rombos COMPLETE COLOUR SOLUTION Digitiser will not edit the pictures using the STEs extended palette. The version of Spectrum 512 I have is 1.01

I also have *Neochrome Master*, which can cope with the STE palette, but will not load files with the Spectrum file extensions.

Is there anything, in the Public Domain, preferably? I've been searching for months now without success.

**Carl Wilson, Liverpool, Merseyside**

You can achieve this through using two different conversion programs. The first is called *SpecGif4* and converts Spectrum .SPC and .SPU files to GIF, the Graphic Interchange Format, as 320 x 200 pixels with 256 colours. Follow this up with *ViewGif 1.2* which loads GIFs and then allows for them to be converted into various ST formats. The choice depends on which resolution you are working in; in low resolution, you can save a .NEO file which can then be loaded into *NeoChrome Master*. We tried the conversion here and it works fine.

Another option is to use *SPC2PI1* which converts Spectrum files to low resolution Degas images, which can then be imported directly into *NeoChrome Master*. We can't attest to this as neither piece of software was to hand.

*SpecGif4* and *ViewGif* can be obtained from the 16/32 PD library on 0634 710788. *SPC2PI1* is available from the ST Club on 0602 410241.

## HIGH DENSITY UPGRADE

I've read about the possibility of

upgrading to a 1.44 megabyte drive. Could you tell me how to go about it and what advantages it would give me, please? Are there any commercial programs using this format, or any plans to do so?

**Mike Baines, Stowmarket, Suffolk**

The advantage of a 1.44 meg drive is the extra storage space. A standard double density drive, formatted from the desktop, will give you 720k of storage, whereas a high density drive will effectively double this. There are no plans to change, although the new Falcon 030 machine is rumoured to have a high density drive as standard. It is unlikely that any software will be exclusively available, as this will exclude the majority of ST users. A high density drive is still capable of reading and writing to its lower density brothers. The Atari Workshop can supply you with a kit for the upgrade for £99.95 including the drive itself.

## COLD HARD HEADACHE

I have a 50 Meg Mega Drive and recently received a copy of COLD HARD CACHE from Public Dominator. The problem I have is that when configuring the cache, it has completely corrupted my hard drive. The only way out was to reformat and partition, as all this information was lost. Any ideas? I won't use the program for fear of it happening again. Fortunately I had a fairly recent backup, so not too much was lost.

**Terry Maton, Perivale,**

There are a lot of different third-party cacheing programs available for the ST. Anything that works so close to the operating system is prone to giving problems. Our advice is to stick with something like *CACHExxx.PRG*, which seems to work with most programs and drives.

## NEODESK LOADING PROBLEM

I wonder if you can help me with a small, but annoying problem? I have recently bought *Neodesk 3* and installed it on my hard drive in a folder. My ST is an early 520 STFM upgraded using the Frontier 2.5 meg upgrade, and when I attempt to load *Neodesk* automatically using *STARTGEM.PRG*, I get an

error message telling me that *NEODESK.EXE* must be in the same folder as *NEOLOAD.PRG*. The thing is that they're both in the same folder! I've tried modifying the .INF file and putting all the NEO files on to the root directory of drive C, but no joy, still the same error message. Is there any reason why this won't run? I like *Neodesk* and, having the extra memory available, would like to use it. It would be far more convenient if it would auto-load at bootup.

**Roy Stoker, Barnsley, Yorks**

I had this problem myself, Roy. The way I got round it was to put the *NEOLOAD.PRG* into the AUTO folder before *STARTGEM*. Then run it as normal, still calling for *NEOLOAD.PRG* in the *STARTGEM.INF* file. You should now be able to put all of the *NEODESK* files in their own folder and run them as normal. I use a PD bootup selector program (*Superboot*) with NEO as the default setup, and it now runs without any problems.

## MIDI IN, OUT OR THRU?

At last, an ST magazine which covers music thoroughly! I wonder if you could answer this question. I have a 1040 STFM and have just bought a Kawai K-1 keyboard, which has sounds on-board, and an old Roland MT-32. What I cannot do is figure out how to connect up the system. What it comes down to is; what's the difference between a MIDI Out and a MIDI Thru? Don't they do the same thing? In the meantime, keep up the good work!

**Steve Johnson, Derby**

There was a letter last month from a reader also having trouble with MIDI connections. It is certainly an area where problems occur and it is rather unfortunate that hassle here may put you off working with MIDI.

A MIDI In is like an ear; it "hears", or receives MIDI information. In a similar vein, you can envisage a MIDI Out as a mouth; it "speaks" or transmits MIDI information. The MIDI Thru? This is like the next door neighbour who hears everything, runs outdoors and tries to tell anyone who wants to listen! In other words, the MIDI Thru is a direct copy of the MIDI In. If you want to send MIDI information from your ST to two different synths, connect the MIDI Out (the "mouth") of the ST to the MIDI In (the "ear") of the first synth and the MIDI Thru from there to the MIDI In of the second synth. Have a look

at the first part of the MIDI System series on page 114. Thanks to Peter Buick for the humorous MIDI connection explanations.

## FORTY FOLDERS ONLY?

I am considering buying a hard disk drive for my 520 STFM, and I keep reading about the forty folder bug. Can you tell me what it is and how to fix it, please?

**R. Bartrip, Kirby Cross, Essex**

The problem with ST TOS is that there is a limit to the number of folders you can open. After 40, the system starts doing weird and wonderful things like incorrect displaying of directories in windows. Fortunately, it's an easy bug to fix. All that is needed is a small program called *FOLDERxxx.PRG*, where the xxx is the number of extra folders you can open over the original 40. This is placed in the auto folder of your boot disk (usually drive C for hard drives). The program allocates extra RAM from the computer to allow more folders to be opened. You can have up to 999 extra folders, but usually one or two hundred are sufficient.

## SHUT THAT WINDOW!

When I'm swapping programs around on the desktop, I keep getting a message saying "The GEM Desktop has no more windows. Please close a window that you are not using."

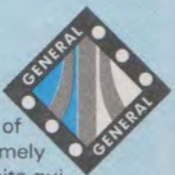
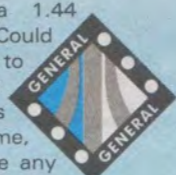
Why is this, and what can I do about it?

**Steve Wilson, Bath, Avon**

The GEM desktop will only allow you to open four windows at any one time. If you close windows when you are finished with them, you'll not have the problem. However, some alternative desktops will allow for more windows. *NEODESK* can have up to seven, although updates do get a little slower when they are all open. The Public Domain *GEMINI* will also support up to seven open windows.

## MOUSE TRAPPED!

My beloved mouse, Percy, is showing signs of being extremely unwell. He just sits quietly at the top of the screen and refuses to budge. Is there a vet that you can recommend to take him to?





## APPLE IMAGE WRITER II AND THE ST

Could you advise me please if there is a printer driver available to enable me to print documents using an Atari 1040 STFM with an attached Spectre GCR Mac Emulator and a Star LC-10 colour printer?

An alternative to this is to purchase a locally available, used Image Writer printer, which I understand would be suitable for the above purpose. However, the printer in question is an Image Writer II. Would this be suitable and if so, would I require a special lead to link this printer to the 25 pin printer socket on the ST.

**J. Garvey, Pewsey, Wiltshire**

I have an Atari 520 ST and an Apple Image Writer II which I'm having problems setting up to print. I have written to Apple who have kindly sent me switch settings and plug-to-plug wirings. Needless to say these have not worked.

**R. M., London, E3**

*Difficult to give a straight answer to this one. Apple's Image Writer II uses a custom Apple software routine called QuickDraw. It's a 9-pin dot matrix printer, but doesn't emulate any of the usual 9-pin standards such as Epson or IBM Proprinter.*

*With the Spectre GCR Mac emulator, there is some hope; page 135 of the older manual has a pin-out table for connections between the 8-pin mini DIN plug for the Mac and the 25-pin RS-232 (modem port) for*

Mac 8-pin DIN	1	2	3	4, 6, 8	5	7
ST serial	5	20	3	1, 7	2	none

*the ST which is as follows:*

*This is effectively a null modem lead; also required will be the relevant RTS/CTS auto program to correct the failings of this particular function on the ST. The program will depend on the version of TOS in the computer; Turbo CTS appears to be one of the most reliable across different TOS versions.*

*While this should work with the Mac emulation, the position for using an Image Writer II directly with an ST is less clear. Simply wiring up the lead as above and having the RTS/CTS patch loaded in will still not make the ST print out in QuickDraw routines; the best that is likely to happen is that pure text will be OK, but little else ... unless you feel like purchasing and using PageStream 2.1 which has an Image Writer II driver as standard. Apparently Soft Logik get around the problem by transmitting all print commands in QuickDraw format. The price of PageStream is £169; details from Silica on 081-309 1111.*

*As for the colour Star LC-10, at the time of printing we couldn't ascertain down whether it is supported or not. There are three programs for the ST specifically written to drive non-Mac printers with Mac emulators and while the LC-10 is supported by these, it is uncertain whether the colour version is. For more information, contact HCS on 081-777 0751.*

Or am I best to perform a mercy killing and go out and buy a nice young stud of a mouse? I notice that they are a lot cheaper now than when I first got my ST.

**Andy Greyling, Cannock, Staffs**

*The problem is not with Percy, but with his cage, I'm afraid. The symptoms you describe suggest that it is the mouse port that has died and not the mouse itself. You can, of course, test this by borrowing a mouse from a friend. If it still won't work, then ship your computer off to a good repair shop and have a new port fitted. To prevent the problem recurring, invest in a port extension from Atari Workshop. It will only cost £4.95, but will save a lot in the long run. This advice goes to all STFM/E owners too. The design of the ST was not the best when it comes to the mouse and joystick ports, but you'll find the extensions a lot easier to work with, especially if you swap joysticks and mice a lot to play games.*

## RODENTS RETURN!

My existing Atari mouse is showing signs of failing, so it's now become time to upgrade it. Can you tell me which mouse is the best one to get, and what DPI means? I've seen this quoted and

know that the higher the rating, the better, but no more than that. Love the first three issues, by the way, keep up the good work.

**Jeff Cunnington, East Ham, London**

*There are many different mice on the market and they all use the DPI method of describing their performance. DPI stands for Dots Per Inch, and if you measure the distance across your monitor screen, you'll see that the higher the number, the less you need to move the mouse to get it from one side to the other. Sometimes it is possible to have a mouse that's too sensi-*

*tive (Drawing graphics, for example), so it's best to get one that's going to suit you. I find that anything over about 250 DPI will give a good response without having to add a mouse accelerator program. If you use an accelerator as well, you can make it faster and slower as the need arises. There are other options too, like optical mice that have no ball, and even cordless ones. These have their uses and, although more expensive, are worth a look before you part with your cash. If you can, try and visit a local shop and try out as many different mice as you can before deciding.*

**If you have a question or problem with your ST or any of the hardware or software that you are using with it, then write it down and mail it off to our team of experts right now. We will answer all your questions eventually but our level of mail at the moment is huge, so please bear with us if we don't answer your question immediately.**

**Send your letter to Ask the Experts, ST Review, 30-32 Farringdon Lane, London EC1R 3AU.**

**To help make things easier for use, please remember to mark on the outside of your envelope the nature of your enquiry.**

## VIC LENNARD Music, MIDI and sound recording.

Our very own technical editor can actually handle most enquiries that you have but as President of the UK-MIDI Association, there's no-one more tuned into the ST music scene than him. A wiz with a mixing desk too, he can help with all your musical enquiries from playing music to recording.

## ANDREW WRIGHT Non-programming and all your more general problems.

Erstwhile Technical Editor of Atari ST User, Andrew was an obvious choice for our panel of experts. One of the best known all-round technical experts in the ST World (eh?) he can answer all the quirkiest questions that you have.

## JOHN MALLINSON Word Processors, DTP and Printers

If reincarnation is true, then John will no doubt return to this earth in the guise of a laser printer. If you have any problems with your Word Processing, DTP or printing, be it dot matrix, bubblejet, or better, then John will be the answer to your problem.

## GARTH SUMPTER Games and consumer watchdog...

Yes our very own editor will be looking at your consumer problems. Want to know where to get that game or program? Garth will know or can find out. As the consumer watchdog, he can also tell you where to get the product that you want or what to do if you're not satisfied once you've got it.

## TONY DILLON STOS /Graphics

The writer of the STOS tutorial, Tony has already imparted some little gems of information but is still on call to answer all your STOS programming questions and graphics questions.





# DIAL - A - TIP

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\* Fixed charge for repair does not include disk drive replacement & keyboard  
\* All prices subject to change without notice  
\* We reserve the right to refuse any ST repair





# LETTERS

## WHERE TO GET 'MIDI MAZE'

In June's ST Review, Tony Packrington asked about Midi-Maze. As far as I know, it is available as Midi-Maze II V1.5 as shareware from Floppyshop, disk GAM226.

Love the new mag by the way!  
Gareth Harrison, Tamworth, Staffs

*Well Tony, thanks to Gareth you can now get completely lost in the maze.*

## LYNX COVERAGE

I am pleased that you are covering the Lynx, since few magazines cater for it. This is a real shame, as the Lynx is an amazing piece of hardware. Are you going to cover the Lynx all the time and review add-ons and games?

This would be great as we Lynx owners sometimes don't know what the games are like.

Marc Gibb, Inverallochy, Aberdeenshire

*The Lynx is well catered for in other areas. However, we will be occasionally bringing you features on all aspects of the Atari range, from Lynx to TT, so watch these pages.. In the meantime, why not try the excellent GO magazine which is free with a copy of COMPUTER + VIDEO GAMES which concentrates wholly upon handheld games machines?*

## SOFTWARE BUGGING YOU?

Once upon a time, I used to be the proud owner of a Sinclair Spectrum 128k. Although you had to wait a lifetime for a program to load, at least they ran without any problems. I later upgraded to the Atari 1040STE as I required a computer which could handle WP and DTP. I was led to believe by the salesman that the ST had improved hardware and software capabilities and without a doubt, the ST is a far more powerful computer, operating at over double the speed and with eight times the memory capacity, but why has the software not improved by as much?

To give credit where it's due, there are some great programs for

the ST but some packages which certain magazines even praise do not offer value for money or fully complement the ST's vast and robust capabilities.

After lashing out £169 on Pagestream 2 by Soft Logic, the so labelled "highly acclaimed" DTP package, I found it to be ridden with problems. The package bombs out if you do the slightest thing wrong and sometimes even when you do something that is perfectly valid! Use more than a couple of fonts and the screen display becomes corrupted. Bleed some text or pictures to add a bit of flair to the layout (a documented feature) and it doesn't print at all, and whatever you do don't put the wrong fonts disk in by mistake or the program will never forgive you and just crash!

Surely when you pay hundreds of pounds for packages they should be fully tested before they are released and be made user-friendly so that even if the user does do something wrong, the program won't crash? And updated versions, which "remedy" the problem often have some added features, too, but which usually just introduce even more bugs. Surely it is illegal to advertise packages which don't work properly? Then, in the end, as we are witnessing now, the software companies tell us they are pulling out of making programs for the ST as it's not profitable!

It's not just serious software that's affected. It's games as well. Adventure games crash and report "Stack Full" when you wander off in certain directions. A part solution to both of my problems may be to upgrade my memory and get a hard drive, by why should I when packages are advertised to work on a standard 1040STE?

I realise that it is often impossible to uncover all the bugs in a program when magazines like your own have only a matter of days to write reviews for new products, but I suggest that after reviewing packages, Atari ST Review follows them up with it's own "Software Support Page" where users of programs can write in with some of the problems they've experienced

and some of the ways to avoid them. This way existing users can find comfort in that they are not the only ones having problems and hopefully can find some help, and those considering buying products can see which ones seem to give the most problems in specific areas. Only by finding out from people who regularly use a package can you give an accurate review of it. Finally, thanks for a great new magazine and please continue your great idea of comparison reviews.

Graham Stewart, Perth

*A certain amount of development work is needed on all packages and the more complex a program is, the more likely it is to have some bugs (however minor). With the ST the number of different machine configurations available for the ST, and with every user customising their own working environment, it would be impossible to produce totally bug-free software. Programmers are usually just as keen as you are that their package works well on all machines, but they are only human and mistakes do occur. I would suggest a thorough examination of what AUTO programs and accessories you're running whilst running Pagestream 2 to see if anything is clashing with it and causing the problems you mention. As to a Software Support page, that already exists in the form of our Ask The Experts pages. If we don't know an answer, we'll find it out on your behalf.*

## MORE ON MIDI MUSIC WANTED

If I may, I should like to make a small suggestion with regards to your music section.

Other ST magazines take it for granted that everyone knows everything there is to know about MIDI and music. A lot of people out here, however, are still confused as to how they should go about things.

If you would find a small space for a tutorial on beginners' MIDI systems, I'm sure this would be of

*Here's your chance to have your say, and all for the cost of a stamp! Tell us your thoughts and share them with the best informed ST owners anywhere – you the readers.*

*We want to hear what you've got to say so drop us a line and give us your very own Points of View.*



# LETTERS

great help to a lot of would-be enthusiasts.

Roye Albrighton, Staffordshire.

*I quite agree, Roye! Keep your eyes open for a complete glossary of terms used in the MIDI Monthly*

## SERIOUS APPLICATIONS WANTED

Having just read your magazine I would like to congratulate all concerned for producing an absolutely excellent magazine. In particular, the article on memory upgrades was the best I have ever seen in any magazine. I was very impressed with the quality of the photographs outlining every step clearly and precisely.

I have read both ST FORMAT and ST USER regularly for just over a year now, but I can say without hesitation that I will be replacing one of these (probably the latter) with your magazine.

The only things I could suggest to improve your already first class magazine would be the inclusion on your second disk cover of serious application packages, and perhaps a small ads section for readers.

Thank you very much for improving the ST magazine scene. Long may it last.

Mick Poulton, Strathclyde, Scotland.

*Judging from the mail, Mick, you seem to be joining a growing band of loyal supporters. We're pleased that we've managed to listen to what you want and give it to you. We are searching for good material all the time for your cover disks and utilities are high on our list of priorities, as well as serious applications. The problem is that applications are so wide spreading and reaching, it's difficult to find specific programs with "mass appeal", but we'll keep looking in order to offer you the best we possibly can.*

## MORE COMPETITIONS PLEASE

I would like to tell you your magazine is a good one for those who

have an Atari ST or STE computers. I wonder if in the next few issues ATARI ST Review cover disks could include Super League Soccer, Soccer Match, John Barnes European Football and educational disks like Lets Spell, Spell Bound and Learn to Read?

And what about a lot of competitions with prizes of football games, music disks and education disks?

R. Frost, Suffolk.

*Well, Mr. Frost, we don't need to look too far to see what you do on Saturday afternoons, do we? Well, we cater for everyone, so look out for our review of Man Utd in the VFM section and our great keyboard competition on page 118.*

## PAY LESS TO START?

Your new Atari magazine is welcome.

Firstly, it does not address itself to young illiterates; secondly, however, you need to differentiate your front cover from your competition. The first issue looked almost like another magazine to which I subscribe.

I am afraid fifty pounds is a bit rich for a 12 month's subscription - not that the magazine plus disk may not be worth it, but it is just too much for people to pay out for at once. How about a special offer of twenty pounds for six months? Once people find that they like it they will probably willingly pay fifty or even sell members of their family in order to raise the cash.

John Ritter, Bucks.

*Before you stick your grandmother into a copy of Exchange and Mart, the 12 month subscription is the only offer that we can offer along with the range of free gifts that we advertise for it. With a six month subscription, the costs of administering the issue remain about the same so a six month subscription could actually turn out to be even more expensive! We will look into it though, but for the meantime the yearly subscription is all we have to offer.*

## LET'S GET SERIOUS

I am an STE owner who predominantly uses it for playing games. I bought the machine however with the intention of learning to program and chose the STE rather than the Amiga because I was led to believe the Amiga was more of a games machine. While I still believe this is true, I find yet another magazine devoting most of its pages to game coverage and product reviews.

Why doesn't somebody produce a magazine which deals with aspects of computing that the other ST magazines don't cover?

The extensive review of Bubble Jet printers was timely for me because I am thinking of buying one, but I want a colour printer which it did not cover.

Even if the only thing of use to me was the STOS tutorial, scheduled to run for the next five months, I would have still bought the magazine; but having seen the lack of STOS tutorial published I seriously question the sense of spending £3.95 for 12 pages of information.

Please realise the gap in the market that needs filling is the programming slot, covering all forms of program and language application that the ST supports.

Let's have one magazine for the ST which gets away from the image which is associated more with the Amiga than the Atari.

Dave Clarey, Norfolk.

*We are trying to cater for the majority of readers in the hope of providing something for everyone. Most ST users do actually use their machines for games as well as for the serious uses, so it is necessary to include the reviews. However, it seems that the serious side of the ST is becoming more important to most readers, so you'll see that addressed in future issues.*

## IS THE STE OBSOLETE?

I am worried the STE is being killed off. I was recently burgled and my precious STE and all software taken. I have been replacing it a piece at a time, but have found shops that stocked STE products

as a norm a year ago now don't cater for the machine or carry very little stock, or only items ordered.

I have also been told that if I find a shop that has got ST books and particular STOS books then I should buy them now as many are out of print.

Is this an nationwide experience or just a North of Watford problem?

Some of the companies which have given me negative responses include Evesham Micros, Dillons, Virgin Megastores and Mr. Disk, all in Birmingham.

I hope the STE is not on its way out, and I look forward to your next issue.

T.R Hollywood, Birmingham

*The STE is far from obsolete. The answer to your worries though could be that with computers, technology moves on and that in the case with replacing most of your hardware, it could just be that those items are now discontinued in preference of more up-to-date technology. As to the books, you really need to go to a specialist publisher or visit one of the 16 bit shows where the ST is well represented. However, if you can't wait that long, why not try Foyles Bookshop on 071 437 5660.*

## CUT THE GAME PLAY

After the first couple of issues, I had to put pen to paper (oops, finger to keyboard) to say I welcome another ST magazine but I question whether you are positioning yourselves correctly. There has been a vacancy for another ST magazine for some time now, but the current magazines are succeeding with an 'appeal to all' strategy which makes me doubt the market can support another identical magazine.

One point that really sticks in my throat is the continued positioning of the ST as a "games machine", which negates the effort Atari UK put in to put the ST over as a serious computer. Magazine readers showed, in a recent survey, that they are less interested in games with only 17% interested in seeing



games-related subjects in magazines. Clearly your huge coverage of games, all 35 pages of it, is not wanted.

The arrival of a new ST magazine is a great opportunity to fill the void in the serious side of the ST - don't let us down.

A few points from the May issue. I would like to hear where you get these 80030 and 80040 processors as it seems odd since, as far as I am aware, Atari use a 68030 processor in the TT. Perhaps you had better get your facts right before you declare a 'World Exclusive' that has been 'exclusive' in no fewer than two other ST magazines. Going on to your review of bubble jet printers, as I am the proud owner of a Canon BJ10E, I know that the print quality is much better than printed in the magazine. The choice of paper is quite important for inkjet printers but it doesn't have to be expensive.

Philip Taunton, Bath.

*Well, let's try to address your points in order:*

\* 1 As to our games coverage, in this issue there are 28 pages of coverage total just over 20% of our total. I think that is an acceptable level of coverage, especially as I've yet to find anyone who hasn't ever played a game on the ST. Also, why if there is no little interest in games do many games (even costing up to £30), sell more units than comparable serious software?

\* 2 You are quite right about the misnamed chips. This was due to thinking about PC chips (80386 and 80486) whilst writing about ST chips. The article WAS however a world exclusive - I know, I was in Germany when the machine was first unveiled in Hanover and I was the ONLY representative of the British Press. Where the other 'exclusives' came from is anybody's guess.

\* 3 Unfortunately, once printed, the quality of the original print-

*out can become distorted slightly but all the shots are subject to the same process and the print outs are not meant to be used for direct comparison.*

### WITHER THE FALCON?

Over the past several months, I have read with some interest conflicting stories about the emergence of the Falcon computer. It seems to me that various magazines have all relayed differing accounts of what the hardware specifications are, when it will be released and what price it will be. I am led to believe by the variety of answers to these questions that every ST magazine each made up their own facts which they have unleashed with a certain tabloid-like zeal for inaccuracy and contempt for the facts.

Whilst I understand the need for everyone to be first with the news, there is an underlying lead for people to have the facts and not be confused by each magazine giving its own version of the truth. Robert Caulderwell, Great Chew, Glos.

*There certainly has been some conflicting stories about the Falcon but I feel that this is really down to the source of the information and how many times the information has been passed on (a little like a journalistic version of Chinese whispers). Bulletin boards are always rife with news which unless followed up properly, can almost guarantee some inaccuracy. However, whilst I can't comment on other reports of the Falcon, I can say that ST Review's coverage of the machine was from the horse's mouth and compiled after extensive interview's with Bill Rehbok, Atari US' Development manager and Dr. Hans Riedl the Head of Marketing for Atari Germany, at the show in Hanover.*

### DISK DOUBLING

First off I'd just like to say what an excellent read your magazine is. I'm no technical wizard with the ST, yet I have to say that even with

some of your more technical articles, they are readable and I can actually learn things about the ST that I never knew. In fact, after reading your article in issue one on upgrades, I actually sent off for the upgrade board for my STFM and fitted it (fairly) easily. But whilst the content of the magazine is excellent, I still feel that your cover disk is not yet up to scratch although issue three was far improved.

I have to admit that the cover disks do influence which magazine I buy so it's always a problem to choose between you and Format.

Is it not possible to put something onto the disk that is less to do with games and is more commercial. Something that has a more unique appeal than demo programs or spread sheets would be rather welcome.

Chris Johnston, Ironbridge Shropshire.

*Well first off, when talking about technical issues we do try to speak to the everyone - the technical whizz kids and people who whilst not technical, would like to know a little more about their machine without being bombarded by jargon. This is why one of our subbing stages involves passing someone who doesn't know the ST inside out. If they don't understand then the copy's written again. As to the coverdisks, we've taken note of your letter (along with the many hundred others that we've received and the result is on the front of this issue. Your continued comments to us in this area should result in ST Review getting it right with all subsequent issues - guaranteeing us continued success through giving you, the readers, what you want!*

### THE PRICE OF FREEDOM

I'm putting pen to paper to tell your readers something of a cautionary tale. Two years ago I bought a second-hand 520 STE for a price that I thought was a steal. You see, it was in the beginning but as I started to use the machine for something a little more complicated than just playing games, I became hungry for more memory.

I bought some second-hand chips and plugged them in to fill the last of the banks with 256K SIMMs chips. Recently, I decided that I needed more memory yet but because I filled the vacant slots with quarter Meg chips, I now find that I have to get rid of all of the original chips as they are completely useless once I upgrade. Is this a con or what?

Peter Tallington, Tunbridge, Kent.

*Well indeed you are quite correct and the 2 x 256K upgrade path to a 1 Meg machine does cause this apparent wastage but strangely enough, you should be able to get some cash back on the boards by advertising them but get a free advert somewhere because secondhand these boards are only worth about ten to fifteen pounds a pair these days.*

**IF YOU'VE GOT SOMETHING TO SAY AND WANT TO SHARE IT WITH ST OWNERS EVERYWHERE, THEN WHY NOT DROP US A LINE. THE SENDER OF THE BEST LETTER EACH MONTH WILL RECEIVE £50 WORTH OF SOFTWARE AS EITHER TECHNICAL PROGRAMS OR GAMES).**



# CHARTS

*We may give you the guidelines to make your choices about software, but what you actually go out and buy is what decides which programs are the best sellers. Here's what your pockets say. . .*

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2 Grand Prix	Microprose	£24.99
3 Addams Family	Ocean	£25.99
4 Graham Taylor Soccer Manager	Krisalis	£25.99
5 Fire & Ice	Mindscape	£25.99
6 Cartoon Collection	Codemasters	£19.99
7 John Barnes Football	Krisalis	£25.99
8 Lineker Collection	Kixx	£19.99
9 Jimmy White Snooker	Virgin	£29.99
10 Robocop 3	Ocean	£25.99
11 Space Crusade	Gremlin	£25.99
12 Dizzy's Exc. Adventure	Codemasters	£24.99
13 Pacific Islands	Empire	£29.99
14 WWF Wrestling	Ocean	£25.99
15 Robocod 2	Millenium	£25.99
16 Parasol Stars	Ocean	£25.99
17 Oh No More Lemmings	Psygnosis	£25.99
18 Populous 2 (1 meg)	Electronic Arts	£25.99
19 Harlequin	Gremlin	£25.99
20 Shadowlands	Domark	£19.49

## OTHER UTILITIES

PACKAGE	SUPPLIER	PRICE
1 K-Word 2	Kuma	£40.99
2 Stereo Master	Microdeal	£39.99
3 Deluxe Paint	Electronic Arts	£59.99
4 Music Master & Sound Card	Ubisoft	£40.99
5 Protex 4.3	Arnor	£49.99

## BUDGET GAMES

PACKAGE	SUPPLIER	PRICE
1 Magic Land Dizzy	Codemasters	£7.99
2 James Pond	GBH	£7.99
3 Battle Chess	Star Performers	£10.99
4 Emlyn Hughes Football	Touchdown	£9.99
5 Man United Football	GBH	£9.99
6 1st Division Manager	Codemasters	£7.99
7 Lotus	GBH	£9.99
8 Rainbow Island	Hit Squad	£7.99
9 Rick Dangerous	Kixx	£7.99
10 Microprose Soccer	Kixx	£7.99
11 Turrican	Kixx	£7.99
12 International Karate +	Hit Squad	£7.99
13 Team Suzuki	GBH	£7.99
14 Wacky Racers	Codemasters	£7.99
15 North & South	Action 16	£9.99
16 Bubble Bobble	Hit Squad	£7.99
17 Scooby Doo	Hi-Tec	£7.99
18 Chuck Yeager 2	Star Performer	£7.99
19 Italia '90	Tronix	£9.99
20 VIZ	Tronix	£9.99

## EDUCATION – TOP 5

PACKAGE	SUPPLIER	PRICE
1 Funschool 4 7-11 yrs	Europress	£24.99
2 Mavis Beacon Typing	Mindscape	£24.99
3 Funschool 4 5-7 yrs	Europress	£24.99
4 Shoe People	Gremlin	£24.99
5 Funschool 4 5 yrs	Europress	£24.99

## LANGUAGES – TOP 5

PACKAGE	SUPPLIER	PRICE
1 STOS 3D	Europress	£34.99
2 STOS	Europress	£29.99
3 3D Construction Set	Domark	£39.99
4 STOS Compiler	Europress	£20.99
5 Hisoft C	Hisoft	£59.95

*National charts supplied by Microbyte.*



# LEARN THE LINGO



*Sometimes it's easy to assume that everyone knows all of the terms used when talking about the ST, but this is rarely the case. So, if you're still struggling, here are a few explained. . .*

## ACCESSORY

A program loaded into the ST on power-up, which can then be used whenever needed from the menu bar at the top of the main screen. Normally used when it is important to be able to perform functions from within other programs like looking at a clock or calendar, making notes on a notepad or formatting a disk.

## BASIC

The Beginners All-purpose Symbolic Instruction Code is the most common computer language. Available in various versions, it lets you instruct the computer to do a series of tasks so creating a program.

## CARTRIDGE PORT

The ST has a port capable of housing a cartridge, which is used for devices such as music samplers, clock cards and "dongles", keys used for program protection purposes.

## DONGLE

A dongle is a 'key' used for software protection. This system allows you to back up the original disk for safety purposes, but only run the program when the dongle is present.

## ERROR MESSAGES

A common occurrence on the ST. Not very well documented, error messages occur when something is wrong. It may not be a complete disaster; for example, an "out of memory" message may be cured by removing some accessories at boot-up.

## FUNCTION KEYS

A series of keys along the top of the ST which can be programmed to provide necessary functions in particular programs.

## GEM

Stands for "GRAPHICS ENVIRONMENT MANAGER". The standard ST desktop, which uses a 'WIMP' (WINDOWS, ICONS, MOUSE, POINTER) method to make the ST user friendly!

## HARD DISK

An alternative medium to floppy disks for storing programs and files. It has a larger capacity, and is faster than, the floppy drive built into your ST, but less portable and more expensive.

## ICONS

The little pictures that depict programs and files. The disk drives and trashcan on the desktop are examples of icons.

## JOYSTICK

A device for controlling movement on the screen, usually used for games playing.

## K

Abbreviation for Kilo; used in computing to multiply a measure by 1024. For example, 1 Kilobyte is 1024 bytes.

## LASER PRINTER

Fast, high quality printer which gives very good printing results. Uses laser technology.

## MODEM

Abbreviation of MOdulator

DEModulator, a modem converts the digital signals of a computer into analogue signals which can be transferred down a telephone line.

## NETWORKING

Connecting your ST to a friend's using a lead is a simple form of Networking. Using one machine to control or serve others.

## OUTPUT

A term used to describe information sent to a printer or other device. For example, "The OUTPUT is sent to the printer".

## PAUSE

Used in games to give you a breather during manic action, or allowing you to answer the phone without losing the game!

## QUIT

The command used by most programs to exit.

## ROM & RAM

ROM is Read Only Memory and cannot easily be erased. Used for the operating system and in cartridges where speed of access is important.

RAM is Random Access Memory and is where the computer temporarily stores information. This is wiped clean when the computer is switched off.

## SAVE GAME

This option allows you to restart a game where you left off. Prevents the tedious job of running through from the beginning.

## TRACKBALL

An alternative to the mouse. See our review on page 115.

## USER

That's you!

## VERSION

Programs are updated and improved all of the time. Look for the latest version number.

## WORD PROCESSING

The equivalent of a typewriter on the ST. Allows you to lay out your letters and make necessary edits before printing.

## X-CONTROL

Atari's new configurable Control Panel. Allows you to edit the environment for comfort in terms of colour, mouse response, keyclicks, bell and other options. This panel is able to configure other programs using files called CPXs.

## Y/ZMODEM

Protocols used to transfer files down a telephone line via a modem.

# RAMDISK

On our cover disks, you'll have noticed that we use a ramdisk. This is to make your life a bit easier when you are de-compacting programs. The reason why we use this method is so that we can make the disks even better value by putting more programs on them.

A Ramdisk works by giving an area of RAM the characteristics of a disk drive. The one on our disk gives you a 350 Kilobyte ramdisk and calls it drive P. You can use it as a normal disk drive, but you won't have much memory left to run any programs in its current form (about 15k left on a 520 ST). The important thing to remember is that anything in the ramdisk will be lost when the power is turned off, so you must copy what you need onto another disk BEFORE YOU SWITCH OFF!

When you boot up our cover disks, they will automatically set up the ramdisk. To stop this happening, simply delete the AUTO folder on the disk, and it will run as normal.



# OPINION

*Wherever there is controversy, there will always be opinions. And this is the place to air them. One point of view against another. Then we can let the readers decide. . .*

IF YOU HAVE AN OPINION THAT YOU WANT AIRED, THEN DROP US A LINE AT: OPINION, ST REVIEW, PRIORY COURT, 30-32 FARRINGDON LANE, LONDON EC1R 3AU



*Amanda Lipman has been using the ST for two years, working from home as a self-employed publisher using word processors and DTP. She has learnt about the ST whilst 'on the job' and from humble beginnings now runs a successful small business.*

## A LOAD OF OLD T.O.S

*The constant upgrading of the ST operating system (TOS) is an indication of the machine's bug-ridden past.*

I originally bought my ST back in 1979 to use as a word processor and for games for my youngster. As time went on, my fledgling business grew and I was forced to upgrade the whole system. Unfortunately, the amount of time, effort and money that I was forced to spend in sorting out compatibility problems increased at an alarming rate. I first encountered problems when I had to run newer, more sophisticated programs and so I started to upgrade the machine's software - unfortunately, the shop that I bought the machine from (a high street multiple) was completely useless. They constantly sold me new packages to get around problems and so I ended up after six months on my third word processing package.

I need the machine to work and these problems have cost me time and money. The machine I originally bought is now hardly the same, having upgraded the keyboard (I'm a touch typist), brought the memory up to four Megs and swapped a printer for a laser after having finally upgraded to a DTP package. What I feel bitter about now that I have a reasonable knowledge of the machine, is why are there so many different TOS versions of the machine? Should it be fair that a company can bring out a product and then suddenly change the operating system so that newer programs have difficulty in running? And why is it that with each new addition that I make, I need yet another software patch in order to make it do the job effectively? It's probably all down to the shop that sold me the machine as I'm very happy with the system that I've ended up with, but it would have been nice to have had the correct system in the first place.



*Vic Lennard has been working with the ST for over five years as a freelance writer, a publisher and a musician. And as ST Review's Technical Editor, there are few aspects of the ST that take him unawares.*

## CHANGES, CHANGES. . .

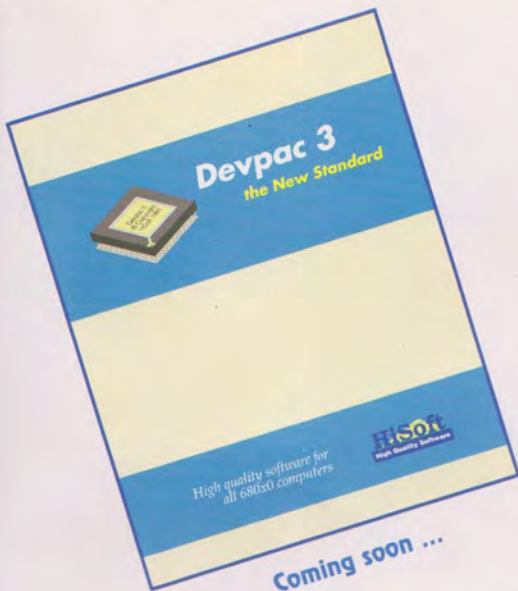
*All operating systems undergo change to constantly improve the features available to the user.*

The ST's operating system has been changed many times - at least six at last count. Why? Two reasons; to fix errors, or bugs, and to add new features. In TOS 1.0 and 1.02, the version used in most of the STF and STFM models, there were a whole host of bugs. These included the 40 folder problem, where if you opened more than 40 folders in the course of a session the ST crashed, and the media change defect where the ST crashed if two consecutive errors occurred when attempting to write to a disk. The advent of "Rainbow" TOS, or TOS 1.04, solved both of these and added various new features, including faster hard drive access, the ability to move files, and a better file selector. Atari always claimed that if developers followed their guidelines, programs would work perfectly well. Unfortunately, the guidelines were very wide at the outset and Atari's support for developers of ST software left a lot to be desired; the STE appeared before developers had the full information on the machine - so many serious programs and games failed to run. Thanks to Alistair Bodin at Atari (UK), support is now much better.

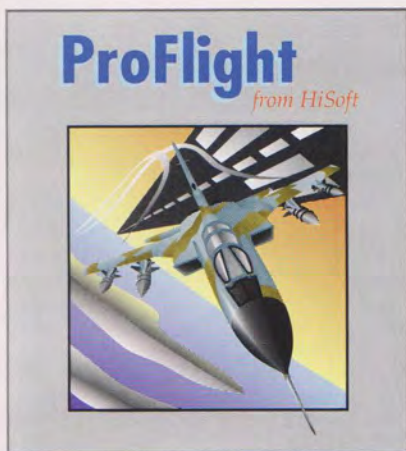
There are still problems: the STE TOS version was updated to 1.62 to fix various bugs and if you have been working with an ST for the past two years, you may have fallen foul of this changeover. The forthcoming Falcon 030 has been previewed to both programmers and journalists in the UK and compatibility problems have been checked very early in the development of the machine. There are bound to be teething problems, but let's hope that we never have to go down a similar path to the ST.



# Some reasons to be cheerful



Coming soon ...

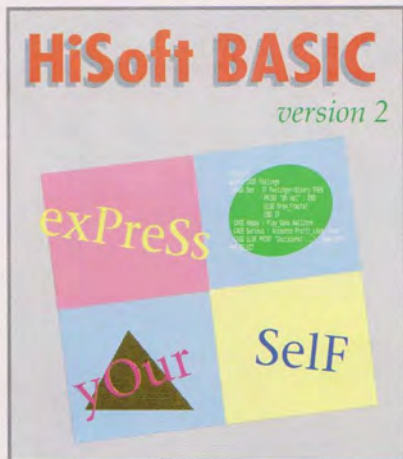


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The BASIC of the 90s

Stop Press ... Stop Press ...



Stop Press ... Stop Press ...

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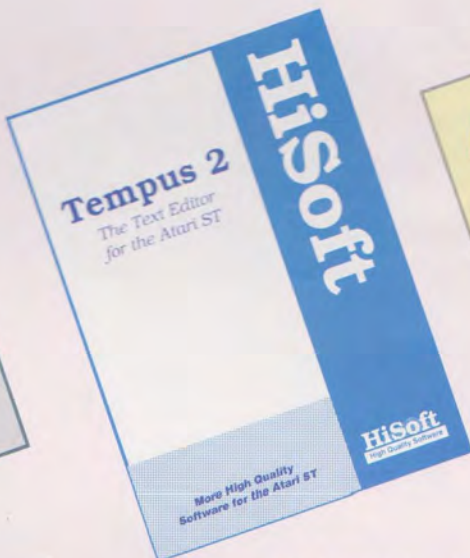
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HiSoft C Interpreter	£59.95	<input type="checkbox"/>	ProFlight Tornado sim	£14.95	<input type="checkbox"/>
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Kuma K-Spread 4	£99.95	<input type="checkbox"/>	Kuma K-Word 2	£34.95	<input type="checkbox"/>



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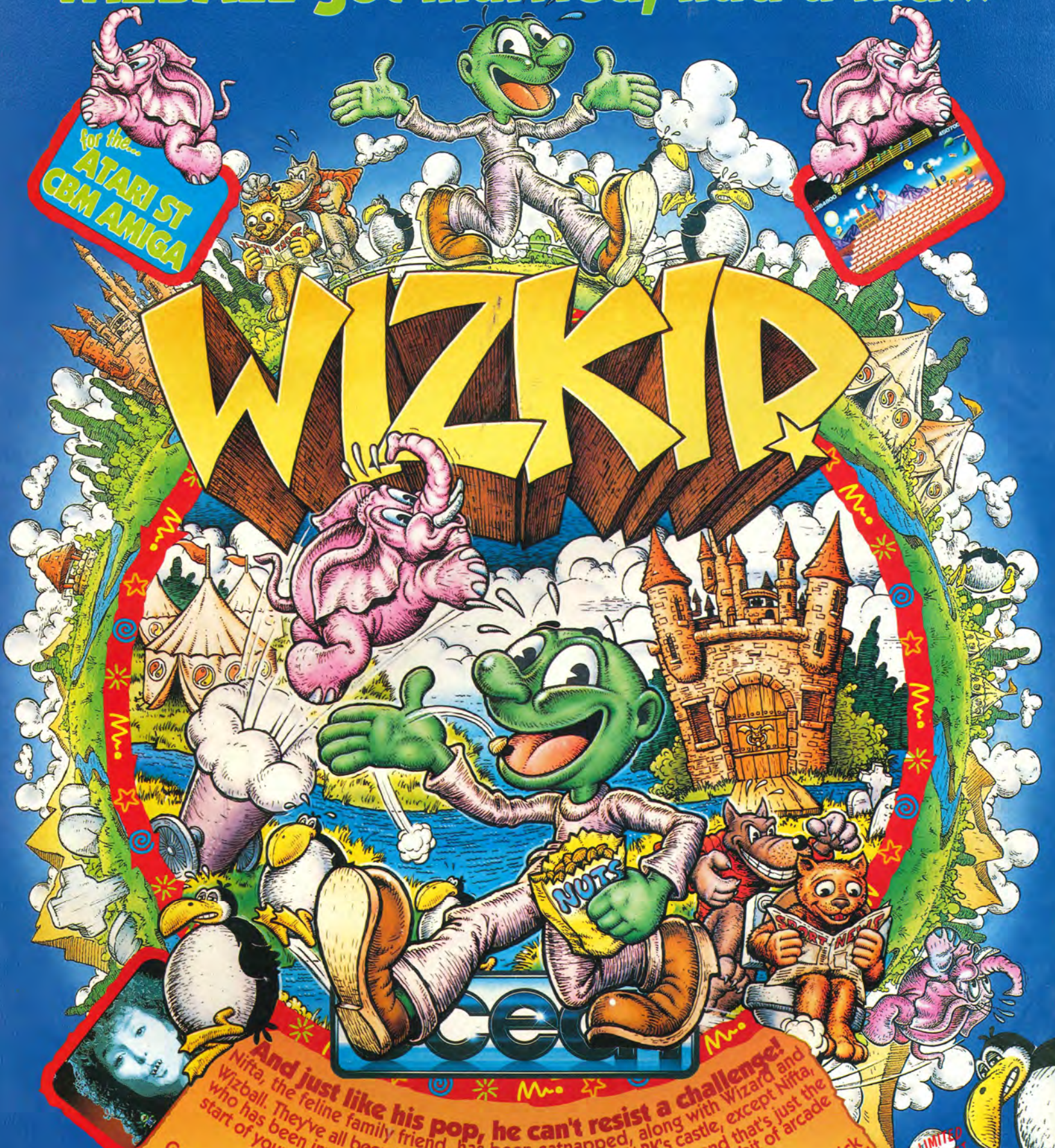
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CBM AMIGA**



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